Australian Code for the Transport of Dangerous Goods by Road & Rail

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Volume 1

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National Transport Commission

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COMPETENT AUTHORITIES FOR ROAD AND RAIL TRANSPORT

Contact the relevant Competent Authority in your state or territory for questions relating to:

- licensing
- classification
- day-to-day operational issues relating to the transport of hazardous substances and dangerous goods.

This list is correct as at 29 February 2020, the details may change over time. An up-to-date list can be found at: https://infrastructure.gov.au/transport/australia/dangerous/str_compauth.aspx

Jurisdiction	Telephone	Website / email
AUSTRALIAN CAPITAL TERRITORY Dangerous Substances Licensing Access Canberra GPO Box 158 CANBERRA CITY ACT 2601	13 22 81	www.accesscanberra.act.gov.au E: dangeroussubstances@act.gov.au
NEW SOUTH WALES		
Premises-based activities (including packaging approvals, labelling & classification) Hazardous Chemical Services SafeWork NSW Locked Bag 2906 LISAROW NSW 2252	131 050	www.safework.nsw.gov.au E: contact@safework.nsw.gov.au
Transport related matters Manager, Chemicals Regulation NSW Environment Protection Authority 59-61 Goulburn Street SYDNEY NSW 2000	02 9995 5555 131 555	www.epa.nsw.gov.au E: d.goods@epa.nsw.gov.au
NORTHERN TERRITORY NT WorkSafe GPO Box 1722 DARWIN NT 0801 Facsimile: 08 8999 5141	1800 019 115	E: ntworksafe@nt.gov.au

QUEENSLAND Director-General Department of Transport and Main Roads GPO Box 1549 BRISBANE QLD 4001		www.tmr.qld.gov.au
Road Transport: Industry and Operator Authorisation Facsimile: 07 3066 2453	07 3066 2995	E: dgu@tmr.qld.gov.au
Rail Transport: Rail Safety Regulation Facsimile: 07 3066 2917	07 3066 2916	E: railsafety@tmr.qld.gov.au
SOUTH AUSTRALIA Chief Officer Dangerous Substances Team Safework SA Attorney General Department GPO Box 465 ADELAIDE SA 5001 Facsimile: 08 8226 4999	1300 365 255 08 8226 4785	www.safework.sa.gov.au E: dangerous.substances@sa.gov.au
TASMANIA Manager, Dangerous Substances Unit Department of Justice WorkSafe Tasmania PO Box 56 ROSNY PARK TAS 7018 Facsimile: 03 6233 8338	1300 366 322 (local calls) 03 6166 4600 (outside Tasmania)	www.worksafe.tas.gov.au E: wstinfo@justice.tas.gov.au
VICTORIA The Manager, Dangerous Goods Worksafe Victoria 1 Malop Street GEELONG VIC 3220	03 9641 1551	www.worksafe.vic.gov.au E: info@worksafe.vic.gov.au
WESTERN AUSTRALIA Chief Dangerous Goods Officer Dangerous Goods and Petroleum Safety Branch Department of Mines, Industry Regulation and Safety 100 Plain Street EAST PERTH WA 6004 Facsimile: 08 9358 8000	08 9358 8001	www.dmp.wa.gov.au/ResourcesSafety E: dgsb@dmirs.wa.gov.au

INFORMATION ON COMPETENT AUTHORITY PANEL DECISIONS

The Competent Authorities Panel (CAP) is a body whose prime responsibility is to consider submissions requesting national exemptions, determinations and classifications that may operate at variance to ADG7.7.

CAP generally meets twice a year and considers submissions from industry and industry associations. Submissions to CAP for either an exemption, approval or administrative determination must first be considered by the Competent Authority in the relevant jurisdiction to ensure that the matter is of national effect and the submission is complete and in accordance with the Regulations.

The Secretariat for CAP is provided by the Department of Infrastructure and Regional Development (DIRD). When submitting an application to CAP through your Competent Authority it is essential that you use the pro-forma, see DIRD website below, and provide adequate supporting information for Panel members to consider. This may include diagrams, photographic material and other technical information. When applying for an Exemption the submission material must demonstrate 'equivalent safety'. If you are uncertain of what to provide to support your submission contact your Competent Authority to discuss the matter.

For further details:

https://infrastructure.gov.au/transport/australia/dangerous/competent_authorities.aspx

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INTRODUCTION

Acknowledgements

The National Transport Commission wishes to acknowledge the valuable contributions in producing this edition of the Australian Dangerous Goods Code.

Agencies that contributed to the development of this publication include:

- Australasian Fire and Emergency Service Authorities Council (AFAC)
- Australian Maritime Safety Authority (AMSA)
- Access Canberra, Australian Capital Territory
- Civil Aviation Safety Authority (CASA)
- Department of Infrastructure and Regional Development (DIRD)
- NSW Environment Protection Authority
- SafeWork New South Wales
- Northern Territory WorkSafe
- Department of Natural Resources, Mines and Energy, Queensland
- Department of Transport and Main Roads, Queensland
- Safework South Australia
- WorkSafe Tasmania
- WorkSafe Victoria
- Department of Mines, Industry Regulation and Safety, Western Australia.

The NTC would like to thank the many industries; individual businesses, both small and large; industry groups; professional groups and individuals who contributed to this publication by public, private, written and verbal submissions, and all of those who provided comments on draft publications to the commission.

The NTC also acknowledges the permission given by the United Nations for use of material from the *Recommendations on the Transport of Dangerous Goods Model Regulations*, Twenty first revised edition, United Nations, 2019.

ABOUT THE AUSTRALIAN CODE FOR THE TRANSPORT OF DANGEROUS GOODS BY ROAD & RAIL

Foreward

Every Australian has a responsibility to do what they can to keep our roads and other transport networks safe. This principle is especially important for those who are part of the supply chain that transports dangerous goods. This Australian Code for the Transport of Dangerous Goods by Road & Rail, commonly known as the Australian Dangerous Goods Code (edition 7.7, 2020) sets out the requirements for transporting dangerous goods by road and rail.

The Code can be used from 1 October 2020 and is compulsory from 1 October 2021. Until then, either the Code edition 7.6 or the Code edition 7.7 can be used.

The Code is an important technical resource to help Australia's transport and logistics industry to operate safely when carrying dangerous goods. It is important that all members of the supply chain understand and work to the requirements of the Code, including the consignor, packer, truck driver and dangerous goods transport companies, along with dangerous goods professionals and trainers.

The Code is aligned to the United Nations recommendations on the Transport of Dangerous Goods Model Regulations (21st revised edition) and also includes specific provisions that better reflect current Australian practices and conditions.

CONTENTS OF THE CODE

The Code applies to the dangerous goods classified as:

- gases, Class 2
- flammable liquids, Class 3
- flammable solids, self-reactive and desensitized explosives, Division 4.1
- substances liable to spontaneous combust, Division 4.2
- substances dangerous if wet, Division 4.3
- oxidizing substances, Division 5.1
- organic peroxides, Division 5.2
- toxic substances, Division 6.1
- infectious substances, Division 6.2(*)
- corrosive substances, Class 8
- miscellaneous dangerous substances and articles and environmentally hazardous substances, Class 9.

(*) Refer to the relevant Competent Authority to determine the appropriate regulator for this substance.

The Code details the requirements for:

- classification of substances
- packaging and performance testing
- use of bulk containers, IBCs, freight containers and unit loads
- marking and placarding
- vehicle requirements
- segregation and stowage
- transfer of bulk dangerous goods
- documentation
- safety equipment
- procedures during transport emergencies.

USING THE CODE

The Code details the technical requirements to transport dangerous goods.

The Code should be read in conjunction with the specific dangerous goods transport legislation that have been enacted in the relevant state or territory. The details of the legislation in each jurisdiction can be found on the Commonwealth Department of Infrastructure and Regional Development website at: https://infrastructure.gov.au/transport/australia/dangerous/transport_dangerous_goods.aspx.

The jurisdictional legislation is based on the Model Act on the Transport of Dangerous Goods by Road and Rail and the Model Subordinate Instrument on the Transport of Dangerous Goods by Road and Rail.

The legislation sets out specific legal requirements for transporting dangerous goods by both road and rail. The legislation identifies the responsible industry employees in the transport of dangerous goods and imposes obligations and penalties (for failure of duty) on each of those in the land transport chain to ensure that dangerous goods are transported safely. The basis of the duties and responsibilities outlined in the model subordinate instrument are the technical requirements set out in this Code.

The Code and associated legislation does NOT cover:

<table>
<tr><td>Transport of explosives (Class 1)</td><td rowspan="2">Unless transported with other dangerous goods</td></tr>
<tr><td>Transport of radioactive materials (Class 7)</td></tr>
<tr><td colspan="2">Security provisions associated with Security Sensitive Ammonium Nitrate (SSAN)</td></tr>
<tr><td colspan="2">Usage, storage or security of dangerous goods,</td></tr>
<tr><td colspan="2">Transport of waste or environmentally hazardous products, unless they are a dangerous good</td></tr>
</table>

Please contact the jurisdictional Competent Authority or relevant jurisdictional authority in relation to these substances.

The Australian Dangerous Goods Code is a technical resource for Australia setting out requirements and guidelines for the transport of dangerous goods. The Code only sets out requirements and guidelines relating to the transport of explosives and radioactive materials where these goods are transported together with other dangerous goods, or where the dangerous goods have a subsidiary hazard of another class. For completeness and international uniformity, the Code includes the full Dangerous Goods List and the classification criteria for all classes and divisions of dangerous goods.

The Code is a resource on dangerous goods that is used as a reference point for all aspects of dangerous goods. However, the primary focus is on the safe transportation of these goods by road and rail. It does not contain any provisions relating to usage, storage or security of these goods. The Code may act as a starting point or as a source of information requiring further development in these areas or other legislation may be required to be reviewed for compliance with these issues.

Provisions of this Code dealing with **Class 1 (Explosives), Class 7 (Radioactive substances or articles), Division 6.2 infectious substances and waste products** should be read subject to Division 1.1 (Introduction and Application) of the Model Subordinate Instrument on the Transport of Dangerous Goods by Road or Rail and the following:

- Requirements in this Code relating to the transport of **explosives** are subject to the requirements of the laws of a state, territory or the Commonwealth relating to the transport of explosives. Rules for the transport of explosives are in the Australian Explosives Code, (http://www.safeworkaustralia.gov.au/sites/swa/about/publications/Documents/255/A)
- Any provision in this Code for **Class 1** goods is advisory and for information purposes only, unless it is referenced by other legislation. These requirements should also be read in conjunction with the legislation applicable in each jurisdiction and to Security Sensitive Ammonium Nitrate (SSAN) legislation.
- Requirements relating to the transport of **radioactive substances** are subject to state or territory acts and regulations and are based on the following Commonwealth publications:
    - RPS 2: Code of Practice for the Safe Transport of Radioactive Material (2008) http://www.arpansa.gov.au/Publications/codes/rps2.cfm

    - RPS 2.1: Safety Guide for the Safe Transport of Radioactive Material (2008) http://www.arpansa.gov.au/Publications/codes/rps2_1.cfm
    - RPS 2.2: Safety Guide for the Approval Processes for the Safe Transport of Radioactive Materials (2012) http://www.arpansa.gov.au/Publications/codes/rps2_2.cfm
- Any provision in this Code for **Class 7** is advisory and for information purposes only, unless it is referenced by other legislation.
- In addition, the requirements relating to **Division 6.2** for the transport of infectious substances may be subject to the requirements of state, territory or Commonwealth law relating to the transport of infectious substances.
- The requirements of this code do not apply to **waste products and other environmentally hazardous substances** unless those products or substances are also dangerous goods as specified in the code. Enquiries regarding the transport of waste and other environmentally hazardous substances should be directed to the relevant state or territory authority responsible for administering environment protection legislation.

PART 1: GENERAL PROVISIONS, DEFINITIONS AND INTERPRETATION

CHAPTER 1.1 - GENERAL PROVISIONS

Introductory Notes

NOTE 1: *Recommendations on Tests and Criteria, which are incorporated by reference into certain provisions of UN21 and this Code are published by the United Nations as a separate Manual "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" (ST/SG/AC.10/11/Rev.7), the contents of which are:*

Part I: *Classification procedures, test methods and criteria relating to explosives.*

Part II: *Classification procedures, test methods and criteria relating to self-reactive substances, organic peroxides and polymerizing substances.*

Part III: *Classification procedures, test methods and criteria relating to various hazard classes.*

Part IV: *Test methods concerning transport equipment.*

Part V: *Classification procedures, test methods and criteria relating to sectors other than transport.*

Appendices: *Information common to a number of different types of tests and national contacts for test details.*

NOTE 2: *Part III of the Manual of Tests and Criteria contains some classification procedures, test methods and criteria which are also given in this Code.*

1.1.1 SCOPE AND APPLICATION

1.1.1.1 This Code provides detailed technical specifications, requirements and recommendations applicable to the transport of dangerous goods in Australia by road and rail. Subject matter includes rules and recommendations covering:

(a) the definition, classification, packaging, marking and labelling of substances and articles that meet the United Nations classification criteria for dangerous goods or are prescribed as dangerous goods by the competent authority; and

(b) the consigning of dangerous goods for transport, including loading, stowage, load retention and segregation; and

(c) the provision of transport documentation describing the dangerous goods being transported, and appropriate emergency information for those goods; and

(d) the unloading, receipt and transfer of dangerous goods; and

(e) the transport of dangerous goods; including the use of vehicles, containers and equipment, and the provision of safety equipment.

This Code, in Part 3, Table 3.2.3, incorporates a comprehensive listing of all dangerous goods by UN number and in Section 3.2.4.2 by alphabetic listing of the proper shipping name.

NOTE: *While this Code includes technical instructions intended to provide for safe transport by road and rail of dangerous goods in all conditions, its provisions are only legally enforceable where they are adopted, applied or incorporated by legislation applicable in the jurisdiction. For road and rail transport throughout Australia, it is expected that each jurisdiction will prepare and implement regulations that adopt or incorporate the provisions of the Model subordinate instrument. The details of the legislation in each jurisdiction can be found on the Commonwealth Department of Infrastructure and Regional Development website at: https://infrastructure.gov.au/transport/australia/dangerous/transport_dangerous_goods.aspx*

1.1.1.2 Exceptions to application:

This Code does not apply to goods that would otherwise be dangerous goods where there is a statement that a particular substance, article or type of goods is 'not subject to this Code' in:

(a) Part 2; or

(b) a special provision in Chapter 3.3 that is referenced to the goods from Column (6) of the Dangerous Goods List in Section 3.2.3;

– subject, in each instance, to any and all conditions included with that statement being met.

NOTE: *The application clauses of the Model subordinate instrument contain a number of exemptions from its application, in the following areas:*

(1) Regulation 1.1.5 conditionally exempts the non-commercial transport of up to 25 % of a placard load of certain dangerous goods from the application of the Model subordinate instrument and therefore from the mandatory application of this Code;

(2) Under Regulation 1.1.6(1), the transport of dangerous goods of Classes 1 and 7 is outside the scope of the Model subordinate instrument, being subject to other legislation. However, in the interests of safety, and where consistent with that legislation:

(a) the segregation provisions of Part 9 of this Code should be applied to those classes when they are transported with other dangerous goods; and

(b) when transporting goods of those classes that have a subsidiary hazard, the provisions of this Code should be additionally applied;

(3) Regulation 1.1.6(2) provides further exemptions for:

(a) very small consignments, where the aggregate quantity of dangerous goods is not more than the following limits:

<table>
<tr><th colspan="14">Table 1.1.1.2: Quantity Limits for exempted small consignments</th></tr>
<tr><th rowspan="2">Packing Group</th><th colspan="13">Class or Division</th></tr>
<tr><th>2.1</th><th>2.2</th><th>2.3</th><th>3</th><th>4.1</th><th>4.2</th><th>4.3</th><th>5.1</th><th>5.2</th><th>6.1</th><th>6.2</th><th>8</th><th>9</th></tr>
<tr><td>I</td><td rowspan="3">50 ml</td><td rowspan="3">100 ml</td><td rowspan="3">50 ml</td><td>20 ml</td><td>20 g</td><td>20 g</td><td>20 g</td><td>20 g(ml)</td><td rowspan="3">150 g(ml)</td><td>20 g(ml)</td><td rowspan="3"></td><td>20 g (ml)</td><td>—</td></tr>
<tr><td>II</td><td>150 ml</td><td rowspan="2">2 kg</td><td rowspan="2">500 g</td><td rowspan="2">150 g</td><td rowspan="2">1 kg(L)</td><td rowspan="2">500 g(ml)</td><td rowspan="2">500 g (ml)</td><td rowspan="2">2kg(L)</td></tr>
<tr><td>III</td><td>300 ml[a]</td></tr>
<tr><td colspan="14">Table notes: a 2 L if the Class 3, packing group III substance is Manufactured Product</td></tr>
</table>

(b) dangerous goods in vehicle fuel tanks;

(c) dangerous goods in appliances and plant that form part of a vehicle and are necessary for its operation; and

(d) portable fire fighting and safety equipment that are part of the vehicle's safety equipment;

(4) Regulation 1.1.6(3) provides an exemption from the application of the Model subordinate Instrument and therefore from the mandatory application of this Code, for the transport of dangerous goods by a mobile processing unit for the purpose of manufacturing explosives. This exemption does not extend to any trailer being towed by a mobile processing unit.

(5) Regulation 1.1.7 provides concessions for certain small quantities of dangerous goods when used as tools of trade[1]. Detailed conditions apply.

In each instance, refer to the Model subordinate instrument for details.

1.1.1.3 Assignment of duties

Throughout this Code, particular actions are prescribed, but the responsibilities for carrying out these actions are not specifically assigned to any particular person. These responsibilities are assigned by the Regulations.

1.1.1.4 <Reserved>

1.1.1.5 <Reserved>

1.1.1.6 Consignment by post

Dangerous Goods must not be consigned by mail except as agreed by the postal authority.

1.1.1.7 Commencement of changes made by Amendment Package No. 6

The amendments made to this Code by the Amendment Package No. 6 approved by the Transport and Infrastructure Council 5 June 2020 take effect on 1 October 2020.

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[1] *Tools of trade concessions may not have been adopted by some jurisdictions. Refer to the relevant state or territory legislation.*

However, a person does not commit an offence against, under, or in relation to this Code as amended by that Amendment Package if the person transports dangerous goods by road or rail before 1 October 2021 in accordance with this Code in the form it was in immediately before 1 October 2020.

1.1.1.8 Transport of dangerous goods used as a coolant or conditioner [1]

Dangerous goods, that are only asphyxiant (which dilute or replace the oxygen normally in the atmosphere), when used in cargo transport units for cooling or conditioning purposes are only subject to the provisions of section 5.5.3.

1.1.1.9 Lamps Containing Dangerous Goods

The following lamps are not subject to this Code provided that they do not contain radioactive material and do not contain mercury in quantities above those specified in special provision 366 of Chapter 3.3:

(a) Lamps that are collected directly from individuals and households when transported to a collection or recycling facility;

(b) Lamps each containing not more than 1 g of dangerous goods and packaged so that there is not more than 30 g of dangerous goods per package, provided that:

   (i) the lamps are certified to a manufacturer's quality management system;

   NOTE: *The application of ISO 9001:2008 may be considered acceptable for this purpose.*

   and

   (ii) each lamp is either individually packed in inner packagings, separated by dividers, or surrounded with cushioning material to protect the lamps and packed into strong outer packagings meeting the general provisions of 4.1.1.1 and capable of passing a 1.2 m drop test.

(c) Used, damaged or defective lamps each containing not more than 1 g of dangerous goods with not more than 30 g of dangerous goods per package when transported from a collection or recycling facility. The lamps shall be packed in strong outer packagings sufficient for preventing release of the contents under normal conditions of transport meeting the general provisions of 4.1.1.1 and that are capable of passing a drop test of not less than 1.2 m.

(d) Lamps containing only gases of Division 2.2 (according to 2.2.2.1) provided they are packaged so that the projectile effects of any rupture of the bulb will be contained within the package.

NOTE: Lamps containing radioactive material are addressed in Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) codes:

- RPS 2 Code of Practice for the Safe Transport of Radioactive Material

[1] *Allows the use of specific dangerous goods (UN 1845, UN 1951 or UN1977) to cool or preserve or 'condition' other dangerous goods or articles for transport. An asphyxiant label (Figure 5.5.2) section 5.5.3.4 is required to be attached to the package.*

- RPS No. 2.1 - Safety Guide for the Safe Transport of Radioactive Material (PDF 608KB)
- RPS No. 2.2 - Safety Guide for the Approval Processes for the Safe Transport of Radioactive Materials (2012) (PDF 605KB)

1.1.2 DANGEROUS GOODS FORBIDDEN FROM TRANSPORT

1.1.2.1 Dangerous goods forbidden from transport includes any substance or article that meets the definition of goods too dangerous to be transported in 1.2.1.2.6 of this Code. Appendix A lists a number of goods which are considered to be goods too dangerous to be transported.

CHAPTER 1.2 - INTERPRETATION, DEFINITIONS, UNITS OF MEASUREMENT AND REFERENCES

Introductory Note

NOTE: *Scope of definitions*

This Chapter provides definitions of general applicability that are used throughout this Code. Additional definitions of a highly specific nature (e.g., terms relating to construction of intermediate bulk containers or portable tanks) are presented in the relevant chapters.

1.2.0 INTERPRETATION

In this Code, unless the contrary intention appears, a word or expression which is defined in the Regulations, but is not defined in this Code, has the meaning attributed to it in the Regulations. However, a word or expression which is defined differently in section 1.2.1 of this Code to the definition of the same word or expression in the Regulations, has for the purposes of this Code the meaning attributed to it in this Code.

1.2.0.1 For the purpose of compliance with this code the words subsidiary risk has the same meaning as subsidiary hazard.

1.2.1 DEFINITIONS

NOTE: *A number of terms are defined within clauses of the Model subordinate instrument. To ensure uniformity, those that are used in this Code are reproduced in 1.2.1.2, with minimal changes necessary to suit their context in this Code. References to those definitions are included in 1.2.1.1.*

1.2.1.1 For the purposes of this Code:

Aerosols or aerosol dispensers means an article consisting of a non-refillable receptacles meeting the requirements of Section 6.2.4, made of metal, glass or plastics and containing a gas, compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state.

Aggregate quantity (see 1.2.1.2.1).

Alternative arrangement means an approval or exemption granted by the competent authority for a portable tank or MEGC that has been designed, constructed or tested to technical requirements or testing methods other than those specified in this Code (see, for instance, 6.7.5.11.1).

Animal material means animal carcasses, animal body parts, foodstuffs or feedstuffs derived from animals.

Article means a manufactured item, other than a fluid or particle, that:

(a) is formed into a particular shape or design during manufacture; and

(b) has hazard properties and a function that are wholly or partly dependent on the shape or design – and includes automotive and marine batteries and other large batteries such as those used in telecommunications facilities, small and other assorted batteries, aerosols, gas-filled lighters, seat belt pre-tensioners and refrigerating machines.

ASTM means the American Society for Testing and Materials (ASTM International, <www.astm.org> 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959, United States of America).

Bags are flexible packagings made of paper, plastics film, textiles, woven material or other suitable materials.

Boxes are packagings with complete rectangular or polygonal faces, made of metal, wood, plywood, reconstituted wood, fibreboard, plastics or other suitable material. Small holes for purposes such as ease of handling or opening, or to meet classification requirements, are permitted as long as they do not compromise the integrity of the packaging during transport.

Built-up area means an area that has one or more roads with street lighting or buildings at intervals of not more than 100 metres for a distance of at least 500 metres.

Bulk container (see 1.2.1.2.2).

Bundles of cylinders are assemblies of cylinders that are fastened together and which are interconnected by a manifold and transported as a unit. The total water capacity must not exceed 3000 litres except that bundles intended for the transport of gases of Division 2.3 must be limited to 1000 litres water capacity.

Bus means a motorised road vehicle:

(a) built mainly to carry passengers; and

(b) that seats more than 9 adults (including the driver).

CANUTEC means the Canadian Transport Emergency Centre operated by the Transportation of Dangerous Goods (TDG) Directorate of Transport Canada who publish a first responders Emergency Responders Guide

https://www.tc.gc.ca/eng/canutec/guide-menu-227.htm

Capacity means the total internal volume of the receptacle at a temperature of 15 degrees Celsius expressed in litres or cubic metres.

Cargo transport unit (see 1.2.1.2.3)

Category (see 1.2.1.2.17).

CGA means the Compressed Gas Association (CGA, <www.cganet.com> 14501 George Carter Way, Suite 103, Chantilly VA 20151, United States of America).

Class (see 1.2.1.2.17).

Closed cargo transport unit means a cargo transport unit which totally encloses the contents by permanent structures with complete and rigid surfaces. Cargo transport units with fabric sides or tops are not considered closed cargo transport units.

Closures are devices which close an opening in a receptacle.

Combination packagings are a combination of packagings for transport purposes, consisting of one or more inner packagings secured in an outer packaging in accordance with 4.1.1.5.

Combination road vehicle [1] means a group of road vehicles consisting of:

(a) a prime mover and 2 or more trailers; or

(b) a rigid vehicle and 1 or more trailers.

Combustible liquid means a combustible liquid within the meaning of AS 1940;

– A C1 combustible liquid is a combustible liquid that has a flash point of 93 °C or less.

Competent authority

(a) in relation to dangerous goods transported by road or rail in a State or Territory, means the Competent Authority appointed for the State or Territory under the Regulations or corresponding legislation; (see page iii) and

(b) in relation to international transport of dangerous goods or to imported dangerous goods, packagings, portable tanks or bulk containers, means, depending on the context:

(i) the Competent Authority for road or rail transport in accordance with (a) above; and

(ii) the Competent Authority appointed by the Commonwealth for sea or air transport; and

(iii) any body or authority designated or otherwise recognised as such by the government of the country of origin for any purpose in connection with the transport of dangerous goods.

Composite packagings are packagings consisting of an outer packaging and an inner receptacle so constructed that the inner

[1] *Examples of combination road vehicles include B-doubles, B-triples, road trains and rigid truck/'dog' or' pig' trailer combinations. Despite common usage, where used in this Code, a combination road vehicle does not include a semi-trailer comprising a prime mover and a single articulated trailer.*

receptacle and the outer packaging form an integral packaging. Once assembled it remains thereafter an integrated single unit; it is filled, stored, transported and emptied as such.

Consignee means any person, organisation or government which is entitled to take delivery of a consignment.

Consignment means any package or packages, or load of dangerous goods, presented by a consignor for transport.

Consignor (see 1.2.1.2.4).

Crates are outer packagings with incomplete surfaces.

Critical temperature is the temperature above which the substance cannot exist in the liquid state.

Cryogenic receptacles are transportable thermally insulated receptacles for refrigerated liquefied gases, of a water capacity of not more than 1000 litres.

Cylinders are transportable pressure receptacles of a water capacity not exceeding 150 litres.

Dangerous goods (see 1.2.1.2.5).

Dangerous Goods List (see Introduction to Chapter 3.2).

Dangerous situation means a situation that is causing or is likely to cause imminent risk of death or injury to a person, or harm to the environment or to property.

Demountable tank means a tank, other than a portable tank, that is designed to be carried on a vehicle but that does not form part of and is not permanently attached to the vehicle and is designed to be removable.

Design life, for composite cylinders and tubes, means the maximum life (in number of years) to which the cylinder or tube is designed and approved in accordance with the applicable standard.

Division (see 1.2.1.2.17).

Domestic consumable dangerous good means party poppers; sparklers and bon-bons (UN0337), domestic smoke detectors (UN 2911), lighters and lighter refills (UN1057) or portable fire extinguishers with compressed or liquefied gas up to 23kg gross weight) (UN 1044).

Drums are flat-ended or convex-ended cylindrical packagings made of metal, fibreboard, plastics, plywood or other suitable materials. This definition also includes packagings of other shapes e.g. round taper-necked packagings, or pail-shaped packagings. Wooden barrels or jerricans are not covered by this definition.

Elevated temperature substance means a substance which is transported or offered for transport:

– in the liquid state at a temperature at or above 100 °C; or

– in the liquid state with a flash point above 60 °C and which is intentionally heated to a temperature above its flash point; or

– in a solid state and at a temperature at or above 240 °C.

Emergency service means:

(a) an ambulance, fire, police or other emergency service; or

(b) a unit of the Defence Force corresponding to a service mentioned in paragraph (a).

ERG2016 means the first responders Emergency Response Guide of Canada https://www.tc.gc.ca/eng/canutec/menu.htm

Filling ratio is the ratio of the mass of gas to the mass of water at 15 °C that would fill completely a pressure receptacle fitted ready for use.

Fire-risk substance means any readily ignitable solid substance, including:

(a) waste paper; and

(b) hay; and

(c) sawdust; and

(d) wood chips.

Food includes:

(a) a substance prepared or intended for human or animal consumption; and

(b) a substance (except dangerous goods) intended to be an ingredient of food.

Food packaging means:

(a) a receptacle that contains or is designed or intended to contain food; or

(b) material designed or intended to be used in a receptacle that is designed or intended to contain food; or

(c) plastics wrapping intended for the packaging of food.

Free from dangerous goods means, in relation to a receptacle, that:

(a) the receptacle is:

(i) thoroughly cleaned so that there is no discernible trace of the dangerous goods; or

(ii) subjected to a process in which its contents are neutralised, cured or chemically deactivated; and

(b) the atmosphere within the receptacle is cleared:

(i) if the gas or vapour in the atmosphere is listed in "Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment", to ensure that the concentration is less than the TWA Exposure Standard listed for that gas or vapour; and

(ii) if the atmosphere includes dangerous goods of Division 2.1 or vapour from dangerous goods of Class 3 or Subsidiary Hazard 3, to ensure that the concentration of those gases and vapours is less than 5% of the lower explosive limit for the goods when sampled at ambient temperature.

Freight container means:

(a) for transport of dangerous goods wholly within Australia, a re-usable container of the kind mentioned in AS/NZS 3711 that is designed for repeated use for the transport of goods by one or more modes of transport; and

(b) for international transport of dangerous goods, an article of transport equipment that is of a permanent character and accordingly strong enough to be suitable for repeated use; specially designed to facilitate the transport of goods, by one or other modes of transport, without intermediate reloading: designed to be secured and/or readily handled, having fittings for these purposes, and approved in accordance with the International Convention for Safe Containers (CSC), 1972, as amended. The term “freight container” includes neither vehicle nor packaging. However, a freight container that is carried on a chassis is included.

A small freight container is that which has an internal volume of not more than 3 m^3. Any other freight container is considered to be a large freight container.

Fuel cell means an electrochemical device that converts the chemical energy of a fuel to electrical energy, heat and reaction products.

Fuel cell engine means a device used to power equipment and which consists of a fuel cell and its fuel supply, whether integrated with or separate from the fuel cell, and includes all appurtenances necessary to fulfil its function.

GHS means the current edition of the Globally Harmonized System of classification and labelling of chemicals, published by the United Nations, which can be found on

http://www.unece.org/trans/danger/publi/dg_publications.html

(Note that other regulations may use a different edition of the GHS)

Goods too dangerous to be transported (see 1.2.1.2.7).

Hazchem code in relation to dangerous goods in placardable units, tanks or bulk containers, means the Hazchem code prescribed for those goods in Appendix C.

Hose assembly means a hose or hoses connected together, for use in the transfer of dangerous goods to or from a tank on a vehicle, portable tank or storage receptacle and includes:

(a) if there are 2 or more hoses connected together - the couplings or connections between the hoses; and

(b) the coupling or attachment connecting the hose or hoses to the tank; and

(c) anything else (except the vehicle, portable tank or storage receptacle) attached to the hose or hoses.

IAEA means the International Atomic Energy Agency (IAEA, <www.iaea.org> P.O. Box 100 – A -1400 Vienna, Austria).

ICAO means the International Civil Aviation Organisation (ICAO, <www.icao.int/Pages/default.aspz> 999 University Street, Montreal, Quebec H3C 5H7, Canada).

IMO means the International Maritime Organisation (IMO, <www.imo.org/Pages/home.aspx> 4 Albert Embankment, London SE1 7SR, United Kingdom).

Incompatible (see 1.2.1.2.9).

Inspection body is an independent inspection and testing body approved by or acceptable to the competent authority responsible for pressure vessel legislation.

Intermediate Bulk Container (IBC) (see 1.2.1.2.8).

NOTE: *The primary definition of IBC is in 1.2.1.2.8 as it is a term defined in the text of the Model subordinate instrument. The UN20 definitions relating to maintenance and repair of IBCs are included here.*

– **Remanufactured IBCs** are metal, rigid plastics or composite IBCs that**:**

(a) are produced as a UN type from a non-UN type; or

(b) are converted from one UN design type to another UN design type.

Remanufactured IBCs are subject to the same requirements of this Code that apply to new IBCs of the same type (see also design type definition in 6.5.6.1.1).

– **Repaired IBCs** are metal, rigid plastics or composite IBCs that, as a result of impact or for any other cause (e.g. corrosion, embrittlement or other evidence of reduced strength as compared to the design type) are restored so as to conform to the design type and to be able to withstand the design type tests. For the purposes of this Code, the replacement of the rigid inner receptacle of a composite IBC with a receptacle conforming to the original design type from the same manufacturer is considered repair. However, routine maintenance of rigid IBCs (see definition below) is not considered repair. The bodies of rigid plastics IBCs and the inner receptacles of composite IBCs are not repairable. Flexible IBCs are not repairable unless in accordance with a competent authority determination.

– **Routine maintenance of flexible IBCs** is the routine performance on plastics or textile flexible IBCs of operations, such as:

(a) cleaning; or

(b) replacement of non-integral components, such as non-integral liners and closure ties, with components conforming to the original manufacturer's specification;

provided that these operations do not adversely affect the containment function of the flexible IBC or alter the design type.

– **Routine maintenance of rigid IBCs** is the routine performance on metal, rigid plastics or composite IBCs of operations such as:

(a) cleaning; or

(b) removal and reinstallation or replacement of body closures (including associated gaskets), or of service equipment, conforming to the original manufacturer's specifications, provided that the leaktightness of the IBC is verified; or

(c) restoration of structural equipment not directly performing a dangerous goods containment or discharge pressure retention function so as to conform to the design type (e.g. the straightening of legs or lifting attachments) provided that the containment function of the IBC is not affected.

Inner packagings are packagings for which an outer packaging is required for transport.

Inner receptacles are receptacles which require an outer packaging in order to perform their containment function.

Intermediate packagings are packagings placed between inner packagings, or articles, and an outer packaging.

Jerricans are metal or plastics packagings of rectangular or polygonal cross-section.

Journey means the transport of dangerous goods from where the goods are consigned to where the goods are delivered to the consignee.

Label means:

(a) a label as illustrated in 5.2.2.2.2, identifying the class or division, or a subsidiary hazard of a dangerous substance or article; or

(b) a mixed class label as illustrated in 5.2.2.2.3

(c) a limited quantities label as illustrated in 5.2.2.2.4 and 3.4.4.

Large packaging [1] means a packaging consisting of an outer packaging which contains articles or inner packagings and which

(a) is designed for mechanical handling; and

(b) exceeds 400 kg net mass or 450 litres capacity but has a volume of not more than 3 m^3;

Large salvage packaging means a special packaging which:

(a) is designed for mechanical handling; and

(b) exceeds 400 kg net mass or 450 litres capacity but has a volume of not more than 3 m^3;

into which damaged, defective, leaking or non-conforming dangerous goods packages, or dangerous goods that have spilled or leaked are placed for purposes of transport for recovery or disposal.

Limited Quantity (see 1.2.1.2.6).

Liner means a separate tube or bag inserted into a packaging, (including IBCs and large packagings) but not forming an integral part of it, including the closures of its openings.

Liquids are dangerous goods which at 50 °C have a vapour pressure of not more than 300 kPa (3 bar), which are not completely gaseous at 20 °C and at a pressure of 101.3 kPa, and which have a melting point or initial melting point of 20 °C or less at a pressure of 101.3 kPa. A

[1] *Large packaging does not include an IBC and is a different concept to an overpack.*

viscous substance for which a specific melting point cannot be determined must be subjected to the ASTM D 4359-90 test; or to the test for determining fluidity (penetrometer test) prescribed in section 2.3.4 of Annex A of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).

Load means, in relation to a cargo transport unit, all the goods in or on that cargo transport unit.

Load platform means, in relation to a rail wagon:

(a) in the case of a rigid rail wagon (e.g. container flat, 'skel', well, tank or open wagon, or rail van), the whole of that wagon; or

(b) in the case of an articulated wagon, each rigid section of the wagon that is designed to transport goods in one or more cargo transport units.

Manufactured product means dangerous goods of Class 3 of packing group II or packing group III:

(a) that is a suspension or solution of at least 10% non-volatile materials as determined by AS 1580, Method 301.1;

(b) of which less than 3% of the mobile solvent layer separates in the solvent separation test specified in the Manual of Tests and Criteria; and

(c) the viscosity of which is:

(i) at least 250 mm^2/s (centistokes) at 23 °C; or

(ii) at least 20 mm^2/s at 23 °C if the product requires stirring before use.

Manual of Tests and Criteria is the seventh revised edition of the United Nations publication entitled "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" (ST/SG/AC.10/11/Rev.7).

Marking includes all information, other than a label or a placard, that is required by this Code to be applied or affixed to a packaging, a package, an overpack, a large package, an intermediate bulk container, a portable tank, a demountable tank, a multiple element gas container a road tank vehicle or a rail tank wagon.

Maximum capacity as used in 6.1.4 is the maximum inner volume of receptacles or packagings expressed in litres.

Maximum net mass is the maximum net mass of contents in a single packaging or maximum combined mass of inner packagings and the contents thereof and is expressed in kg.

MEGC (see 1.2.1.2.10).

Metal hydride storage system means a single complete hydrogen storage system, including a receptacle, metal hydride, pressure relief device, shut-off valve, service equipment and internal components used for the transport of hydrogen only.

Modal codes means the IMDG Code for sea transport and the ICAO Rules or IATA Regulations for air transport (see 1.2.3.1).

Model Law means the Model subordinate instrument or the Model Transport of Dangerous Goods by Road or Rail Act as agreed to from time to time by the Transport and Infrastructure Council and published on the Parliamentary Counsel's Committee website.

Model subordinate instrument means the Model subordinate instrument on the Transport of Dangerous Goods by Road or Rail as agreed to from time to time by the Transport and Infrastructure Council and published on the Parliamentary Counsel's Committee website.

(see also "Regulations").

MSDS (see Safety Data Sheet).

Multimodal means applicable to, or suitable for use on, more than one mode of transport (e.g. road and rail transport or road and sea transport).

Multiple-element gas containers (MEGCs) (see 1.2.1.2.10).

Must, where used in a numbered clause or special provision, or in a table in this Code, indicates a mandatory requirement.

Net Explosive Mass (NEM) means the total mass of the explosive substances, without the packagings, casings, etc. (Net explosive quantity (NEQ), net explosive contents (NEC), or net explosive weight (NEW) are often used to convey the same meaning.).

N.O.S. means Not Otherwise Specified.

Open cryogenic receptacle means a transportable thermally insulated receptacle for refrigerated liquefied gases maintained at atmospheric pressure by continuous venting of the refrigerated liquefied gas.

Outer packaging means external packaging (including absorbent materials, cushioning and any other components) necessary to contain and protect:

(a) articles: or

(b) inner receptacles of composite packaging; or

(c) inner packagings of combination packagings.

Overpack means an enclosure used to contain one or more packages and to form one unit for convenience of handling and stowage during transport. Examples of overpacks are a number of packages either:

(a) placed or stacked on to a load board such as a pallet and secured by strapping, shrink wrapping, stretch wrapping, or other suitable means; or

(b) placed in a protective outer packaging such as a box or crate.

Owner (see 1.2.1.2.18).

Packages (see 1.2.1.2.11).

Packagings (see 1.2.1.2.11).

Packing group has the meaning given to it in clause 2.0.1.3 of this Code.

Placard means a label or Emergency Information Panel that is fixed to, stencilled or printed on, or placed in a frame that is fixed to a cargo transport unit or placardable unit.

Placard load means a load in a cargo transport unit that must be placarded under Chapter 5.3 as determined in accordance with Table 5.3.

Placardable unit means any large receptacle or other large item such as an IBC, pressure drum, tube, MEGC or demountable tank, that individually has a capacity of more than 500 kg(L), other than:

(a) a cargo transport unit; or

(b) large packaging meeting the requirements of Chapter 6.6; or

(c) an overpack used in accordance with Section 5.1.2; or

(d) a segregation device meeting the requirements of Chapter 6.11.

Portable tank means a multimodal tank that:

(a) is designed primarily to be loaded onto a vehicle or ship; and

(b) has a capacity of more than 450 L; and

(c) is equipped with skids, mountings, stabilisers and accessories to facilitate manual handling; and

(d) is capable of being loaded and unloaded without removing its service or structural equipment; and

(e) is capable of being lifted when full.

However, road tank-vehicles, rail tank-wagons, non-metallic tanks, gas cylinders, large receptacles, and intermediate bulk containers (IBCs) are not considered to be portable tanks.

Portable fire extinguisher means a first attack firefighting appliance which is designed to be carried by hand and which, when charged to design capacity, has a gross mass not greater than 23kg.

Pressure drums are welded transportable pressure receptacles of a water capacity exceeding 150 litres and of not more than 1000 litres, (e.g. cylindrical receptacles equipped with rolling hoops, spheres on skids).

Pressure receptacles is a collective term that includes cylinders, tubes, pressure drums, closed cryogenic receptacles, metal hydride storage systems, bundles of cylinders and salvage pressure receptacles.

Prime contractor (see 1.2.1.2.12).

Prime mover means a road vehicle that is designed to tow a trailer but does not include a vehicle that has a load carrying capability in addition to a trailer.

Proper shipping name has the meaning given to it in clause 2.0.2 of this Code.

Quality assurance means a systematic programme of controls and inspections applied by any organisation or body which is aimed at providing adequate confidence that the standard of safety prescribed in this Code is achieved in practice.

Rail operator (see 1.2.1.2.13).

Rail tank wagon means a rail wagon of which a tank forms an integral part.

Rail wagon means a unit of rolling stock that:

(a) is designed to carry freight by rail; and

(b) bears a unique identifying number or alphanumeric identifier.

React dangerously means, in relation to the reaction of substances, to react in a manner that directly creates a hazard due to the reaction:

(a) being violent; or

(b) producing an explosion; or

(c) producing a potentially explosive combination of products; or

(d) producing potentially dangerous quantities of toxic vapour or gas.

Receptacles are containment vessels for receiving and holding substances or articles, including any means of closing.

Reconditioned packagings include:

(a) metal drums that:

  (i) are cleaned to original materials of construction, with all former contents, internal and external corrosion, and external coatings and labels removed;

  (ii) are restored to original shape and contour, with chimes (if any) straightened and sealed, and all non-integral gaskets replaced; and

  (iii) are inspected after cleaning but before painting, with rejection of packagings with visible pitting, significant reduction in material thickness, metal fatigue, damage threads or closures, or other significant defects; or

(b) plastics drums and jerricans that:

  (i) are cleaned to original materials of construction, with all former contents, external coatings and labels removed;

  (ii) have all non-integral gaskets replaced; and

  (iii) are inspected after cleaning with rejection of packagings with visible damage such as tears, creases or cracks, or damaged threads, or closures, or other significant defects.

Recycled plastics material means material recovered from used industrial packagings that has been cleaned and prepared for processing into new packagings. The specific properties of the recycled material used for production of new packagings must be assured and documented regularly as part of a quality assurance programme recognised by the competent authority. The quality assurance programme must include a record of proper pre-sorting and verification that each batch of recycled plastics material has the proper melt flow rate, density, and tensile yield strength, consistent with that of the design type manufactured from such recycled material. This necessarily includes knowledge about the packaging material from which the recycled plastics have been derived, as well as awareness of the prior contents of those packagings if those prior contents might reduce the capability of new packagings produced using that material. In addition, the packaging manufacturer's quality assurance programme under 6.1.1.4 must include performance of the mechanical design type test in 6.1.5 on packagings manufactured from each batch of recycled plastics material. In this testing, stacking performance may be verified by appropriate dynamic compression testing rather than static load testing.

NOTE: *AS ISO 16103:2005 "Packaging – Transport packages for dangerous goods - Recycled plastics material", provides additional guidance on procedures to be followed in approving the use of recycled plastics material.*

Regulations means the Model Law.

Reference in this Code to a **numbered Regulation** (e.g. Regulation 1.1.7) is a reference to the clause bearing that number in the Model subordinate instrument. Depending on the context, **Regulations** may also mean the law of the participating jurisdiction that adopts or embodies the Model Legislation.

Remanufactured IBCs (see "Intermediate Bulk Containers (IBCs)").

Remanufactured large packaging means a metal or rigid plastics large packaging that:

- (a) is produced as a UN type from a non-UN type; or
- (b) is converted from one UN design type to another UN design type.

Remanufactured large packagings are subject to the same requirements of this Code that apply to new large packagings of the same type (see also design type definition in 6.6.5.1.2).

Remanufactured packagings include:

- (a) metal drums that:
  - (i) are produced as a UN type from a non-UN type; or
  - (ii) are converted from one UN type to another UN type; or
  - (iii) undergo the replacement of integral structural components (such as non-removable heads); and
- (b) plastics drums that:
  - (i) are converted from one UN type to another UN type (e.g. 1H1 to 1H2); or
  - (ii) undergo the replacement of integral structural components.

NOTE: *Remanufactured drums are subject to the same requirements of this Code that apply to a new drum of the same type.*

Repaired IBCs (see "Intermediate Bulk Containers (IBCs)").

Reused large packaging means a large packaging to be refilled which has been examined and found free of defects affecting the ability to withstand the performance tests: the term includes those which are refilled with the same or similar compatible contents and are transported within distribution chains controlled by the consignor of the product.

Reused packagings are packagings to be refilled which have been examined and found free of defects affecting the ability to withstand the performance tests: the term includes those which are refilled with the same or similar compatible contents and are transported within distribution chains controlled by the consignor of the product.

Rigid vehicle means a vehicle the load carrying area of which is fixed to the vehicle's chassis or frame.

Road tank vehicle means a road vehicle of which a tank forms part or to which a tank, other than a portable tank, is attached.

Rolling stock means a vehicle that operates on or uses a railway track but does not include a vehicle designed for use both on and off a railway track when the unit is operated off the railway track.

Routine maintenance of flexible IBCs (see "Intermediate Bulk Containers (IBCs)").

Routine maintenance of rigid IBCs (see "Intermediate Bulk Containers (IBCs)").

SADT means self-accelerating decomposition temperature.

Safety Data Sheet means Safety Data Sheet or the material Safety Data Sheet [MSDS] for the dangerous goods or other substance, prepared by the manufacturer or Australian supplier in accordance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice,

<www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/642/COP_Preparation_of_Safety_Data_Sheet_for_Hazardous_Chemicals.pdf> or equivalent.

Salvage packagings are special packagings into which damaged, defective, leaking or non-conforming dangerous goods packages, or dangerous goods that have spilled or leaked, are placed for purposes of transport for recovery or disposal.

Salvage pressure receptacle means a pressure receptacle with a water capacity not exceeding 3,000 litres into which are placed damaged, defective, leaking or non-conforming pressure receptacle(s) for the purpose of transport e.g. for recovery or disposal.

SCBA means a self-contained breathing apparatus complying with AS1715:1994.

Segregation device means a device for segregating dangerous goods from incompatible goods, that:

(a) complies with the requirements in relation to devices used to segregate those goods set out in Chapter 6.11; or

(b) is approved by a Competent Authority as a segregation device for use in segregating the goods.

Semi-trailer means a trailer having:

(a) one axle group, or a single axle, towards the rear of the trailer; and

(b) a means of attachment to a prime mover that, once attached, results in some of the load being imposed on the prime mover.

Self-accelerating polymerization temperature (SAPT) means the lowest temperature at which polymerization may occur with a substance in the packaging, IBC, portable tank as offered for transport. The SAPT shall be determined in accordance with the test procedures established for the self-accelerating decomposition temperature for self-reactive substances in accordance with Part II, Section 28 of the Manual of Tests and Criteria.

Service life, for composite cylinders and tubes, means the number of years the cylinder or tube is permitted to be in service.

Settled pressure is the pressure of the contents of a pressure receptacle in thermal and diffusive equilibrium.

Shell means, in relation to a tank, the part of the tank which retains the substance intended for transport (tank proper, receptacle or principal containment vessel), including openings and their closures, but does not include service equipment or external structural equipment.

Shipment means the specific movement of a consignment from origin to destination.

Should indicates an advisory guideline or recommendation, compliance with which is not mandatory.

Siftproof packagings are packagings impermeable to dry contents including fine solid material produced during transport.

Single packagings mean packagings that do not require inner packagings to be capable of performing their containment function during transport including composite packagings.

Solids are dangerous goods, other than gases, that do not meet the definition of liquids in this Code.

Source of ignition means a source of energy sufficient to ignite a flammable atmosphere including:

(a) a lighted match, a cigarette lighter, a lighted cigarette or other form of lighted tobacco, a lighted furnace, an incinerator, and any other naked flame; and

(b) electrical equipment that is not suitable for use in an area defined as a hazardous area in AS/NZS 60079.10.1.

SP (Special Provision) means a Special Provision set out in Chapter 3.3 of this Code.

Subsidiary Hazard (see 1.2.1.2.14).

NOTE: *In 2018 the Code Edition 7.6 replaced subsidiary risk with subsidiary hazard in all instances occurring to align with UN20. For the purposes of compliance with this Code the words subsidiary risk have the same meaning as subsidiary hazard.*

Subsidiary Risk means Subsidiary Hazard.

Tank (see 1.2.1.2.15).

Tank vehicle means a road vehicle or rail wagon:

(a) of which a tank forms part; or

(b) to which a tank (other than a portable tank) is attached.

However, a tank vehicle does not include a hopper vehicle or any other vehicle into which solid dangerous goods are directly loaded, which should instead be considered a bulk container.

Technical name means a technical name as described in 3.1.2.8.

Telephone advisory service (see 1.2.1.2.16).

Test pressure is the required pressure applied during a pressure test for qualification or requalification.

This Code means this Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code or ADGC or Australian Dangerous Goods Code) and includes any code, manual, supplement or standard applied or adopted by, or incorporated into this Code.

Trailer means a vehicle that is designed to be towed, or is towed, by another road vehicle but does not include a road vehicle propelled by a motor that forms part of the vehicle.

Train means two or more units of rolling stock coupled together, at least one unit of which is a locomotive or a self-propelled unit.

Train manifest means a list of rolling stock that makes up the train which provides information regarding dangerous goods carried as required by clause 11.1.4.

Transfer operation means the process of transferring dangerous goods into or from a tank vehicle, portable tank, bulk container or freight container and includes:

(a) the connection of any hose or other equipment to the tank vehicle, portable tank, bulk container or freight container; and

(b) the connection of any hose or other equipment to a storage receptacle; and

(c) the movement of the goods into or from the tank vehicle, portable tank, bulk container or freight container; and

(d) any other activity directly connected with the transfer of the goods.

Transport documentation means documentation that complies with the requirements for transport documents in Part 11 of this Code.

Tube means a transportable pressure receptacle of seamless or composite construction having a water capacity exceeding 150 litres but not more than 3000 litres.

Ullage means the difference between the capacity of a receptacle and the net volume of the contents of the receptacle, calculated as a percentage as follows:

$$\text{ullage} = \frac{(\text{capacity - net volume of contents}) \times 100}{\text{capacity}}$$

UNECE means the United Nations Economic Commission for Europe (UNECE, <www.unece.org> Palais des Nations, 8-14 avenue de la Paix, CH-1211 Geneva 10, Switzerland).

UN Number has the meaning given to it in clause 2.0.2 of this Code.

Vehicle means

(a) a road vehicle including an articulated or combination vehicle; or

(b) a unit of rolling stock.

Wooden barrels are packagings made of natural wood, of round cross-section, having convex walls, consisting of staves and heads and fitted with hoops.

Working pressure is the settled pressure of a compressed gas at a reference temperature of 15 °C in a full pressure receptacle.

1.2.1.2 Terms defined in the text of the Model subordinate instrument

The definitions in 1.2.1.2 have been adapted from the corresponding entries in the Model subordinate instrument to be consistent with the context of this Code.

1.2.1.2.1 Aggregate quantity – (Regulation 1.2.1)

The **aggregate quantity** of dangerous goods means the total of:

(a) the number of kilograms of:

  (i) solid dangerous goods; and

  (ii) articles (including aerosols); and

(b) the number of litres or kilograms, whichever is used in the transport documentation to describe the goods, of liquid dangerous goods; and

(c) the total capacity in litres of receptacles containing dangerous goods of Class 2 (except aerosols).

1.2.1.2.2 Bulk Container – (Regulation 1.2.1)

1.2.1.2.2.1 **Bulk container** means a container (with or without a liner or coating) that:

(a) has a capacity of 1.0 m^3 or more; and

(b) is intended for the transport of solid dangerous goods that are in direct contact with the container.

1.2.1.2.2.2 To avoid doubt, the following are not bulk containers even if they have a capacity of 1.0 m^3 or more and are intended for the transport of solid dangerous goods:

(a) a large packaging that complies with the requirements of Chapter 6.6 of this Code

(b) an IBC

(c) a tank

(d) a tank vehicle

(e) any other packaging that complies with the requirements of Chapter 6.1 or 6.3 of this Code.

1.2.1.2.2.3 In addition, for the purposes of this Code, Bulk containers are:

– of a permanent character and accordingly strong enough to be suitable for repeated use

– specially designed to facilitate the transport of goods by one or more means of transport without intermediate reloading
– fitted with devices permitting ready handling.

Examples of bulk containers are freight containers [when used in accordance with 1.2.1.2.2.1(b)], offshore bulk containers, skips, bulk bins, swap bodies, trough-shaped containers, roller containers, load compartments of vehicle, flexible bulk containers.

NOTE: *This bulk container definition represents alignment with UN20 and provides consistency with the IMDG, ICAO and IATA codes for sea and air transport.*

1.2.1.2.3 Cargo Transport Unit – (Regulation 1.2.1)

A **cargo transport unit** includes:
(a) a road transport tank or freight vehicle; or
(b) a railway transport tank or freight wagon; or
(c) a portable tank; or
(d) a bulk container; or
(e) a freight container; or
(f) a MEGC.

1.2.1.2.4 Consignors – (Regulation 1.2.1)

A person consigns dangerous goods for transport, and is the consignor of the goods, if:
(a) the person, with the person's authority, is named or otherwise identified in transport documentation that complies with Chapter 11.1 of this Code as the consignor of the goods; or
(b) sub-clause (a) does not apply to the person or anyone else and the person:
  (i) engages a prime contractor or rail operator, either directly or through an agent or other intermediary, to transport the goods; or
  (ii) if sub-clause (i) does not apply, has possession of, or control over, the goods immediately before the goods are transported; or
  (iii) if neither sub-clause (i) nor (ii) applies, loads a vehicle with the goods, for transport, at a place where dangerous goods are awaiting collection and that is unattended (except by the driver) during loading; or
(c) sub-clauses (a) and (b) do not apply to the person or anyone else and:
  (i) the goods are imported into Australia; and
  (ii) the person is the importer of the goods.

1.2.1.2.5 Dangerous Goods – (Regulation 2.1.1)

1.2.1.2.5.1 Goods are dangerous goods, if:

(a) the goods are determined under Regulation 1.5.1(1)(a) to be dangerous goods, or

(b) the goods satisfy the criteria set out, or referred to, in Part 2 of this Code for determining whether goods are dangerous goods.

1.2.1.2.5.2 However, substances or articles that satisfy the criteria set out, or referred to, in Part 2 of this Code are not dangerous goods for the purposes of this Code if they are:

(a) determined under Regulation 1.5.1(1)(a) not to be dangerous goods; or

(b) described as ‘not subject to this Code’ in a special provision in Chapter 3.3 of this Code that is applied to the goods by column (6) of the Dangerous Goods List, provided that all conditions included with that statement are met.

1.2.1.2.6 Dangerous goods packed in limited quantities – (Regulation 1.2.9)

Dangerous goods are packed in limited quantities if:

(a) the goods are packed in accordance with Chapter 3.4 of this Code; and

(b) the quantity of dangerous goods in each inner packaging does not exceed the quantity specified in or referenced from column (7a) of the Dangerous Goods List for those goods.

1.2.1.2.7 Goods too dangerous to be transported – (Regulation 2.1.2)

Goods are too dangerous to be transported if they are:

(a) goods set out or described in Appendix A of this Code; or

(b) goods determined under Regulation 1.5.1(2)(a) to be too dangerous to be transported; or

(c) goods or combinations of goods for which the statement ‘are not to be accepted for transport’ applies in a special provision in Chapter 3.3 of this Code that is applied to the goods by column (6) of the Dangerous Goods List; or

(d) other goods that are so sensitive or unstable that they cannot be safely transported even if all relevant requirements of the Regulations and this Code are complied with (see 2.1.3.3.2).

1.2.1.2.8 IBC – (Regulation 1.2.7)

Intermediate bulk containers (IBCs) are rigid or flexible portable packagings, other than packagings specified in Chapter 6.1 or 6.3 and large packagings specified in Chapter 6.6, that:

(a) have a capacity of:

(i) not more than 3.0 m^3 (3,000 litres) for solids and liquids of packing groups II and III;

(ii) not more than 1.5 m^3 for solids of packing group I when packed in flexible, rigid plastics, composite, fibreboard and wooden IBCs;

(iii) not more than 3.0 m^3 for solids of packing group I when packed in metal IBCs;

(iv) not more than 3.0 m^3 for radioactive material of Class 7;

(b) are designed for mechanical handling;

(c) are resistant to the stresses produced in handling and transport, as determined by tests.

NOTE: *Chapter 6.5 provides detailed requirements for IBCs.*

For discussion of maintenance of IBCs, remanufactured IBCs and repaired IBCs, see the alphabetical list of definitions in 1.2.1.1.

1.2.1.2.9 Incompatibility – (Regulation 2.1.6)

1.2.1.2.9.1 Dangerous or other goods are incompatible with dangerous goods if:

(a) the goods are determined under Regulation 1.5.1(1)(e) to be incompatible with the dangerous goods; or

(b) when the goods are mixed, or otherwise brought into contact, with the dangerous goods, the goods are likely to interact with the dangerous goods and increase risk because of the interaction.

NOTE: *For compatibility guidelines based on classification, see Chapter 9.1.*

1.2.1.2.9.2 A containment system, (including a packaging, tank, bulk container, IBC or MEGC) or equipment for use in the transport or transfer of dangerous goods is incompatible with the goods if any component of the system or equipment that is intended or likely to come into contact with the substance during handling, transfer or transport is:

(a) likely to interact with the goods and increase risk because of the interaction; and

(b) not protected from contact under foreseeable circumstances by a protective coating or other effective means.

1.2.1.2.10 MEGC – (Regulation 1.2.8)

MEGC means a multiple-element gas container, comprising:

(a) multimodal assemblies of cylinders, tubes or bundles of cylinders that are interconnected by a manifold and assembled within a framework; and

(b) service and structural equipment necessary for the transport of gases.

1.2.1.2.11 Packages and Packaging – (Regulation 4.1.2)

1.2.1.2.11.1 A **package** of dangerous goods or other goods is the complete product of the packing of the goods for transport, and consists of the goods and their packaging.

1.2.1.2.11.2 **Packaging** means one or more receptacles and any other components or materials necessary for the receptacles to perform their containment and other safety functions.

1.2.1.2.12 Prime Contractor – (Regulation 1.2.1)

A person is the prime contractor for the transport of dangerous or other goods by road if the person, in conducting a business for or involving the transport of dangerous goods by road, undertakes to be responsible, or is responsible, for the transport of the goods by road.

1.2.1.2.13 *Rail Operator – (Regulation 1.2.1)*

A person is a rail operator for the transport of dangerous or other goods by rail if the person undertakes to be responsible, or is responsible, for:

(a) the transport of the goods by rail; or

(b) the condition of a rail wagon transporting the goods.

1.2.1.2.14 *Subsidiary Hazard – (Regulation 2.1.4)*

1.2.1.2.14.1 A reference to dangerous goods with a subsidiary hazard is a reference to goods that:

(a) are assigned a Subsidiary Hazard by a determination under Regulation 1.5.1(1)(c); or

(b) satisfy the criteria in Part 2 of this Code for assignment to more than one Class or Division.

1.2.1.2.14.2 Dangerous goods are assigned a particular Subsidiary Hazard where it is assigned:

(a) by a determination under Regulation 1.5.1(1)(c); or

(b) if there is no determination, - in Column (4) of the Dangerous Goods List, subject to any Special Provision in Chapter 3.3 that is applied to the goods by column (6).

1.2.1.2.14.3 For dangerous goods that meet the criteria of 1.2.1.2.13.1 and are not assigned a Subsidiary Hazard by 1.2.1.2.13.2, the Subsidiary Hazard or hazards must be determined in accordance with Section 2.0.3 of this Code.

1.2.1.2.15 *Tank – (Regulation 1.2.1)*

1.2.1.2.15.1 Subject to 1.2.1.2.14.2, **tank** means a receptacle in the form of a shell fitted with service equipment and structural equipment necessary to contain dangerous substances.

1.2.1.2.15.2 Tanks include fixed storage tanks, portable tanks, demountable tanks and the cargo receptacles of road tank vehicles and rail tank wagons, but do not include:

(a) receptacles, for gases as defined in 2.2.1.1, that have a capacity of less than 450 L; or

(b) packagings that comply with Chapter 6.1 or 6.3 of this Code; or

(c) bulk containers that comply with Chapter 6.8 of this Code; or

(d) IBCs, MEGCs, cylinders, tubes or pressure drums; or

(e) large packagings that comply with Chapter 6.6 of this Code; or

(f) freight containers that comply with Chapter 6.10 of this Code; or

(g) segregation devices that comply with Chapter 6.11 of this Code.

1.2.1.2.16 Telephone Advisory Service – (Regulation 14.2.1)

A **telephone advisory service**, for the transport of dangerous goods, means a service providing access by telephone to persons competent to give advice about:

(a) the construction and properties of the receptacles in which the dangerous goods are being transported; and

(b) the use of equipment on vehicles on which the dangerous goods are being transported; and

(c) the properties of the dangerous goods; and

(d) methods of safely handling the dangerous goods; and

(e) methods of safely containing and controlling the dangerous goods in a dangerous situation.

1.2.1.2.17 UN Classes, UN Divisions and Categories of dangerous goods – (Regulation 2.1.3)

Notwithstanding Regulation 2.1.3, for the purposes of this Code, except when subject to a determination under Regulation 1.5.1(1)(b), dangerous goods are assigned to classes, divisions and categories in accordance with Part 2 of this Code, subject to any Special Provision in Chapter 3.3 that is assigned to the particular dangerous goods from column (6) of the Dangerous Goods List.

1.2.1.2.18 Vehicle owners – (Regulation 1.2.1)

A person is an **owner** of a vehicle if the person:

(a) is the sole owner, a joint owner or a part owner of the vehicle; or

(b) has possession or use of the vehicle under a credit, hire-purchase, lease or other agreement, except an agreement requiring the vehicle to be registered in the name of someone else.

1.2.1.3 Clarifying examples for certain defined terms

The following explanations and examples are meant to assist in clarifying the use of some of the packaging terms defined in this section.

The definitions in this section are consistent with the use of the defined terms throughout this Code. However, some of the defined terms are commonly used in other ways. This is particularly evident in respect of the term “inner receptacle” which has often been used to describe the “inners” of a combination packaging.

The “inners” of “combination packagings” are always termed “inner packagings” not “inner receptacles”. A glass bottle is an example of such an “inner packaging”.

The “inners” of “composite packagings” are normally termed “inner receptacles”. For example, the “inner” of a 6HA1 composite packaging (plastics material) is such an “inner receptacle” since it is normally not designed to perform a containment function without its “outer packaging” and is not therefore an “inner packaging”.

1.2.2 UNITS OF MEASUREMENT

1.2.2.1 The following units of measurement are applicable in this Code:

Table 1.2.2.1: Dangerous Goods Code Units of measurement

Measurement of T1	SI Unit T2, T4	Acceptable alternative unit	Relationship between units
Length	m (metre)	–	–
Area	m^2 (square metre)	–	–
Volume	m^3 (cubic metre)	*l* (or L) (litre)T3	1 LT3 = 10^{-3} m^3
Time	s (second)	min (minute) h (hour) d (day)	1 min = 60 s 1 h = 3600 s 1 d = 86,400 s
Mass	kg (kilogram)	g (gram) t (tonne)	1 g = 10^{-3} kg 1 t = 10^3 kg
Mass density	kg/m^3	kg/L	1 kg/L = 10^3 kg/m^3
Temperature	K (kelvin)	°C (degree Celsius)	0°C = 273.15 K
Difference of temperature	K (kelvin)	°C (degree Celsius)	1°C = 1 K
Force	N (newton)	–	1 N = 1 kg m/s^2
Pressure	Pa (pascal)	bar (bar)	1 bar = 10^5 Pa 1 Pa = 1 N/m^2
Stress	N/m^2	N/mm^2	1 N/mm^2 = 1 MPa
Work Energy Quantity of heat	J (joule) J (joule) J (joule)	KWh (kilowatt hour) – eV (electronvolt)	1 kWh = 3.6 MJ 1 J = 1 N m = 1 W s 1 eV = 0.1602 x 10^{-18} J
Power	W (watt)	–	1 W = 1 J/s = 1 N m/s
Kinematic viscosity	m^2/s	mm^2/s	1 mm^2/s = $10^{-6} m^2/s$
Dynamic viscosity	Pa s	mPa s	1 mPa s = 10^{-3}Pa s
Activity	Bq (becquerel)	–	–
Dose equivalent	Sv (sievert)	–	–

Notes to Table 1.2.2.1:

T1 (note 1):

The following round figures are applicable for the conversion of the units hitherto used into SI Units.

Force 1 kg = 9.807 N 1 N = 0.102 kg
Pressure 1 Pa = 1 N/m^2 = 10^{-5} bar = 1.02 x 10^{-5} kg/cm^2 = 0.75 x 10^{-2} torr 1 bar = 10^5 Pa = 1.02 kg/cm^2 = 750 torr 1 kg/cm^2 = 9.807 x 10^4 Pa = 0.9807 bar = 736 torr 1 torr = 1.33 x 10^2 Pa = 1.33 x 10^{-3} bar = 1.36 x $10^{-3}$$kg/cm^2$
Stress

1 kg/mm^2 = 9.807 N/mm^2 1 N/mm^2 = 0.102 kg/mm^2
Work, Energy, Quantity of heat 1 J = 1 Nm = 0.278 x 10^{-6} kWh = 0.102 kgm = 0.239 x 10^{-3} kcal 1 kWh = 3.6 x 10^6 J = 367 x 10^3 kgm = 860 kcal 1 kgm = 9.807 J = 2.72 x 10^{-6} kWh = 2.34 x 10^{-3} kcal 1 kcal = 4.19 x 10^{3}J = 1.16 x 10^{-3} kWh = 427 kgm
Power 1 W = 0.102 kgm/s = 0.86 kcal/h 1 kgm/s = 9.807 W = 8.43 kcal/h 1 kcal/h = 1.16 W = 0.119 kgm/s
Kinematic viscosity 1 m^2/s = 10^4 St (Stokes) 1 St = 10^{-4} m^2/s
Dynamic viscosity 1 Pa.s = 1 Ns/m^2 = 10 P (poise) = 0.102 kgs/m^2 1 P = 0.1 Pa.s = 0.1 Ns/m^2 = 1.02 x 10^{-2} kgs/m^2 1 kgs/m^2 = 9.807 Pa.s = 9.807 Ns/m^2 = 98.07 P

T2 (note 2): The International System of Units (SI) is the result of decisions taken at the General Conference on Weights and Measures (Address: Pavillon de Breteuil, Parc de St-Cloud, F-92 310 Sèvres).

T3 (note 3): In this Code, the abbreviation “L” is used for litre in place of “l” because of the difficulty of distinguishing between numeral “1” and letter “l”.

T4 (note 4): The decimal multiples and sub-multiples of a unit may be formed by prefixes or symbols, having the following meanings, placed before the name or symbol of the unit, as shown below:

Factor				Prefix	Symbol
1,000,000,000,000,000,000	=	10^{18}	(quintillion)	exa	E
1,000,000,000,000,000	=	10^{15}	(quadrillion)	peta	P
1,000,000,000,000	=	10^{12}	(trillion)	tera	T
1,000,000,000	=	10^9	(billion)	giga	G
1,000,000	=	10^6	(million)	mega	M
1,000	=	10^3	(thousand)	kilo	k
100	=	10^2	(hundred)	hecto	h
10	=	10^1	(ten)	deca	da
0.1	=	10^{-1}	(tenth)	deci	d
0.01	=	10^{-2}	(hundredth)	centi	c
0.001	=	10^{-3}	(thousandth)	milli	m
0.000,001	=	10^{-6}	(millionth)	micro	µ
0.000,000,001	=	10^{-9}	(billionth)	nano	n
0.000,000,000,001	=	10^{-12}	(trillionth)	pico	p
0.000,000,000,000,001	=	10^{-15}	(quadrillionth)	femto	f

Factor				Prefix	Symbol
0.000,000,000,000,000,001	=	10^{-18}	(quintillionth)	atto	a
Note: 10^9= 1 billion is United Nations usage in English. By analogy, so 10^{-9} = 1 billionth.					

1.2.2.2 Whenever the word "weight" is used, it means "mass"

1.2.2.3 Whenever the weight of a package is mentioned, the gross mass is meant unless otherwise stated. The mass of containers or tanks used for the transport of goods is not included in the gross mass.

1.2.2.4 Unless expressly stated otherwise, the sign "%" represents:

(a) in the case of mixtures of solids or of liquids, and also in the case of solutions and of solids wetted by a liquid: a percentage mass based on the total mass of the mixture, the solution or the wetted solid; and

(b) in the case of mixtures of compressed gases: when filled by pressure, the proportion of the volume indicated as a percentage of the total volume of the gaseous mixture, or, when filled by mass, the proportion of the mass indicated as a percentage of the total mass of the mixture; and

(c) in the case of mixtures of liquefied gases and gases dissolved under pressure: the proportion of the mass indicated as a percentage of the total mass of the mixture.

1.2.2.5 Pressures of all kinds relating to receptacles (such as test pressure, internal pressure, safety-valve opening pressure) are always indicated in gauge pressure (pressure in excess of atmospheric pressure); however, the vapour pressure of substances is always expressed in absolute pressure.

1.2.3 REFERENCES

1.2.3.1 Codes, standards and rules referred to in this Code

In this Code, unless the contrary intention appears:

Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment means the standard of that name published by the Office of the Australian Safety and Compensation Council, (formerly National Occupational Health and Safety Commission), as [NOHSC:1003(1995)];

ADR means "Accord Relatif au Transport International des Marchandises Dangereuses par Route" (Agreement Concerning the International Carriage of Dangerous Goods by Road), published by the Inland Transport Committee of the Economic Commission for Europe;

Australian Explosives Code[1] means the "Australian Code for the Transport of Explosives by Road and Rail", published by Safework Australia;
<www.safeworkaustralia.gov.au/sites/swa/about/publications/Docume

[1] *The third edition of the Australian Explosives Code, prepared by the Australian Forum of Explosives Regulators (AFER) and endorsed by the Workplace Relations Ministers' Council, was published by the Commonwealth of Australia in 2009. See Safe Work Australia website.*

nts/255/AustralianCodeForTheTransportOfExplosivesByRoadAndRail_3rdEdition_PDF.pdf>

Australian Standard means a standard published by Standards Australia (Standards Australia, <www.standards.org.au/Pages/default.aspx> 286 Sussex Street, GPO Box 476, Sydney, NSW, 2001, Australia). (A list of Standards referred to in this Code is set out in Table 1.1)

Code of Practice for the Safe Transport of Radioactive Substances means the Code and Guides published by the Australian Radiation Protection and Nuclear Safety Authority ARPANSA <www.arpansa.gov.au/Publications/codes/rps.cfm>

Dangerous Goods – Initial Emergency Response Guide means the Guide of that name published by Standards Australia as HB76;

EN (standard)) means a European standard published by the European Committee for Standardisation (CEN) (CEN – 36 rue de Stassart, B-1050 Brussels, Belgium) <www.en-standard.eu/store/?gclid=CI2rz_mStcICFUUHvAodLBIApw>

GHS means the current edition of the Globally Harmonized System of classification and labelling of chemicals, published by the United Nations on http://www.unece.org/trans/danger/publi/dg_publications.html

IATA Regulations means the “Dangerous Goods Regulations” published by the International Air Transport Association (IATA) <www.iata.org/publications/dgr/Pages/index.aspx>

ICAO Rules means the “Technical Instructions for the Safe Transport of Dangerous Goods by Air” published by the International Civil Aviation Organisation (ICAO) <www.icao.int/publications/Pages/default.aspx>

IMDG Code means the “International Maritime Dangerous Goods Code” published by the International Maritime Organisation (IMO) <www.imo.org/Publications/IMDGCode/Pages/Default.aspx>

International Convention for Safe Containers means the “International Convention for Safe Containers”, 1972

ISO (standard) means an international standard published by the International Organisation for Standardisation (ISO - 1, rue de Varembé, CH-1204 Geneva 20, Switzerland) (A list of Standards referred to in this Code is set out in Table 1.1); <www.iso.org/iso/home.html>

Load Restraint Guide means the document of that name prepared by the National Transport Commission[1]

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice means the code of that name published by Safe Work Australia, ISBN 978-0-6442-33311-7, 2016; National Code of Practice

[1] *Load Restraint Guide, 3rd Edition 2018, National Transport Commission, ISBN: 978-0-6480157-5-8 or Load Restraint guide for Light Vehicles 2018, National Transport Commission, ISBN: 978-0-6480157-6-5.*

for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)] - Safe Work Australia

National Standard for the Storage and Handling of Dangerous Goods means the standard headed Storage and Handling of Workplace Dangerous Goods published by Safe Work Australia, as NOHSC:1015(2001)

<www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/248/NationalStandard_StorageHandling_WorkplaceDangerousGoods_NOHSC-10152001_PDF.pdf>

National Code of Practice for the Storage and Handling of Dangerous Goods means the Code of Practice headed Storage and Handling of Workplace Dangerous Goods published by Safe Work Australia, as [NOHSC:2017(2001)] <www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/249/CodeOfPracticeStorageAndHandingDangerousGoodsNOHSC2017-2001_PDF.pdf>

OECD Guidelines for the testing of Chemicals means the document of that name published by the Organisation for Economic Co-operation and Development.

RID means "Reglements Internationales Relatif au Transport des Marchandises Dangereuses par Chemin de Fer" (Regulations concerning the International carriage of Dangerous goods by rail) published by the Inland Transport Committee of the Economic Commission for Europe

The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification means the document of that name published jointly by the United Nations Environment Programme, the International Labour Organisation and the World Health Organisation. The 2004 edition of this document may be downloaded from: <www.who.int/ipcs/publications/pesticides_hazard/en/index.html>

UN21[1] means those Model Regulations annexed to the 21st revised edition of the "Recommendations on the Transport of Dangerous Goods" published by the United Nations

UN Recommendations: Manual of Tests and Criteria means the sixth revised edition of the "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" published by the United Nations.

1.2.3.2 References to other codes, standards and international rules

1.2.3.2.1 In this Code, a reference to a code, standard or international rule or a provision of a code, standard or international rule includes another code, standard or international rule or a provision of another code, standard or international rule as applied or adopted by, or incorporated in, the first mentioned code, standard or international rule, as the case requires.

[1] *Where used the terms UN13, UN14, UN15, UN16, UN17, UN18, UN19, UN20 and UN21 have the corresponding meanings and refer to the relevant edition of UN document 'Recommendations on the Transport of Dangerous Goods Model Regulations'.*

1.2.3.2.2 In this Code, unless the contrary intention appears, a reference to a code, standard or international rule is a reference to that code, standard or international rule as amended from time to time.

1.2.3.2.3 If a code, standard or international rule, or a provision of a code, standard or international rule:

(a) is applied or adopted by, or is incorporated in, this Code; and

(b) contains a provision that is inconsistent with a provision of this Code;

the provision of this Code prevails.

1.2.3.2.4 Where a numbered Australian Standard is referenced in this Code, a relevant international (ISO or equivalent) or foreign standard, code or rule will also be recognised in relation to imported material.

1.2.3.2.5 If a word or expression is defined:

(a) in a document referred to in this Code; and

(b) in 1.2.1.1 or 1.2.1.2 of this Code using a different form of words but in a manner that expresses the same idea as the definition in the document referred to:

(c) the expression is taken, as far as practicable, to have the same meaning as it has in the document referred to in this Code.

Table 1.1: Standards referred to in this Code

Reference is by number first, then alphabetically, with SA read as AS and SNZ read as NZS. Reference includes any amendments.

Standard Number			**Standard Title**
HB	9	1994	Occupational personal protection
HB	76	2010	Dangerous goods – Initial emergency response guide *
SA/SNZ	HB 436	2009	Risk Management Guidelines
	ISO 535	2014	Paper and board - Determination of water absorptiveness
	ISO 787	1974 to 2002	General methods of test for pigments and extenders (25 part set)
AS	ISO 1000	1998	The international system of units (SI) and its application
AS	1180.13B	1987	Methods of test for hose made from elastomeric materials – Determination of electrical resistance of hose assembly
AS	1180.13C	1983	Methods of test for hose made from elastomeric materials – Determination of electrical continuity of a hose assembly with reinforcing wire(s)
AS	1210	2010	Pressure vessels
AS	1216	2006	Class labels for dangerous goods
AS/NZS	1269	2005 to 2014	Occupational noise management (Set)
AS/NZS	1336	2014	Eye and face protection - Guidelines

Reference is by number first, then alphabetically, with SA read as AS and SNZ read as NZS. Reference includes any amendments.

Standard Number			Standard Title
AS/NZS	1337	2010 to 2014	Personal eye protection (Set)
AS/NZS	1338	2012	Filters for eye protectors (Set)
AS/NZS	1301.411s	2019	Methods of test for pulp and paper – Water asborptiveness of paper and paperboard (Cobb Test)
	ISO 1496	1995 to 2013	Series 1 freight containers - Specification and testing
	ISO 1523	2002	Determination of flash point - Closed cup equilibrium method
AS/NZS	1580.301.1	2005	Paints and related materials - Methods of test - Non-volatile content by mass
AS/NZS	1595	1998	Cold-rolled, unalloyed, sheet steel and strip
AS/NZS	1596	2014	The storage and handling of LP Gas
AS	1678	1998 to 2005	Emergency procedure guide – Transport (series) or individually by proper shipping name
AS	1692	2006	Steel tanks for flammable and combustible liquids
AS/NZS	1715	2009	Selection, use and maintenance of respiratory protective equipment
AS/NZS	1716	2012	Respiratory protective devices
AS/NZS	1800	1998	Occupational protective helmets - Selection, care and use
AS/NZS	1801	1997	Occupational protective helmets
AS/NZS	1841	2007	Portable fire extinguishers (series)
AS/NZS	1850	2009	Portable fire extinguishers – Classification, rating and performance testing
AS	1851	2012	Routine service of fire protection systems and equipment
AS/NZS	1869	2012	Hose and hose assemblies for liquefied petroleum gas (LP Gas), natural gas and town gas
AS	1894	1997	The storage and handling of non-flammable cryogenic and refrigerated liquids
AS	1940	2017	The storage and handling of flammable and combustible liquids
AS/NZS	2022	2003	Anhydrous ammonia – Storage and handling
AS	2030	1985 to 2009	The verification, filling, inspection, testing and maintenance of cylinders for storage and transport of compressed gases (series)
AS	2106	1999 to 2005	Methods for the determination of the flash point of flammable liquids (closed cup) (series)
AS	2161	2008	Occupational Protective Gloves (Set)
AS	2278.1	2008	Metal aerosol dispensers of capacity 50 ml to 1000 ml inclusive
	ISO 2592	2000	Determination of flash and fire points - Cleveland open cup method
AS	2594	1983	Hose and hose assemblies for liquid chemicals

Reference is by number first, then alphabetically, with SA read as AS and SNZ read as NZS. Reference includes any amendments.

Standard Number			Standard Title
AS	2683	2000	Hose and hose assemblies for distribution of petroleum and petroleum products (excepting LPG)
	ISO 2719	2002	Determination of flash point - Pensky-Martens closed cup method
AS	2700	2011	Colour standards for general purposes (Set)
AS	2809.1	2008	Road tank vehicles for dangerous goods Part 1 – General requirements
AS	2809.2	2008	Road tank vehicles for dangerous goods Part 2 – Tankers for flammable liquids
AS	2809.3	2008	Road tank vehicles for dangerous goods Part 3 – Tankers for compressed liquefiable gases
AS	2809.4	2001	Road tank vehicles for dangerous goods Part 4 – Tankers for toxic and corrosive cargoes
AS	2809.5	2001	Road tank vehicles for dangerous goods Part 5 – Tankers for bitumen-based products
AS	2809.6	2001	Road tank vehicles for dangerous goods Part 6 – Tankers for cryogenic liquids
AS	2854	2004	Tinplate cans for general use
AS/NZS	2927	2019	The storage and handling of liquefied chlorine gas
	ISO 3036	1975	Board - Determination of puncture resistance
	ISO 3405	2011	Petroleum products - Determination of distillation characteristics at atmospheric pressure
	ISO 3573	2012	Hot-rolled carbon steel sheet of commercial and drawing qualities
	ISO 3574	2012	Cold-reduced carbon steel sheet of commercial and drawing qualities
	ISO 3679	2004	Determination of flash point - Rapid equilibrium closed cup method
	ISO 3680	2004	Determination of flash/no flash - Rapid equilibrium closed cup method
AS	3711	1993 to 2015	Freight Containers (series)
AS/NZS	3788	2006	Pressure Equipment – In-service Inspection
AS	3790	1992	Portable warning triangles for motor vehicles
	ISO 3807	1998	Gas cylinders - Acetylene cylinders - Basic requirements and type testing
	ISO 3924	2010	Petroleum products - Determination of boiling range distribution - Gas chromatography method
AS/NZS	3931	1998	Risk Analysis of technological systems – Application guide
AS	4031	1992	Non-reusable containers for the collection of sharp medical items used in health care areas
	ISO 4126	2003 to 2014	Safety devices for protection against excessive pressure
AS/NZS	4261	1994	Reusable containers for the collection of sharp items used in human and animal medical applications
	ISO 4624	2005	Paints and varnishes - Pull-off test for adhesion

Reference is by number first, then alphabetically, with SA read as AS and SNZ read as NZS.
Reference includes any amendments.

Standard Number			Standard Title
	ISO 4706	2008	Gas cylinders - Refillable welded steel cylinders - Test pressure 60 bar and below
AS	4834	2007	Packaging for surface transport of biological material that may cause disease in humans, animals and plants
AS	4939	2001	Non-reusable personal use containers for the collection and disposal of hypodermic needles and syringes
AS/NZS	5601	2013	Gas Installations (Set)
	ISO 5659	2012	Plastics - Smoke generation
	ISO 6383-1	1983	Plastics - Film and sheeting - Determination of tear resistance - Part 1: Trouser tear method
	ISO 6383-2	1983	Plastics - Film and sheeting - Determination of tear resistance - Part 2: Elmendorf method
	ISO 6406	2005	Gas cylinders - Seamless steel gas cylinders - Periodic inspection and testing
	ISO 6892	2009 to 2011	Metallic materials - Tensile testing
	ISO 7225	2005	Gas cylinders - Precautionary labels
	ISO 7765-1	1988	Plastics film and sheeting - Determination of impact resistance by the free-falling dart method - Part 1: Staircase methods
	ISO 7765-2	1994	Plastics film and sheeting - Determination of impact resistance by the free-falling dart method - Part 2: Instrumented puncture test
	ISO 7866	2012	Gas cylinders - Refillable seamless aluminium alloy gas cylinders - Design, construction and testing
AS/NZS	ISO 9001	2016	Quality management systems—Requirements
	ISO 9809	2010 to 2014	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing
	BS EN 10028	2007 to 2010	Flat Products Made Of Steels For Pressure Purposes
	ISO 10156	2010	Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets
	ISO 10297	2014	Gas cylinders - Cylinder valves - Specification and type testing
	ISO 10460	2005	Gas cylinders - Welded carbon-steel gas cylinders - Periodic inspection and testing
	ISO 10461	2005	Gas cylinders - Seamless aluminium-alloy gas cylinders - Periodic inspection and testing
	ISO 10462	2013	Gas cylinders - Acetylene cylinders - Periodic inspection and maintenance
	ISO 10692-1	2001	Gas cylinders - Gas cylinder valve connections for use in the micro-electronics industry - Part 1: Outlet connections
	ISO 10692-2	2001	Gas cylinders - Gas cylinder valve connections for use in the micro-electronics industry - Part 2: Specification and type testing for valve to cylinder connections

Reference is by number first, then alphabetically, with SA read as AS and SNZ read as NZS. Reference includes any amendments.

Standard Number			Standard Title
	ISO 11114-1	2012	Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 1: Metallic materials
	ISO 11114-2	2013	Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 2: Non-metallic materials
	ISO 11114-3	2010	Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 3: Autogenous ignition test for non-metallic materials in oxygen atmosphere
	ISO 11114-4	2005	Transportable gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 4: Test methods for selecting metallic materials resistant to hydrogen embrittlement
	ISO 11117	2008	Gas cylinders - Valve protection caps and valve guards - Design, construction and tests
	ISO 11118	1999	Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods
	ISO 11119-1	2012	Gas cylinders - Refillable composite gas cylinders and tubes - Design, construction and testing - Part 1: Hoop wrapped fibre reinforced composite gas cylinders and tubes up to 450 l
	ISO 11119-2	2012	Gas cylinders - Refillable composite gas cylinders and tubes - Design, construction and testing - Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners
	ISO 11119-3	2013	Gas cylinders - Refillable composite gas cylinders and tubes - Design, construction and testing - Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450L with non-load-sharing metallic or non-metallic liners
	ISO 11120	1999	Gas cylinders - Refillable seamless steel tubes for compressed gas transport, of water capacity between 150 l and 3000 l - Design construction and testing
	ISO 11621	1997	Gas cylinders - Procedures for change of gas service
	ISO 11949	1995	Cold-reduced electrolytic tinplate
	ISO 11950	1995	Cold-reduced electrolytic chromium/chromium oxide-coated steel
	ISO 11951	1995	Cold-reduced blackplate in coil form for the production of tinplate or electrolytic chromium/chromium oxide-coated steel
	ISO 12097-1	2002	Road vehicles - Airbag components - Part 1: Vocabulary
	ISO 12097-2	1996	Road vehicles - Airbag components - Part 2: Testing of airbag modules
	ISO 12097-3	2002	Road vehicles - Airbag components - Part 3: Testing of inflator assemblies
	ISO 13340	2001	Transportable gas cylinders - Cylinders valves for non-refillable cylinders - Specification and prototype testing
	ISO 13736	2013	Determination of flash point - Abel closed-cup method

Reference is by number first, then alphabetically, with SA read as AS and SNZ read as NZS. Reference includes any amendments.			
Standard Number			**Standard Title**
	ISO 13770	1997	Aluminium alloy gas cylinders - Operational requirements for avoidance of neck and shoulder cracks
AS	ISO 16103	2005	Packaging – Transport packaging for dangerous goods– Recycled plastics material
AS	ISO 16106	2006	Packaging – Transport packages for dangerous goods– Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001
	ISO 16111	2008	Transportable gas storage devices - Hydrogen absorbed in reversible metal hydride
	ISO 11623	2002	Transportable gas cylinders - Periodic inspection and testing of composite gas cylinders
	ISO 18172	2007	Gas cylinders - Refillable welded stainless steel cylinders
	ISO 20347	2012	Personal protective equipment - Occupational footwear
	ISO 20703	2006	Gas cylinders - Refillable welded aluminium-alloy cylinders - Design, construction and testing
	ISO 21029	2004	Cryogenic vessels - Transportable vacuum insulated vessels of not more than 1 000 litres volume (2 part set).
AS/NZS	ISO 31000	2009	Risk Management – Principles and Guidelines
AS/NZS	60079.0	2012	Explosive atmospheres - Equipment - General requirements
AS/NZS	60079.1	2007	Explosive atmospheres - Equipment protection by flameproof enclosures ‘d’
AS/NZS	60079.10.1	2009	Explosive atmospheres - Classification of areas - Explosive gas atmospheres (IEC 60079-10-1, Ed.1.0(2008) MOD)
AS/NZS	60079.10.2	2011	Explosive atmospheres - Classification of areas - Combustible dust atmospheres
AS/NZS	60079.11	2011	Electrical apparatus for explosive gas atmospheres – Intrinsic safety 'i'
AS/NZS	60079.14	2009	Explosive atmospheres - Electrical installations design, selection and erection (IEC 60079-14, Ed. 4.0(2007) MOD)
AS/NZS	60079.15	2011	Explosive atmospheres - Equipment protection by type of protection ‘n’
AS/NZS	60079.17	2009	Explosive atmospheres - Electrical installations inspection and maintenance (IEC 60079-17, Ed.4.0(2007) MOD
* Review applicability to chemical being transported. Refer CANUTEC guide.			
Note: The publication date refers to the date of issue of the standard at the date of publication of the ADGC; but includes a future amendment or edition of the standard, if published at a later date; but may also include the previous edition(s) of the standard if that was applicable at the time of testing.			

1.2.3.3 Interpretation of references to GHS

1.2.3.3.1 For the purposes of this Code, a 'thing' is marked in accordance with GHS if the marking complies with the version of GHS that applies in the jurisdiction of origin of the thing, or if the marking otherwise complies with the GHS law in that jurisdiction, and if any words in the marking are in English.

CHAPTER 1.3 - TRAINING

<Reserved>

NOTE: *Chapter 1.3 of UN20 outlines general training issues that are addressed by Division 1.3 of the Model subordinate instrument.*

CHAPTER 1.4 - SECURITY PROVISIONS

<Reserved>

NOTE: *Chapter 1.4 of UN20 outlines general approaches that can be applied by competent authorities to maintaining security of dangerous goods transport. This is a regulatory issue that is outside the scope of this Code.*

In Australia refer to the Office of Inspector of Transport Security. <www.infrastructure.gov.au/transport/security/> or State or Territory authorities.

CHAPTER 1.5 - GENERAL PROVISIONS CONCERNING CLASS 7

<Reserved>

NOTE: *Chapter 1.5 of UN21 lists general provisions to the transport of Class 7 Radioactive material. This section of the UN Model Regulation falls outside of the scope of this Code and the Model Transport Regulations.*

Refer to the following information from the Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) now replaces the information found in earlier editions of the ADG Code.

RPS 2 Code of Practice for the Safe Transport of Radioactive Material

RPS No. 2.1 - Safety Guide for the Safe Transport of Radioactive Material (PDF 608k)

RPS No. 2.2 - Safety Guide for the Approval Processes for the Safe Transport of Radioactive Materials (2012) - PDF 605kb

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PART 2: CLASSIFICATION

CHAPTER 2.0 - INTRODUCTION

Introductory Notes

NOTE 1: *This Part reproduces Part 2 of the 20th revised edition of the UN Model Regulations, except where indicated by the word "<Reserved>" indicating a clause that has been omitted.*

NOTE 2: *This Part provides the rules for classifying all classes of dangerous goods including Class 1 and Class 7 dangerous goods which are not subject to this Code, except insofar as they are transported with other dangerous goods and may be Regulated by State and Federal laws other than Dangerous Goods. Chapters 2.1 and 2.7 are therefore provided for information purposes only. For Classes 1 and 7, reference should be made to the Australian Explosives Code or the Code of Practice for the Safe Transport of Radioactive Substances as appropriate and the legislation covering transport of those classes in the particular jurisdiction.*

NOTE 3: *Where in this Part there is a statement that particular substances or articles are 'not subject to this Code', then those substances or articles are not considered to be dangerous goods for the purposes of this Code or the Regulations provided that all conditions included with that statement are met. This also applies to substances and articles for which there is a reference in Column 6 of the Dangerous Goods List in Chapter 3.2 to a Special Provision in Chapter 3.3 that incorporates such a statement.*

2.0.0 <RESERVED>

***NOTE**:* *Section 2.0.0 of UN21 assigns responsibilities for classifying dangerous goods. In Australia, these responsibilities are assigned by the Regulations, or by State or Territory legislation concerning the transport of explosives or radioactive substances or for storage and handling of dangerous goods.*

2.0.1 CLASSES, DIVISIONS, PACKING GROUPS

2.0.1.1 Definitions

Substances (including mixtures and solutions) and articles subject to this Code are assigned to one of nine classes according to the hazard or the most predominant of the hazards they present. Some of these classes are subdivided into divisions. These classes and divisions are:

Class 1: Explosives

Division 1.1: Substances and articles which have a mass explosion hazard

Division 1.2: Substances and articles which have a projection hazard but not a mass explosion hazard

Division 1.3: Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard

Division 1.4: Substances and articles which present no significant hazard

Division 1.5: Very insensitive substances which have a mass explosion hazard

Division 1.6: Extremely insensitive articles which do not have a mass explosion hazard

Class 2: **Gases**

Division 2.1: Flammable gases

Division 2.2: Non-flammable, non-toxic gases

Division 2.3: Toxic gases

Class 3: **Flammable liquids**

Class 4: **Flammable solids; substances liable to spontaneous combustion; substances which, on contact with water, emit flammable gases**

Division 4.1: Flammable solids, self-reactive substances solid desensitised explosives and polymerizing substances

Division 4.2: Substances liable to spontaneous combustion

Division 4.3: Substances which in contact with water emit flammable gases

Class 5: **Oxidising substances and organic peroxides**

Division 5.1: Oxidising substances

Division 5.2: Organic peroxides

Class 6: **Toxic and infectious substances**

Division 6.1: Toxic substances

Division 6.2: Infectious substances

Class 7: **Radioactive material**

Class 8: **Corrosive substances**

Class 9: **Miscellaneous dangerous substances and articles, including environmentally hazardous substances.**

The numerical order of the classes and divisions is not that of the degree of danger.

2.0.1.2 Many of the substances assigned to Classes 1 to 9 are deemed, without additional labelling, as being environmentally hazardous. Wastes must be transported under the requirements of the appropriate class considering their hazards and the criteria in this Code.

2.0.1.2.1 Wastes not otherwise subject to this Code but covered under the Basel Convention[1] may be transported under Class 9.

2.0.1.3 For packing purposes, substances other than those of Classes 1, 2 and 7, Divisions 5.2 and 6.2, and other than self-reactive substances of

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[1] *Basel Convention on the Control of 2. Transboundary Movements of Hazardous Wastes and their Disposal (1989).*

Division 4.1, are assigned to three packing groups in accordance with the degree of danger they present:

Packing group I: Substances presenting high danger;

Packing group II: Substances presenting medium danger; and

Packing group III: Substances presenting low danger.

The packing group to which a substance is assigned is indicated in the Dangerous Goods List in Chapter 3.2.

Articles are not assigned to packing groups. For packing purposes any requirement for a specific packaging performance level is set out in the applicable packing instruction.

2.0.1.4 Dangerous goods are determined to present one or more of the dangers represented by Classes 1 to 9 and divisions and, if applicable, the degree of danger on the basis of the requirements in Chapters 2.1 to 2.9.

2.0.1.5 Dangerous goods presenting a danger of a single class and division are assigned to that class and division and the degree of danger (packing group), if applicable, determined. When an article or substance is specifically listed by name in the Dangerous Goods List in Chapter 3.2, its class or division, its subsidiary hazard(s) and, when applicable, its packing group are taken from this list.

2.0.1.6 Dangerous goods meeting the defining criteria of more than one hazard class or division and which are not listed by name in the Dangerous Goods List, are assigned to a class and division and subsidiary hazard(s) on the basis of the precedence of hazards in 2.0.3.

2.0.2 UN NUMBERS AND PROPER SHIPPING NAMES

2.0.2.1 Dangerous goods are assigned to UN numbers and proper shipping names according to their hazard classification and their composition.

2.0.2.2 Dangerous goods commonly carried are listed in the Dangerous Goods List in Chapter 3.2. Where an article or substance is specifically listed by name, it must be identified in transport by the proper shipping name in the Dangerous Goods List. Such substances may contain technical impurities (for example those deriving from the production process) or additives for stability or other purposes that do not affect its classification. However, a substance listed by name containing technical impurities or additives for stability or other purposes affecting its classification must be considered a mixture or solution (see 2.0.2.5). For dangerous goods not specifically listed by name “generic” or “not otherwise specified” entries are provided (see 2.0.2.7) to identify the article or substance in transport. The substances listed by name in column (2) of the Dangerous Goods List of Chapter 3.2 shall be transported according to their classification in the list or as determined by a Competent Authority.

Each entry in the Dangerous Goods List is characterised by a UN number. This list also contains relevant information for each entry, such as hazard class, subsidiary hazard(s) (if any), packing group (where assigned), packing and tank transport requirements, etc. Entries in the

Dangerous Goods List are of the following four types:

(a) Single entries for well-defined substances or articles e.g.

1090 ACETONE

1194 ETHYL NITRITE SOLUTION;

(b) Generic entries for well-defined groups of substances or articles e.g.

1133 ADHESIVES

1266 PERFUMERY PRODUCT

2757 CARBAMATE PESTICIDE, SOLID, TOXIC

3101 ORGANIC PEROXIDE, TYPE B, LIQUID;

(c) Specific N.O.S. entries covering a group of substances or articles of a particular chemical or technical nature e.g.

1477 NITRATES, INORGANIC, N.O.S.

1987 ALCOHOLS, N.O.S.;

(d) General N.O.S. entries covering a group of substances or articles meeting the criteria of one or more classes or divisions e.g.

1325 FLAMMABLE SOLID, ORGANIC, N.O.S.

1993 FLAMMABLE LIQUID, N.O.S.

2.0.2.3 All self-reactive substances of Division 4.1 are assigned to one of twenty generic entries in accordance with the classification principles and flow chart described in 2.4.2.3.3 and Figure 2.4.1.

2.0.2.4 All organic peroxides of Division 5.2 are assigned to one of twenty generic entries in accordance with the classification principles and flow chart described in 2.5.3.3 and Figure 2.5.1.

2.0.2.5 A mixture or solution meeting the classification criteria of this Code composed of a single predominant substance identified by name in the Dangerous Goods List and one or more substances not subject to this Code and/or traces of one or more substances identified by name in the Dangerous Goods List, must be assigned the UN number and proper shipping name of the predominant substance named in the Dangerous Goods List unless:

(a) the mixture or solution is identified by name in the Dangerous Goods List;

(b) the name and description of the substance named in the Dangerous Goods List specifically indicate that they apply only to the pure substance;

(c) the hazard class or division, subsidiary hazard(s), packing group, or physical state of the mixture or solution is different from that of the substance named in the Dangerous Goods List; or

(d) the hazard characteristics and properties of the mixture or solution necessitate emergency response measures that are different from those required for the substance identified by name in the Dangerous Goods List.

In those other cases, except the one described in paragraph (a), the mixture or solution is to be treated as a dangerous substance not specifically listed by name in the Dangerous Goods List.

2.0.2.6 For a solution or mixture when the hazard class, the physical state or the packing group is changed in comparison with the listed substance, the appropriate N.O.S. entry must be used including its packaging and labelling provisions.

2.0.2.7 A mixture or solution containing one or more substances identified by name in this Code or classified under a N.O.S. entry and one or more substances is not subject to this Code if the hazard characteristics of the mixture or solution are such that they do not meet the criteria (including human experience criteria) for any class.

2.0.2.8 Substances or articles which are not specifically listed by name in the Dangerous Goods List must be classified under a "generic" or "not otherwise specified" ("N.O.S.") entry. The substance or article must be classified according to the class definitions and test criteria in this Part, and the article or substance classified under the generic or "N.O.S." entry in the Dangerous Goods List which most appropriately describes the article or substance[1]. This means that a substance is only to be assigned to an entry of type (c), as defined in 2.0.2.2, if it cannot be assigned to an entry of type (b), and to an entry of type (d) if it cannot be assigned to an entry of type (b) or (c)[2].

2.0.2.9 A mixture or solution meeting the classification criteria of this Code that is not identified by name in the Dangerous Goods List and that is composed of two or more dangerous goods must be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary hazards(s) and packing group that most precisely describe the mixture or solution.

2.0.3 PRECEDENCE OF HAZARD CHARACTERISTICS

2.0.3.1 The table below should be used to determine the class of a substance, mixture or solution having more than one hazard, when it is not named in the Dangerous Goods List in Chapter 3.2 or to assign the appropriate entry for articles containing dangerous goods N.O.S. 3537 to 3548, see 2.0.5. For goods having multiple hazards which are not specifically listed by name in the Dangerous Goods List, the most stringent packing group denoted to the respective hazards of the goods takes precedence over other packing groups, irrespective of the precedence of hazard table in this Chapter. The precedence of hazard characteristics of the following have not been dealt with in the Precedence of hazards Table in 2.0.3.3, as these primary characteristics always take precedence:

(a) Substances and articles of Class 1;
(b) Gases of Class 2;
(c) Liquid desensitised explosives of Class 3;
(d) Self-reactive substances and solid desensitised explosives of Division 4.1;
(e) Pyrophoric substances of Division 4.2;
(f) Substances of Division 5.2;

[1] *See also the "List of generic or N.O.S. proper shipping names" in 3.2.6.*

[2] *Except for substances or preparations meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists (LC_{50}) in the range of packing group I, but toxicity through oral ingestion or dermal contact only in the range of packing group III or less, which must be allocated to Class 8.*

(g) Substances of Division 6.1 with a packing group I inhalation toxicity[1]:
(h) Substances of Division 6.2;
(i) Material of Class 7.

2.0.3.2 Apart from radioactive material in excepted packages (where the other hazardous properties take precedence) radioactive material having other hazardous properties must always be classified in Class 7 and the subsidiary hazard must also be identified. For radioactive material in excepted packages, except for UN 3507, URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, special provision 290 of Chapter 3.3 applies.

[1] *See also the "List of generic or N.O.S. proper shipping names" in 3.2.6.*

Table 2.0.3.3: Precedence of hazards

Class or Division and Packing Group		**4.2**	**4.3**	**5.1 I**	**5.1 II**	**5.1 III**	**6.1, I Dermal**	**6.1, I Oral**	**6.1 II**	**6.1 III**	**8, I Liquid**	**8, I Solid**	**8, II Liquid**	**8, II Solid**	**8, III Liquid**	**8, III Solid**
3	I[a]		4.3				3	3	3	3	3	–	3	–	3	–
3	II[a]		4.3				3	3	3	3	8	–	3	–	3	–
3	III[a]		4.3				6.1	6.1	6.1	3[b]	8	–	8	–	3	–
4.1	II[a]	4.2	4.3	5.1	4.1	4.1	6.1	6.1	4.1	4.1	–	8	–	4.1	–	4.1
4.1	III[a]	4.2	4.3	5.1	4.1	4.1	6.1	6.1	6.1	4.1	–	8	–	8	–	4.1
4.2	II		4.3	5.1	4.2	4.2	6.1	6.1	4.2	4.2	8	8	4.2	4.2	4.2	4.2
4.2	III		4.3	5.1	5.1	4.2	6.1	6.1	6.1	4.2	8	8	8	8	4.2	4.2
4.3	I			5.1	4.3	4.3	6.1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4.3	II			5.1	4.3	4.3	6.1	4.3	4.3	4.3	8	8	4.3	4.3	4.3	4.3
4.3	III			5.1	5.1	4.3	6.1	6.1	6.1	4.3	8	8	8	8	4.3	4.3
5.1	I						5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
5.1	II						6.1	5.1	5.1	5.1	8	8	5.1	5.1	5.1	5.1
5.1	III						6.1	6.1	6.1	5.1	8	8	8	8	5.1	5.1
6.1	I Dermal										8	6.1	6.1	6.1	6.1	6.1

6.1	I Oral										8	6.1	6.1	6.1	6.1	6.1
6.1	II Inhalation										8	6.1	6.1	6.1	6.1	6.1
6.1	II Dermal										8	6.1	8	6.1	6.1	6.1
6.1	II Oral										8	8	8	6.1	6.1	6.1
6.1	III										8	8	8	8	8	8

Table Notes:

a Substances of Division 4.1 other than self-reactive substances and solid desensitised explosives and substances of Class 3 other than liquid desensitised explosives.

b 6.1 for pesticides.

– Denotes an impossible combination.

For hazards not shown in this table, see 2.0.3.

2.0.4 TRANSPORT OF SAMPLES

2.0.4.1 When the hazard class of a substance is uncertain and it is being transported for further testing, a tentative hazard class, proper shipping name and identification number must be assigned on the basis of the consignor's knowledge of the substance and application of:

(a) the classification criteria of this Code; and

(b) the precedence of hazards given in 2.0.3.

The most severe packing group possible for the proper shipping name chosen must be used.

Where this provision is used the proper shipping name must be supplemented with the word “SAMPLE” (e.g., FLAMMABLE LIQUID, N.O.S. SAMPLE). In certain instances, where a specific proper shipping name is provided for a sample of a substance considered to meet certain classification criteria (e.g. GAS SAMPLE, NON-PRESSURISED, FLAMMABLE, UN 3167) that proper shipping name must be used. When an N.O.S. entry is used to transport the sample, the proper shipping name need not be supplemented with the technical name as required by special provision 274.

2.0.4.2 Samples of the substance must be transported in accordance with the requirements applicable to the tentative assigned proper shipping name provided:

(a) the substance is not considered to be a substance prohibited for transport by 1.1.2 or the Regulations;

(b) the substance is not considered to meet the criteria for Class 1 or considered to be an infectious substance or a radioactive material;

(c) the substance is in compliance with 2.4.2.3.2.4(b) or 2.5.3.2.5.1 if it is a self-reactive substance or an organic peroxide, respectively;

(d) the sample is transported in a combination packaging with a net mass per package not exceeding 2.5 kg; and

(e) the sample is not packed together with other goods.

2.0.4.3 Samples of energetic materials for testing purposes

2.0.4.3.1 Samples of organic substances carrying functional groups listed in tables A6.1 and/or A6.3 in Appendix 6 (Screening Procedures of the Manual of Tests and Criteria may be transported under UN 3224 (self-reactive solid type C) or UN 3223 (self-reactive liquid type C), as applicable, of Division 4.1 provided that:

(a) The samples do not contain any:

- (i) Known explosives;
- (ii) Substances showing explosive effects in testing;
- (iii) Compounds designed with the view of producing a practical explosive or pyrotechnic effect; or
- (iv) Components consisting of synthetic precursors of intentional explosives;

(b) For mixtures, complexes or salts of inorganic oxidizing substances of Division 5.1 with organic material(s), the concentration of the inorganic oxidizing substance is:

Less than 15% by mass, is assigned to packing group I (high hazard) or II (medium hazard); or

(c) Available data do not allow a more precise classification;

(d) The sample is not packed together with other goods; and

(e) The sample is packed in accordance with packing instructions P520 and special packing provisions PP94 or PP95 of 4.1.4.1, as applicable.

2.0.5 CLASSIFICATION OF ARTICLES CONTAINING DANGEROUS GOODS N.O.S.

NOTE: *For articles which do not have an existing proper shipping name and which contain only dangerous goods within the permitted limited quantity amounts specified in Column 7a of the Dangerous Goods List, see UN No. 3363 and special provision 301 of Chapter 3.3.*

2.0.5.1 Articles containing dangerous goods may be classified as otherwise provided by this Code under the proper shipping name for the dangerous goods they contain or in accordance with this section. For the purposes of this section “article” means machinery, apparatus or other devices containing one or more dangerous goods (or residues thereof) that are an integral element of the article, necessary for its functioning and that cannot be removed for the purpose of transport. An inner packaging shall not be an article.

2.0.5.2 Such articles may in addition contain batteries. Lithium batteries that are integral to the article shall be of a type proven to meet the testing requirements of the Manual of Tests and Criteria, part III, sub-section 38.3, except when otherwise specified by this Code (e.g. for pre-production prototype articles containing lithium batteries or for a small production run, consisting of not more than 100 such articles).

2.0.5.3 This section does not apply to articles for which a more specific proper shipping name already exists in the Dangerous Goods List of Chapter 3.2.

2.0.5.4 This section does not apply to dangerous goods of Class 1, Division 6.2, Class 7 or radioactive material contained in articles. However, this section applies to articles containing explosives which are excluded from Class 1 in accordance with 2.1.3.6.4.

2.0.5.5 Articles containing dangerous goods shall be assigned to the appropriate Class or Division determined by the hazards present using, where applicable, the Precedence of Hazards table in 2.0.3.3 for each of the dangerous goods contained in the article. If dangerous goods classified as Class 9 are contained within the article, all other dangerous goods present in the article shall be considered to present a higher hazard.

2.0.5.6 Subsidiary hazards shall be representative of the primary hazard posed by the other dangerous goods contained within the article. When only one item of dangerous goods is present in the article, the subsidiary hazard(s), if any, shall be the subsidiary hazard(s) identified in column (4) of the Dangerous Goods List. If the article contains more than one item of dangerous goods and these could react dangerously with one another during transport, each of the dangerous goods shall be enclosed separately (see 4.1.1.6).

CHAPTER 2.1 - CLASS 1 - EXPLOSIVES

Introductory Notes

NOTE 0: *Chapter 2.1 is reproduced from UN21 for information purposes in order to provide a single Australian source document for classification criteria for all classes of dangerous goods.*

THE TRANSPORT OF CLASS 1 IS NOT SUBJECT TO THIS CODE.

Transport of Class 1 by road or rail in Australia is subject to the Australian Explosives Code and separate State and Territory legislation. However, subject to that legislation, when other dangerous goods are being transported with Class 1 dangerous goods, the segregation requirements of Part 9 of this Code may apply (refer to State and Territory legislation).

NOTE 1: *Class 1 is a restricted class, that is, only those explosive substances and articles that are listed in the Dangerous Goods List in Chapter 3.2 may be accepted for transport. However, competent authorities retain the right by mutual agreement to approve transport of explosive substances and articles for special purposes under special conditions. Therefore entries have been included in the Dangerous Goods List for "Substances, explosive, not otherwise specified" and "Articles, explosive, not otherwise specified". It is the intention that these entries will be used only when no other method of operation is possible.*

NOTE 2: *General entries such as "Explosive, blasting, Type A" are used to allow for the transport of new substances. In preparing these requirements, military ammunition and explosives have been taken into consideration to the extent that they are likely to be transported by commercial carriers.*

NOTE 3: *A number of substances and articles in Class 1 are described in Appendix B[1] of UN20 and the Australian Explosives Code. These descriptions are given because a term may not be well-known or may be at variance with its usage for regulatory purposes.*

***NOTE 4**:* *Class 1 is unique in that the type of packaging frequently has a decisive effect on the hazard and therefore on the assignment to a particular division. The correct division is determined by use of the procedures provided in this Chapter.*

2.1.1 DEFINITIONS AND GENERAL PROVISIONS

2.1.1.1 Class 1 comprises:

(a) Explosive substances (a substance which is not itself an explosive but which can form an explosive atmosphere of gas, vapour or dust is not included in Class 1), except those that are too dangerous to transport or those where the predominant hazard is appropriate to another class;

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1 *Appendix B from the UN Model Regulations are not included in this Code.*

(b) Explosive articles, except devices containing explosive substances in such quantity or of such a character that their inadvertent or accidental ignition or initiation during transport will not cause any effect external to the device either by projection, fire, smoke, heat or loud noise (see 2.1.3.6); and

(c) substances and articles not mentioned under (a) and (b) which are manufactured with a view to producing a practical explosive or pyrotechnic effect.

2.1.1.2 Transport of explosive substances which are unduly sensitive or so reactive as to be subject to spontaneous reaction is prohibited.

2.1.1.3 Definitions

For the purposes of UN21 and this Code, the following definitions apply:

(a) **Explosive substance** is a solid or liquid substance (or a mixture of substances) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. Pyrotechnic substances are included even when they do not evolve gases;

(b) **Pyrotechnic** substance is a substance or a mixture of substances designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reactions;

(c) **Explosive** *article* is an article containing one or more explosive substances;

(d) **Phlegmatised** means that a substance (or “phlegmatiser”) has been added to an explosive to enhance its safety in handling and transport. The phlegmatiser renders the explosive insensitive, or less sensitive, to the following actions: heat, shock, impact, percussion or friction. Typical phlegmatising agents include, but are not limited to: wax, paper, water, polymers (such as chlorofluoropolymers), alcohol and oils (such as petroleum jelly and paraffin).

2.1.1.4 Divisions

Class 1 is divided into six divisions as follows:

(a) **Division 1.1** Substances and articles which have a mass explosion hazard (a mass explosion is one which affects almost the entire load virtually instantaneously);

(b) **Division 1.2** Substances and articles which have a projection hazard but not a mass explosion hazard;

(c) **Division 1.3** Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard.

This division comprises substances and articles:

(i) which give rise to considerable radiant heat; or

(ii) which burn one after another, producing minor blast or projection effects or both;

(d) **Division 1.4** Substances and articles which present no significant hazard

This division comprises substances and articles which present only a small hazard in the event of ignition or initiation during transport. The effects are largely confined to the package and no projection of fragments of appreciable size or range is to be expected. An external fire will not cause virtually instantaneous explosion of almost the entire contents of the package;

NOTE: *Substances and articles of this division are in Compatibility Group S if they are so packaged or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder fire-fighting or other emergency response efforts in the immediate vicinity of the package.*

(e) **Division 1.5** Very insensitive substances which have a mass explosion hazard

This division comprises substances which have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport;

NOTE: *The probability of transition from burning to detonation is greater when large quantities are carried in a ship.*

(f) **Division 1.6** Extremely insensitive articles which do not have a mass explosion hazard

This division comprises articles which predominantly contain extremely insensitive substances and which demonstrate a negligible probability of accidental initiation or propagation.

NOTE: *The hazard from articles of Division 1.6 is limited to the explosion of a single article.*

2.1.1.5 Any substance or article having or suspected of having explosive characteristics must first be considered for classification in Class 1 in accordance with the procedures in 2.1.3. Goods are not classified in Class 1 when:

(a) unless specially authorised, the transport of an explosive substance is prohibited because sensitivity of the substance is excessive; or
(b) the substance or article comes within the scope of those explosive substances and articles which are specifically excluded from Class 1 by the definition of this class; or
(c) the substance or article has no explosive properties.

2.1.2 COMPATIBILITY GROUPS

2.1.2.1 Goods of Class 1 are assigned to one of six divisions, depending on the type of hazard they present (see 2.1.1.4) and to one of thirteen compatibility groups which identify the kinds of explosive substances and articles that are deemed to be compatible. The tables in 2.1.2.1.1 and 2.1.2.1.2 show the scheme of classification into compatibility groups, the possible hazard divisions associated with each group and the consequential classification codes.

Table 2.1.2.1.1: Classification codes

Description of substance or article to be classified	Compatibility Group	Classification Code
Primary explosive substance	A	1.1A
Article containing a primary explosive substance and not containing two or more effective protective features. Some articles, such as detonators for blasting, detonator assemblies for blasting and primers, cap-type, are included, even though they do not contain primary explosives	B	1.1B 1.2B 1.4B
Propellant explosive substance or other deflagrating explosive substance or article containing such explosive substance	C	1.1C 1.2C 1.3C 1.4C
Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features	D	1.1D 1.2D 1.4D 1.5D
Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids)	E	1.1E 1.2E 1.4E
Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge	F	1.1F 1.2F 1.3F 1.4F
Pyrotechnic substance, or article containing a pyrotechnic substance, or article containing both an explosive substance and an illuminating, incendiary, tear - or smoke-producing substance (other than a water-activated article or one containing white phosphorus, phosphides a pyrophoric substance, a flammable liquid or gel, or hypergolic liquids)	G	1.1G 1.2G 1.3G 1.4G
Article containing both an explosive substance and white phosphorus	H	1.2H 1.3H
Article containing both an explosive substance and a flammable liquid or gel	J	1.1J 1.2J 1.3J
Article containing both an explosive substance and a toxic chemical agent	K	1.2K 1.3K
Explosive substance or article containing an explosive substance and presenting a special hazard (e.g. due to water-activation or presence of hypergolic liquids, phosphides or a pyrophoric substance) and needing isolation of each type (see 7.1.3.1.5 of UN21)	L	1.1L 1.2L 1.3L
Articles predominantly containing extremely insensitive substances	N	1.6N
Substance or article so packed or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prohibit fire fighting or other emergency response efforts in the immediate vicinity of the package	S	1.4S

Table notes:

NOTE A *Articles of compatibility groups D and E may be fitted or packed together with their own means of initiation provided that such means have at least* *two effective protective features designed to prevent an explosion in the event of accidental functioning of the means of initiation. Such articles and packages must be assigned to compatibility groups D or E.*

NOTE B *Articles of compatibility groups D and E may be packed together with their own means of initiation, which do not have two effective protective features when, in the opinion of the competent authority of the country of origin, the accidental functioning of the means of initiation does not cause the explosion of an article under normal conditions of transport. Such packages must be assigned to compatibility groups D or E.*

2.1.2.1.2 Scheme of classification of explosives, combination of hazard division with compatibility group

Table 2.1.2.1.2: Explosive compatibility group

Hazard Division	**Compatibility Group**													**A-S ∑**
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**N**	**S**	
1.1	1.1A	1.1B	1.1C	1.1D	1.1E	1.1F	1.1G		1.1J		1.1L			9
1.2		1.2B	1.2C	1.2D	1.2E	1.2F	1.2G	1.2H	1.2J	1.2K	1.2L			10
1.3			1.3C			1.3F	1.3G	1.3H	1.3J	1.3K	1.3L			7
1.4		1.4B	1.4C	1.4D	1.4E	1.4F	1.4G						1.4S	7
1.5				1.5D										1
1.6												1.6N		1
1.1-1.6 ∑	1	3	4	4	3	4	4	2	3	2	3	1	1	35

2.1.2.2 The definitions of compatibility groups in 2.1.2.1.1 are intended to be mutually exclusive, except for a substance or article which qualifies for Compatibility Group S. Since the criterion of Compatibility Group S is an empirical one, assignment to this Group is necessarily linked to the tests for assignment to Division 1.4.

2.1.3 CLASSIFICATION PROCEDURE

2.1.3.1 General

2.1.3.1.1 Any substance or article having or suspected of having explosives characteristics must be considered for classification in Class 1. Substances and articles classified in Class 1 must be assigned to the appropriate division and compatibility group.

2.1.3.1.2 Except for substances which are listed by their proper shipping name in the Dangerous Goods List in Chapter 3.2, goods must not be offered for transport as Class 1 until they have been subjected to the classification procedure prescribed in this section. In addition, the classification procedure must be undertaken before a new product is offered for transport. In this context a new product is one which, in the opinion of the competent authority, involves any of the following:

(a) a new explosive substance or a combination or a mixture of explosive substances which is considered to be significantly different from other combinations or mixtures already classified;

(b) a new design of article or an article containing a new explosive substance or a new combination or mixture of explosive substances;

(c) a new design of package for an explosive substance or article including a new type of inner packaging;

NOTE: The importance of this can be overlooked unless it is realised that a relatively minor change in an inner or outer packaging can be critical and can convert a lesser hazard into a mass explosion hazard.

2.1.3.1.3 The producer or other applicant for classification of a product must provide adequate information concerning the names and characteristics of all explosive substances in the product and must furnish the results of all relevant tests which have been done. It is assumed that all the explosive substances in a new article have been properly tested and then approved.

2.1.3.1.4 A report on the series of tests must be drawn up in accordance with the requirements of the competent authority. It must in particular contain information on:

(a) the composition of the substance or the structure of the article;

(b) the quantity of substance or number of articles per test;

(c) the type and construction of the packaging;

(d) the test assembly, including in particular the nature, quantity and arrangement of the means of initiation or ignition used;

(e) the course of the test, including in particular the time elapsing until the occurrence of the first noteworthy reaction of the substance or article, the duration and characteristics of the reaction, and an estimate of the latter's completeness;

(f) the effect of the reaction on the immediate surroundings (up to 25 m from the site of the test);

(g) the effect of the reaction on the more remote surroundings (more than 25 m from the site of the test); and

(h) the atmospheric conditions during the test.

2.1.3.1.5 Verification of the classification must be undertaken if the substance or article or its packaging is degraded and the degradation might affect the behaviour of the item in the tests.

2.1.3.2 Procedure

2.1.3.2.1 Figure 2.1.1 indicates the general scheme for classifying a substance or article which is to be considered for inclusion in Class 1. The assessment is in two stages. First, the potential of a substance or article to explode must be ascertained and its stability and sensitivity, both chemical and physical, must be shown to be acceptable. In order to promote uniform assessments by competent authorities, it is recommended that data from suitable tests be analysed systematically with respect to the appropriate test criteria using the flow chart of Figure 10.2 in Part I of the Manual of Tests and Criteria. If the substance or article is acceptable for Class 1 it is then necessary to proceed to the second stage, to assign the correct hazard division by the flow chart of Figure 10.3 in the same publication.

2.1.3.2.2 The tests for acceptance and the further tests to determine the correct division in Class 1 are conveniently grouped into seven series as listed in Part I of the Manual of Tests and Criteria. The numbering of these series relates to the sequence of assessing results rather than the order in which the tests are conducted.

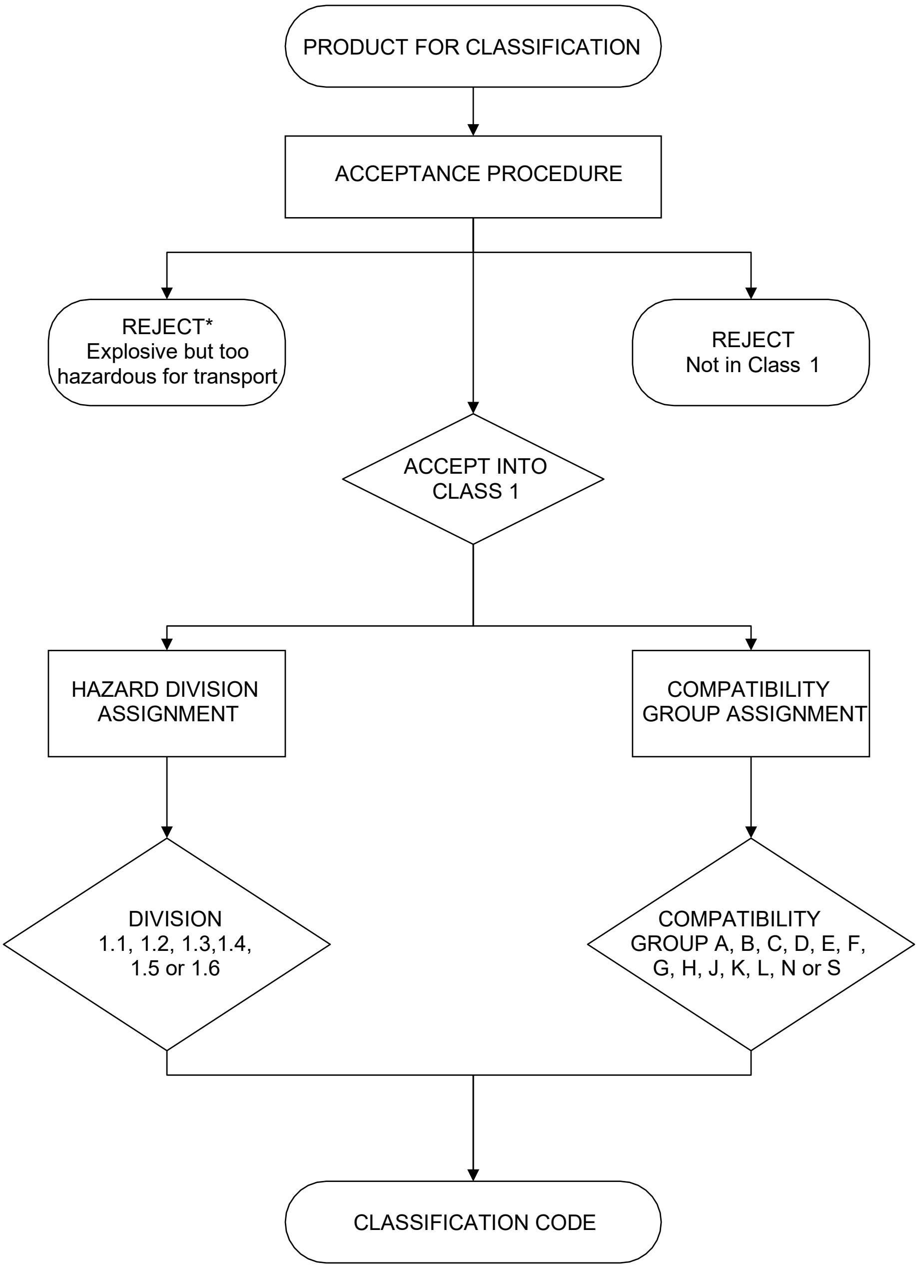
2.1.3.2.3 Scheme of procedure for classifying a substance or article.

***NOTE 1**: The competent authority which prescribes the definitive test method corresponding to each of the Test Types should specify the appropriate test criteria. Where there is international agreement on test criteria, the details are given in the publication referred to above describing the seven series of tests.*

***NOTE 2:** The scheme of assessment is only designed for the classification of packaged substances and articles and for individual unpacked articles. Transport in freight containers, road vehicles and rail wagons may require special tests which take into consideration the quantity (self-confinement) and kind of substance and the container for the substance. Such tests may be specified by the competent authorities.*

***NOTE 3:** Since there will be borderline cases with any scheme of testing there should be an ultimate authority who will make the final decision. Such a decision may not receive international acceptance and may therefore be valid only in the country where it is made. The United Nations Committee of Experts on the Transport of Dangerous Goods provides a forum for the discussion of borderline cases. Where international recognition is sought for a classification, the competent authority should submit full details of all tests made including the nature of any variations introduced.*

Figure 2.1.1: Scheme of procedure for classifying a substance or article



* See 2.1.3.3.2

2.1.3.3 Acceptance procedure

2.1.3.3.1 The results from preliminary tests and those from Test Series 1 to 4 are used to determine whether or not the product is acceptable for Class 1. If the substance is manufactured with a view to producing a practical explosive or pyrotechnic effect, it is unnecessary to conduct Test Series 1 and 2. If an article, a packaged article or a packaged substance is rejected by Test Series 3 and/or 4 it may be practicable to redesign the article or the packaging to render it acceptable.

NOTE: *Some devices may function accidentally during transport. Theoretical analysis, test data or other evidence of safety should be provided to establish that such an event is very unlikely or that the consequences would not be significant. The assessment should take account of vibration related to the proposed modes of transport, static electricity, electromagnetic radiation at all relevant frequencies (maximum intensity 100 $W.m^{-2}$), adverse climatic conditions and compatibility of explosive substances with glues, paints and packaging materials with which they may come in contact. All articles containing primary explosive substances should be assessed to evaluate the risk and consequences of accidental functioning during transport. The reliability of fuses should be assessed taking account of the number of independent safety features. All articles and packaged substances should be assessed to ensure they have been designed in a good workmanlike manner (e.g. there is no possibility of formation of voids or thin films of explosive substance, and no possibility of grinding or nipping explosive substances between hard surfaces).*

2.1.3.3.2 A product that is determined to be not acceptable for Class 1 in accordance with 2.1.3.3.1 due to either sensitivity or instability must be assessed as too dangerous to be transported.

2.1.3.4 Assignment to hazard divisions

2.1.3.4.1 Assessment of the hazard division is usually made on the basis of test results. A substance or article must be assigned to the hazard division which corresponds to the results of the tests to which the substance or article, as offered for transport, has been subjected. Other test results, and data assembled from accidents which have occurred, may also be taken into account.

2.1.3.4.2 Test series 5, 6 and 7 are used for the determination of the hazard division. Test series 5 is used to determine whether a substance can be assigned to Division 1.5. Test series 6 is used for the assignment of substances and articles to Divisions 1.1, 1.2, 1.3 and 1.4. Test series 7 is used for the assignment of articles to Division 1.6.

2.1.3.4.3 In the case of Compatibility Group S the tests may be waived by the competent authority if classification by analogy is possible using test results for a comparable article.

2.1.3.5 Assignment of fireworks to hazard divisions

2.1.3.5.1 Fireworks must normally be assigned to hazard divisions 1.1, 1.2, 1.3, and 1.4 on the basis of test data derived from Test Series 6. However

(a) waterfalls containing flash composition (see Note 2 of 2.1.3.5.5) shall be classified as 1.1G regardless of the results of Test Series 6;
(b) since the range of fireworks is very extensive and the availability of test facilities may be limited, assignment to hazard divisions may also be made in accordance with the procedure in 2.1.3.5.2.

2.1.3.5.2 Assignment of fireworks to UN Nos. 0333, 0334, 0335 or 0336, and articles to UN 0431 for those used for theatrical effects meeting the definition for article type and 1.4G specification in the default fireworks classification table in 2.1.3.5.5 may be made on the basis of analogy, without the need for Test Series 6 testing, in accordance with the default fireworks classification table in 2.1.3.5.5. Such assignment must be made with the agreement of the competent authority. Items not specified in the table must be classified on the basis of test data derived from Test Series 6.

NOTE 1: *The addition of other types of fireworks to column 1 of the table in 2.1.3.5.5 should only be made on the basis of full test data submitted to the UN Sub-Committee of Experts on the Transport of Dangerous Goods for consideration.*

NOTE 2: *Test data derived by competent authorities which validates, or contradicts the assignment of Hazard Division to fireworks specified in column 4 of the table in 2.1.3.5.5 to hazard divisions in column 5 should be submitted to the UN Sub-Committee of Experts on the Transport of Dangerous Goods for information (see also note 3 in 2.1.3.2.3).*

2.1.3.5.3 Where fireworks of more than one hazard division are packed in the same package they must be classified on the basis of the highest hazard division unless test data derived from Test Series 6 indicate otherwise.

2.1.3.5.4 The classification shown in the table in 2.1.3.5.5 applies only for articles packed in fibreboard boxes (4G).

2.1.3.5.5 Default fireworks Classification table[1]

NOTE 1: *References to percentages in the table, unless otherwise stated, are to the mass of all pyrotechnic substances (e.g. rocket motors, lifting charge, bursting charge and effects charge).*

NOTE 2: *"Flash composition" in this table refers to pyrotechnic substances in powder form or as pyrotechnic units as presented in the fireworks that are used in waterfalls, or to produce an aural effect or used as a bursting charge, or propellant charge unless:*

(a) The time taken for the pressure rise in the HSL Flash Composition Test in Appendix 7 of the Manual of Tests and Criteria is demonstrated to be more than 6 ms for 0.5 g of pyrotechnic substance; or

(b) The pyrotechnic substance gives a negative "-" result in the US Flash Composition Test in Appendix 7 of the Manual of Tests and Criteria

NOTE 3: *Dimensions in mm refer to:*

(a) For spherical and peanut shells the diameter of the sphere of the shell;

(b) For cylinder shells the length of the shell;

[1] *This table contains a list of firework classifications that may be used in the absence of Test Series 6 data (See 2.1.3.5.2).*

(c) For a shell in mortar, Roman candle, shot tube firework or mine the inside diameter of the tube comprising or containing the firework;

(d) For a bag mine or cylinder mine, the inside diameter of the mortar intended to contain the mine.

Table 2.1.3.5.5: Default fireworks classification table

Type	Includes: / Synonym:	Definition	Specification	Classification
Shell, spherical or cylindrical	Spherical display shell: aerial shell, colour shell, dye shell, multi-break shell, multi-effect shell, nautical shell, parachute shell, smoke shell, star shell; report shell: maroon, salute, sound shell, thunderclap, aerial shell kit	Device with or without propellant charge, with delay fuse and bursting charge, pyrotechnic unit(s) or loose pyrotechnic substance and designed to be projected from a mortar	All report shells	1.1G
			Colour shell: ≥ 180 mm	1.1G
			Colour shell: < 180 mm with > 25% flash composition, as loose powder and/ or report effects	1.1G
			Colour shell: < 180 mm with ≤ 25% flash composition, as loose powder and/ or report effects	1.3G
			Colour shell: ≤ 50 mm, or ≤ 60 g pyrotechnic substance, with ≤ 2% flash composition as loose powder and/ or report effects	1.4G
	Peanut shell	Device with two or more spherical aerial shells in a common wrapper propelled by the same propellant charge with separate external delay fuses	The most hazardous spherical aerial shell determines the classification	
	Preloaded mortar, shell in mortar	Assembly comprising a spherical or cylindrical shell inside a mortar from which the shell is designed to be projected	All report shells	1.1G
			Colour shell: ≥ 180 mm	1.1G
			Colour shell: > 25% flash composition as loose powder and/or report effects	1.1G
			Colour shell: > 50 mm and < 180 mm	1.2G
			Colour shell: ≤ 50 mm, or < 60 g pyrotechnic substance, with ≤ 25% flash composition as loose powder and/ or report effects	1.3G
	Shell of shells (spherical) (Reference to percentages for shell of shells are to the gross mass of the fireworks article)	Device without propellant charge, with delay fuse and bursting charge, containing report shells and inert materials and designed to be projected from a mortar	> 120 mm	1.1G
		Device without propellant charge, with delay fuse and bursting charge, containing report shells ≤ 25g flash composition per report unit, with ≤ 33% flash composition and ≥ 60% inert materials and designed to be projected from a mortar	≤ 120 mm	1.3G

Type	Includes: / Synonym:	Definition	Specification	Classification
		Device without propellant charge, with delay fuse and bursting charge, containing colour shells and/or pyrotechnic units and designed to be projected from a mortar	> 300 mm	1.1G
		Device without propellant charge, with delay fuse and bursting charge, containing colour shells ≤ 70mm and/or pyrotechnic units, with ≤ 25% flash composition and ≤ 60% pyrotechnic substance and designed to be projected from a mortar	> 200 mm and ≤ 300 mm	1.3G
		Device with propellant charge, with delay fuse and bursting charge, containing colour shells ≤ 70 mm and/or pyrotechnic units, with ≤ 25% flash composition and ≤ 60% pyrotechnic substance and designed to be projected from a mortar	≤ 200 mm	1.3G
Battery/ combination	Barrage, bombardos, cakes, finale box, flowerbed, hybrid, multiple tubes, shell cakes, banger batteries, flash banger batteries	Assembly including several elements either containing the same type or several types each corresponding to one of the types of fireworks listed in this table, with one or two points of ignition	The most hazardous firework type determines the classification	
Roman candle	Exhibition candle, candle, bombettes	Tube containing a series of pyrotechnic units consisting of alternate pyrotechnic substance, propellant charge, and transmitting fuse	≥ 50 mm inner diameter, containing flash composition, or <50 mm with >25% flash composition	1.1G
			≥ 50 mm inner diameter, containing no flash composition	1.2G
			< 50 mm inner diameter and ≤ 25% flash composition	1.3G
			≤ 30 mm inner diameter, each pyrotechnic unit ≤ 25 g and ≤ 5% flash composition	1.4G
Shot tube	Single shot Roman candle, small preloaded mortar	Tube containing a pyrotechnic unit consisting of pyrotechnic substance, propellant charge with or without transmitting fuse	≤ 30 mm inner diameter and pyrotechnic unit > 25 g, or > 5% and ≤ 25% flash composition	1.3G
			≤ 30 mm inner diameter, pyrotechnic unit ≤ 25 g and ≤ 5% flash composition	1.4G
Rocket	Avalanche rocket, signal rocket, whistling rocket, bottle rocket, sky		Flash composition effects only	1.1G
			Flash composition > 25% of the pyrotechnic substance	1.1G

Type	Includes: / Synonym:	Definition	Specification	Classification
	rocket, missile type rocket, table rocket	Tube containing pyrotechnic substance and/or pyrotechnic units, equipped with stick(s) or other means for stabilisation of flight, and designed to be propelled into the air	> 20 g pyrotechnic substance and flash composition ≤ 25 %	1.3G
			≤ 20 g pyrotechnic substance, black powder bursting charge and ≤ 0.13 g flash composition per report and ≤ 1 g in total	1.4G
Mine	Pot-a-feu, ground mine, bag mine, cylinder mine	Tube containing propellant charge and pyrotechnic units and designed to be placed on the ground or to be fixed in the ground. The principal effect is ejection of all the pyrotechnic units in a single burst producing a widely dispersed visual and/or aural effect in the air or: Cloth or paper bag or cloth or paper cylinder containing propellant charge and pyrotechnic units, designed to be placed in a mortar and to function as a mine	> 25% flash composition, as loose powder and/ or report effects	1.1G
			≥ 180 mm and ≤ 25% flash composition, as loose powder and/ or report effects	1.1G
			< 180 mm and ≤ 25% flash composition, as loose powder and/ or report effects	1.3G
			≤ 150 g pyrotechnic substance, containing ≤ 5% flash composition as loose powder and/ or report effects. Each pyrotechnic unit ≤ 25 g, each report effect < 2g ; each whistle, if any, ≤ 3 g	1.4G
Fountain	Volcanos, gerbs, lances, Bengal fire, flitter sparkle, cylindrical fountains, cone fountains, illuminating torch	Non-metallic case containing pressed or consolidated pyrotechnic substance producing sparks - and flame NOTE: Fountains intended to produce a vertical cascade or curtain of sparks are considered to be waterfalls, see row below)	≥ 1 kg pyrotechnic substance	1.3G
			< 1 kg pyrotechnic substance	1.4G
Waterfall	cascades, showers	pyrotechnic fountain intended to produce a vertical cascade or curtain of sparks	containing flash composition regardless of the results of Test Series 6 (see 2.1.3.5.1 (a))	1.1G
			not containing flash composition	1.3G
Sparkler	Handheld sparklers, non-handheld sparklers, wire sparklers	Rigid wire partially coated (along one end) with slow burning pyrotechnic substance with or without an ignition tip	perchlorate based sparklers: > 5 g per item or > 10 items per pack	1.3G
			Perchlorate based sparklers: ≤ 5 g per item and ≤ 10 items per pack; Nitrate based sparklers: ≤ 30 g per item	1.4G
Bengal	Dipped stick		Perchlorate based items: > 5 g per item or > 10 items per pack	1.3G

Type	Includes: / Synonym:	Definition	Specification	Classification
stick		Non-metallic stick partially coated (along one end) with slow-burning pyrotechnic substance and designed to be held in the hand	Perchlorate based items: ≤ 5 g per item and ≤ 10 items per pack; nitrate based items: ≤ 30 g per item	1.4G
Low hazard fireworks and novelties	Table bombs, throwdowns, crackling granules, smokes, fog, snakes, glow worm, serpents, snaps, party poppers	Device designed to produce very limited visible and/ or audible effect which contains small amounts of pyrotechnic and/ or explosive substance.	Throwdowns and snaps may contain up to 1.6 mg of silver fulminate; snaps and party poppers may contain up to 16 mg of potassium chlorate/ red phosphorous mixture; other articles may contain up to 5 g of pyrotechnic substance, but no flash composition	1.4G
Spinner	Aerial spinner, helicopter, chaser, ground spinner	Non-metallic tube or tubes containing gas- or spark-producing pyrotechnic substance, with or without noise producing composition, with or without aerofoils attached	Pyrotechnic substance per item > 20 g, containing ≤ 3% flash composition as report effects, or whistle composition ≤ 5 g	1.3G
			Pyrotechnic substance per item ≤ 20 g, containing ≤ 3% flash composition as report effects, or whistle composition ≤ 5 g	1.4G
Wheels	Catherine wheels, Saxon	Assembly including drivers containing pyrotechnic substance and provided with a means of attaching it to a support so that it can rotate	≥ 1 kg total pyrotechnic composition, no report effect, each whistle (if any) ≤ 25 g and ≤ 50 g whistle composition per wheel	1.3G
			< 1 kg total pyrotechnic substance, no report effect, each whistle (if any) ≤ 5 g and ≤ 10 g whistle composition per wheel	1.4G
Aerial wheel	Flying Saxon, UFO's, rising crown	Tubes containing propellant charges and sparks- flame- and/ or noise producing pyrotechnic substances, the tubes being fixed to a supporting ring	> 200 g total pyrotechnic substance or > 60 g pyrotechnic substance per driver, ≤ 3% flash composition as report effects, each whistle (if any) ≤ 25 g and ≤ 50 g whistle composition per wheel	1.3G
			≤ 200 g total pyrotechnic substance and ≤ 60 g pyrotechnic substance per driver, ≤ 3% flash composition as report effects, each whistle (if any) ≤ 5 g and ≤ 10 g whistle composition per wheel	1.4G
Selection pack	Display selection box, display selection pack, garden selection box, indoor selection box; assortment	A pack of more than one type each corresponding to one of the types of fireworks listed in this table	The most hazardous firework type determines the classification	

Type	Includes: / Synonym:	Definition	Specification	Classification
Firecracker	Celebration cracker, celebration roll, string cracker	Assembly of tubes (paper or cardboard) linked by a pyrotechnic fuse, each tube intended to produce an aural effect	Each tube ≤ 140 mg of flash composition or ≤ 1 g black powder	1.4G
Banger	Salute, flash banger, lady cracker	Non-metallic tube containing report composition intended to produce an aural effect	> 2 g flash composition per item	1.1G
			≤ 2 g flash composition per item and ≤ 10 g per inner packaging	1.3G
			≤ 1 g flash composition per item and ≤ 10 g per inner packaging or ≤ 10 g black powder per item	1.4G

(a) References to percentages in the table, unless otherwise stated, are to the mass of all pyrotechnic substances (e.g. rocket motors, lifting charge, bursting charge and effect charge).

(b) “Flash composition” in this table refers to pyrotechnic substances in powder form or as pyrotechnic units as presented in the fireworks, that are used to produce an aural effect, or used as a bursting charge or lifting charge, unless the time taken for the pressure rise is demonstrated to be more than 6 ms for 0.5 g of pyrotechnic substance in the HSL Flash Composition Test in Appendix 7 of the Manual of Tests and Criteria.

(c) Dimensions in mm refers to: (i) for spherical and peanut shells the diameter of the sphere of the shell; (ii) for cylinder shells the length of the shell; (iii) for a shell in mortar, Roman candle, shot tube firework or mine the inside diameter of the tube comprising or containing the firework; (iv) for a bag mine or cylinder mine, the inside diameter of the mortar intended to contain the mine.

2.1.3.6 Exclusion from Class 1

2.1.3.6.1 The competent authority may exclude an article or substance from Class 1 by virtue of test results and the Class 1 definition.

2.1.3.6.2 Where a substance provisionally accepted into Class 1 is excluded from Class 1 by performing Test Series 6 on a specific type and size of package, this substance, when meeting the classification criteria or definition for another class or division, should be listed in the Dangerous Goods List of Chapter 3.2 in that class or division with a special provision restricting it to the type and size of package tested.

2.1.3.6.3 Where a substance is assigned to Class 1 but is diluted to be excluded from Class 1 by Test Series 6, this diluted substance (hereafter referred to as desensitised explosive) must be listed in the Dangerous Goods List of Chapter 3.2 with an indication of the highest concentration which excluded it from Class 1 (see 2.3.1.4 and 2.4.2.4.1) and if applicable, the concentration below which it is no longer deemed subject to this Code. New solid desensitised explosives subject to this Code must be listed in Division 4.1 and new liquid desensitised explosives must be listed in Class 3. When the desensitised explosive meets the criteria or definition for another class or division, the corresponding subsidiary hazard(s) must be assigned to it.

2.1.3.6.4 An article may be excluded from Class 1 when three unpackaged articles, each individually activated by its own means of initiation or ignition or external means to function in the designed mode, meet the following test criteria:

(a) No external surface is to have a temperature of more than 65º C. A momentary spike in temperature up to 200 ºC is acceptable;

(b) No rupture or fragmentation of the external casing or movement of the article or detached parts of the article of more than one metre in any direction; and

NOTE: *Where the integrity of the article may be affected in the event of an external fire these criteria are to be examined by a fire test. One such method is described in ISO 14451-2 using a heating rate of 80 K/min.*

(c) No audible report exceeding 135 dB(C) peak at a distance of one metre; and

(d) No flash or flame capable of igniting a material such as a sheet of 80 ± 10 g/m² paper in contact with the article; and

(e) No production of smoke, fumes or dust in such quantities that the visibility in a one cubic metre chamber equipped with appropriately sized blow out panels is reduced more than 50% as measured by a calibrated light (lux) meter or radiometer located one metre from a constant light source located at the midpoint on opposite walls. The general guidance on Optical Density Testing in ISO 5659-1 and the general guidance on the Photometric System described in Section 7.5 in ISO 5659-2 may be used or similar optical density measurement methods designed to accomplish the same purpose may also be employed. A suitable hood cover surrounding the back and sides of the light meter are to be used to minimise effects of scattered or leaking light not emitted directly from the source.

NOTE 1: *If during the tests addressing criteria (a), (b), (c) and (d) no or very little smoke is observed the test described in (e) may be waived.*

NOTE 2: *The competent authority may require testing in packaged form if it is determined that, as packaged for transport, the article may pose a greater hazard.*

2.1.3.7 Classification documentation

2.1.3.7.1 A competent authority assigning an article or substance into Class 1 should confirm with the applicant that classification in writing.

2.1.3.7.2 A competent authority classification document may be in any form and may consist of more than one page, provided pages are numbered consecutively. The document should have a unique reference.

2.1.3.7.3 The information provided shall be easy to identify, legible and durable.

2.1.3.7.4 Examples of the information that may be provided in the classification documents are as follows:

(a) The name of the competent authority and the provisions in national legislation under which it is granted its authority;
(b) The modal or national regulations for which the classification document is applicable;
(c) Confirmation that the classification has been approved, made or agreed in accordance with the United Nations Recommendations on the Transport of Dangerous Goods or the relevant modal regulations;
(d) The name and address of the person in law to which the classification has been assigned and any company registration which uniquely identifies a company or other body corporate under national legislation;
(e) The name under which the explosives will be placed onto the market or otherwise supplied for transport;
(f) The Proper Shipping Name, UN number, Class, Hazard Division and corresponding compatibility group of the explosives;
(g) Where appropriate, the maximum net explosive mass of the package or article;
(h) The name, signature, stamp, seal or other identification of the person authorised by the competent authority to issue the classification document is clearly visible;
(i) Where safety in transport or the hazard division is assessed as being dependent upon the packaging, the packaging mark or a description of the permitted:
 - Inner packagings
 - Intermediate packagings
 - Outer packagings
(j) The classification document states the part number, stock number or other identifying reference under which the explosives will be placed onto the market or otherwise supplied for transport;
(k) The name and address of the person in law who manufactured the explosives and any company registration which uniquely identifies a company or other body

corporate under national legislation;

(l) Any additional information regarding the applicable packing instruction and special packing provisions where appropriate;

(m) The basis for assigning the classification, i.e. whether on the basis of test results, default for fireworks, analogy with classified explosive, by definition from the Dangerous Goods List etc.;

(n) Any special conditions or limitations that the competent authority has identified as relevant to the safety for transport of the explosives, the communication of the hazard and international transport;

(o) The expiry date of the classification document is given where the competent authority considers one to be appropriate.

CHAPTER 2.2 - CLASS 2 - GASES

2.2.1 DEFINITIONS AND GENERAL PROVISIONS

2.2.1.1 A gas is a substance which:

(a) at 50 °C has a vapour pressure greater than 300 kPa; or

(b) is completely gaseous at 20 °C at a standard pressure of 101.3 kPa.

2.2.1.2 The transport condition of a gas is described according to its physical state as:

(a) Compressed gas - a gas which when packaged under pressure for transport is entirely gaseous at -50 °C; this category includes all gases with a critical temperature less than or equal to -50 °C; or

(b) Liquefied gas - a gas which when packaged under pressure for transport is partially liquid at temperatures above -50 °C. A distinction is made between:

  (i) High pressure liquefied gas - a gas with a critical temperature between -50 °C and +65 °C, and

  (ii) Low pressure liquefied gas - a gas with a critical temperature above +65 °C;

(c) Refrigerated liquefied gas - a gas which when packaged for transport is made partially liquid because of its low temperature.

(d) Dissolved gas - a gas which when packaged under pressure for transport is dissolved in a liquid phase solvent.

(e) Adsorbed gas – a gas which when packaged for transport is adsorbed onto a solid porous material resulting in an internal receptacle pressure of less than 101.3 kPa at 20 °C and less than 300 kPa at 50 °C.

2.2.1.3 The class comprises compressed gases, liquefied gases, dissolved gases, refrigerated liquefied gases, adsorbed gases, mixtures of one or more gases with one or more vapours of substances of other classes, articles charged with a gas, aerosols and chemicals under pressure.

2.2.2 DIVISIONS

2.2.2.1 Substances of Class 2 are assigned to one of three divisions based on the primary hazard of the gas during transport.

***NOTE**: For UN 1950 AEROSOLS, see also the criteria in special provision 63. For chemicals under pressure of UN Nos. 3500 to 3505, see also special provision 362. For UN 2037 RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) see also special provision 303.*

(a) Division 2.1 Flammable gases

Gases which at 20 °C and a standard pressure of 101.3 kPa:

(i) are ignitable when in a mixture of 13 per cent or less by volume with air; or

(ii) have a flammable range with air of at least 12 percentage points regardless of the lower flammability limit. Flammability should be determined by tests or by calculation in accordance with methods adopted by ISO (see ISO 10156:2017). Where insufficient data are available to use these methods, tests by a comparable method recognised by the competent authority may be used;

(b) Division 2.2 Non-flammable, non-toxic gases

Gases which:

(i) are asphyxiant – gases which dilute or replace the oxygen normally in the atmosphere; or

(ii) are oxidising – gases which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does; or

(iii) do not come under the other divisions;

NOTE: *In 2.2.2.1 (b) (ii), "gases which cause or contribute to the combustion of other material more than air does" means pure gases or gas mixtures with an oxidising power greater than 23.5% as determined by a method specified in ISO 10156:2017.*

(c) Division 2.3 Toxic gases

Gases which:

(i) are known to be so toxic or corrosive to humans as to pose a hazard to health; or

(ii) are presumed to be toxic or corrosive to humans because they have an LC_{50} value (as defined in 2.6.2.1) equal to or less than 5,000 ml/m^3 (ppm).

NOTE: *Gases meeting the above criteria owing to their corrosivity are to be classified as toxic with a subsidiary corrosive hazard.*

2.2.2.2 Gases and gas mixtures with hazards associated with more than one division take the following precedence:

(a) Division 2.3 takes precedence over all other divisions;

(b) Division 2.1 takes precedence over Division 2.2.

2.2.2.3 Gases of Division 2.2 are not subject to this Code if they are transported at a pressure less than 200 kPa at 20 °C and are not liquefied or refrigerated liquefied gases.

2.2.2.4 Gases of Division 2.2 are not subject to this Code when contained in the following:

- Foodstuffs, including carbonated beverages (except UN 1950);
- Balls intended for use in sports;
- Tyres (except for air transport).

NOTE: *This exemption does not apply to lamps. For lamps see 1.1.1.9.*

2.2.3 MIXTURES OF GASES

Gas mixtures are to be classified in one of the three divisions (including vapours of substances from other classes) by applying the following procedures:

(a) Flammability is determined by tests or by calculation in accordance with methods adopted by ISO (see ISO 10156:2017). Where insufficient data are available to use these methods, tests by a comparable method recognised by the competent authority may be used;

(b) The level of toxicity is determined either by tests to measure the LC_{50} value (as defined in 2.6.2.1) or by a calculation method using the following formula:

$$LC_{50}\,Toxic\,(mixture) = \frac{1}{\sum_{i=1}^{n} \frac{f_i}{T_i}}$$

where: f_i = mole fraction of the i[th] component substance of the mixture

T_i = Toxicity index of the i[th] component substance of the mixture (the Ti equals the LC_{50} value when available).

When LC_{50} values are unknown the toxicity index is determined by using the lowest LC_{50} value of substances of similar physiological and chemical effects, or through testing if this is the only practical possibility;

(c) A gas mixture has a subsidiary hazard of corrosivity when the mixture is known by human experience to be destructive to the skin, eyes or mucous membranes or when the LC_{50} value of the corrosive components of the mixture is equal to or less than 5,000 ml/m^3 (ppm) when the LC_{50} is calculated by the formula:

$$LC_{50}\,Corrosive(mixture) = \frac{1}{\sum_{i=1}^{n} \frac{f_{ci}}{T_{ci}}}$$

where: f_{ci} = mole fraction of the i^th corrosive component substance of the mixture

T_{ci} = Toxicity index of the i^th corrosive component substance of the mixture (the T_{ci} equals the LC_{50} value when available);

(d) Oxidising ability is determined either by tests or by calculation methods adopted by ISO (see the Note in 2.2.2.1 (b) and ISO 10156:2017).

2.2.4 GASES NOT ACCEPTED FOR TRANSPORT

Chemically unstable gases of Class 2 shall not be accepted for transport unless the necessary precautions have been taken to prevent the possibility of a dangerous decomposition or polymerization under normal conditions of transport or unless transported in accordance with special packing provision (r) of packing instruction P200 (5) of 4.1.4.1, as applicable. For the precautions necessary to prevent polymerization, see special provision 386 of Chapter 3.3. To this end particular care shall be taken to ensure that receptacles and tanks do not contain any substances liable to promote these reactions.

CHAPTER 2.3 - CLASS 3 – FLAMMABLE LIQUIDS

Introductory Notes

NOTE 1: *The word “flammable” has the same meaning as “inflammable”.*

NOTE 2: *The flash point of a flammable liquid may be altered by the presence of an impurity. The substances listed in Class 3 in the Dangerous Goods List in Chapter 3.2 should generally be regarded as chemically pure. Since commercial products may contain added substances or impurities, flash points may vary, and this may have an effect on classification or determination of the packing group for the product. In the event of doubt regarding the classification or packing group of a substance, the flash point of the substance must be determined experimentally.*

2.3.1 DEFINITION AND GENERAL PROVISIONS

2.3.1.1 Class 3 includes the following substances:

(a) Flammable liquids (see 2.3.1.2 and 2.3.1.3);

(b) Liquid desensitised explosives (see 2.3.1.4).

2.3.1.2 **Flammable liquids** are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60 °C, closed-cup test, or not more than 65.6 °C, open-cup test, normally referred to as the flash point. This class also includes:

(a) liquids offered for transport at temperatures at or above their flash point; and

(b) substances that are transported or offered for transport at elevated temperatures in a liquid state and which give off a flammable vapour at a temperature at or below the maximum transport temperature.

NOTE: *The results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable.*

2.3.1.3 Liquids meeting the definition in 2.3.1.2 with a flash point of more than 35 °C which do not sustain combustion need not be considered as flammable liquids for the purposes of this Code. Liquids are considered to be unable to sustain combustion for the purposes of this Code (i.e. they do not sustain combustion under defined test conditions) if:

(a) they have passed a suitable combustibility test (see SUSTAINED COMBUSTIBILITY TEST) prescribed in the Manual of Tests and Criteria, Part III, sub-section 32.5.2; or

(b) their fire point according to ISO 2592:2000 is greater than 100 °C; or

(c) they are water miscible solutions with a water content of more than 90% by mass.

2.3.1.4 Liquid desensitised explosives are explosive substances which are dissolved or suspended in water or other liquid substances, to form an homogeneous liquid mixture to suppress their explosives properties (see 2.1.3.6.3).

Entries in the Dangerous Goods List for liquid desensitised explosives are:

UN 1204, UN 2059, UN 3064, UN 3343, UN 3357 and UN 3379

2.3.2 ASSIGNMENT OF PACKING GROUPS

2.3.2.1 The criteria in 2.3.2.6 are used to determine the hazard grouping of a liquid that presents a hazard due to flammability.

2.3.2.1.1 For liquids whose only hazard is flammability, the packing group for the substance is the hazard grouping shown in 2.3.2.6.

2.3.2.1.2 For a liquid with additional hazard(s), the hazard group determined from 2.3.2.6 and the hazard group based on the severity of the additional hazard(s) must be considered, and the classification and packing group determined in accordance with the provisions in Chapter 2.0.

2.3.2.2 Viscous flammable liquids such as paints, enamels, lacquers, varnishes, adhesives and polishes having a flash point of less than 23 °C may be placed in packing group III in conformity with the procedures prescribed in the Manual of Tests and Criteria, Part III, sub-section 32.3, provided that:

(a) The viscosity[1] expressed as the flowtime in seconds and flash point are in accordance with the following table:

Table 2.3.2.2: Viscosity table

Kinematic viscosity (extrapolated) v (at near-zero shear rate) mm^2/s at 23 ºC	**Flow-time t in seconds**	**Jet diameter** (mm)	**Flash point, closed-cup** (°C)
20 < v ≤ 80	20 < t ≤ 60	4	above 17
80 < v ≤ 135	60 < t ≤ 100	4	above 10
135 < v ≤ 220	20 < t ≤ 32	6	above 5
220 < v ≤ 300	32 < t ≤ 44	6	above -1
300 < v ≤ 700	44 < t ≤ 100	6	above -5
700 < v	100 < t	6	no limit

(b) Less than 3% of the clear solvent layer separates in the solvent separation test;

(c) The mixture or any separated solvent does not meet the criteria for Division 6.1 or Class 8;

[1] *Where the substance concerned is non-Newtonian, or where a flow cup method of viscosity determination is otherwise unsuitable, a variable shear-rate viscometer shall be used to determine the dynamic viscosity coefficient of the substance, at 23 °C, at a number of shear rates. The values obtained are plotted against shear rate and then extrapolated to zero shear rate. The dynamic viscosity thus obtained, divided by the density, gives the apparent kinematic viscosity at near-zero shear rate.*

(d) The substances are packed in receptacles of not more than 450 litre capacity.

2.3.2.3 **<Reserved>**

2.3.2.4 Substances classified as flammable liquids due to their being transported or offered for transport at elevated temperatures are included in packing group III.

2.3.2.5 **Viscous liquids**

2.3.2.5.1 Except as provided for in 2.3.2.5.2, viscous liquids which:

have a flash point of 23 °C or above and less than or equal to 60 °C; and

- are not toxic or corrosive[1]; and
- contain not more than 20% nitrocellulose provided the nitrocellulose contains not more than 12.6% nitrogen by dry mass; and
- are packed in receptacles of not more than 450 L capacity;

are not subject to this Code, if:

(a) in the solvent separation test (see Manual of Tests and Criteria, Part III, sub-section 32.5.1), the height of the separated layer of solvent is less than 3% of the total height; and

(b) the flowtime in the viscosity test (see Manual of Tests and Criteria, Part III, sub-section 32.4.3), with a jet diameter of 6 mm is equal to or greater than:

(i) 60 seconds; or

(ii) 40 seconds if the viscous liquid contains not more than 60% of Class 3 substances.

2.3.2.5.2 Viscous liquids which are also environmentally hazardous, but meet all other criteria in 2.3.2.5.1, are not subject to any other provisions of this Code when they are transported in single or combination packagings containing a net quantity per single or inner packaging of 5 litres or less, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

2.3.2.6 **Hazard grouping based on flammability**

Table 2.3.2.6: Hazard grouping based on flammability

Packing group	**Flash point** (closed-cup)	**Initial boiling point**
I	--	≤ 35 °C
II	< 23 °C	> 35 °C
III	≥ 23 °C ≤ 60 °C	> 35 °C

[1] *UN20 uses the phrase “or environmentally hazardous” here. However in this Code that would be misleading as environmentally hazardous liquids and solids are not subject to this Code in packagings, IBCs or other receptacles not exceeding 500 kg(L) [see Special Provision AU01].*

2.3.3 DETERMINATION OF FLASH POINT

The following methods for determining the flash point of flammable liquids may be used:

International standards:

ISO 1516	ISO 1523	ISO 2719
ISO 3679	ISO 3680	ISO 13736

National standards:

Standards Australia, GPO Box 476, Sydney, NSW, 2001: <http://www.standards.org.au>.

AS 2106–series, Methods for the determination of the flash point of flammable liquids (closed cup)

American Society for Testing Materials International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, Pennsylvania, USA 19428-2959:

ASTM D3828-07a, Standard Test Methods for Flash Point by Small Scale Closed Tester

ASTM D56-05, Standard Test Method for Flash Point by Tag Closed Tester

ASTM D3278-96(2004)e1, Standard Test Methods for Flash Point of Liquids by Setaflash Closed-Cup Apparatus

ASTM D93-08, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

Association française de normalisation, AFNOR, 11, rue de Pressensé, 93571 La Plaine Saint-Denis Cedex:

French Standard NF M 07 - 019

French Standards NF M 07 - 011 / NF T 30 - 050 / NF T 66 - 009

French Standard NF M 07 - 036

Deutsches Institut für Normung, Burggrafenstr. 6, D-10787 Berlin:

Standard DIN 51755 (flash points below 65 °C)

State Committee of the Council of Ministers for Standardisation, 113813, GSP, Moscow, M-49 Leninsky Prospect, 9:

GOST 12.1.044-84.

2.3.4 DETERMINATION OF INITIAL BOILING POINT

The following methods for determining the initial boiling point of flammable liquids may be used:

International standards:

ISO 3405	ISO 3924	ISO 4626

National standards:

American Society for Testing Materials International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, Pennsylvania, USA 19428-2959:

ASTM D86-07a, Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure

ASTM D1078-05, Standard Test Method for Distillation Range of Volatile Organic Liquids

Further acceptable methods:

Method A.2 as described in Part A of the Annex to Commission Regulation (EC) No 440/2008[1].

2.3.5 SUBSTANCES NOT ACCEPTED FOR TRANSPORT

Chemically unstable substances of Class 3 shall not be accepted for transport unless the necessary precautions have been taken to prevent the possibility of a dangerous decomposition or polymerization under normal conditions of transport. For the precautions necessary to prevent polymerization, see special provision 386 of Chapter 3.3. To this end particular care shall be taken to ensure that receptacles and tanks do not contain any substances liable to promote these reactions.

[1] *Commission Regulation (EC) No 440/2008 of 30 May 2008 laying down test methods pursuant to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union, No. L 142 of 31.05.2008, p.1-739 and No. L 143 of 03.06.2008, p.55).*

CHAPTER 2.4 - CLASS 4 - FLAMMABLE SOLIDS; SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION; SUBSTANCES WHICH, IN CONTACT WITH WATER, EMIT FLAMMABLE GASES

Introductory Notes

NOTE 1: *Where the term “water reactive” is used in this Code, it refers to a substance which in contact with water emits flammable gas.*

NOTE 2: *Because of the different properties exhibited by dangerous goods within Divisions 4.1 and 4.2, it is impracticable to establish a single criterion for classification in either of these divisions. Tests and criteria for assignment to the three divisions of Class 4 are addressed in this Chapter (and in the Manual of Tests and Criteria, Part III, section 33).*

NOTE 3: *Since organometallic substances can be classified in Divisions 4.2 or 4.3 with additional subsidiary hazards, depending on their properties, a specific classification flow chart for these substances is given in 2.4.5.*

2.4.1 DEFINITIONS AND GENERAL PROVISIONS

2.4.1.1 Class 4 is divided into three divisions as follows:

(a) Division 4.1 Flammable solids

Solids which, under conditions encountered in transport, are readily combustible or may cause or contribute to fire through friction; self-reactive substances which are liable to undergo a strongly exothermic reaction; solid desensitised explosives which may explode if not diluted sufficiently;

(b) Division 4.2 Substances liable to spontaneous combustion

Substances which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up in contact with air, and being then liable to catch fire;

(c) Division 4.3 Substances which in contact with water emit flammable gases

Substances which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

2.4.1.2 As referenced in this Chapter, test methods and criteria, with advice on application of the tests, are given in the Manual of Tests and Criteria, for the classification of following types of substances of Class 4:

(a) Flammable solids (Division 4.1);

(b) Self-reactive substances (Division 4.1);

(c) Polymerizing substances (Division 4.1);

(d) Pyrophoric solids (Division 4.2);

(e) Pyrophoric liquids (Division 4.2);

(f) Self heating substances (Division 4.2);

(g) Substances which, in contact with water, emit flammable gases (Division 4.3).

Test methods and criteria for self-reactive substances and polymerizing substances are given in Part II of the Manual of Tests and Criteria, and test methods and criteria for the other types of substances of Class 4 are given in the Manual of Tests and Criteria, Part III, section 33.

2.4.2 DIVISION 4.1 - FLAMMABLE SOLIDS, SELF-REACTIVE SUBSTANCES, SOLID DESENSITISED EXPLOSIVES AND POLYMERIZING SUBSTANCES

2.4.2.1 General

Division 4.1 includes the following types of substances:

(a) Flammable solids (see 2.4.2.2);

(b) Self reactive substances (see 2.4.2.3);

(c) Solid desensitised explosives (see 2.4.2.4);

(d) Polymerizing substances (see 2.4.2.5).

2.4.2.2 Division 4.1 Flammable solids

2.4.2.2.1 **Definitions and properties**

2.4.2.2.1.1 Flammable solids are readily combustible solids and solids which may cause fire through friction.

2.4.2.2.1.2 **Readily combustible solids** are powdered, granular, or pasty substances which are dangerous if they can be easily ignited by brief contact with a source of ignition, such as a burning match, and if the flame spreads rapidly. The danger may come not only from the fire but also from toxic combustion products. Metal powders are especially dangerous because of the difficulty of extinguishing a fire since normal extinguishing agents such as carbon dioxide or water can increase the hazard.

2.4.2.2.2 **Classification of flammable solids**

2.4.2.2.2.1 Powdered, granular or pasty substances shall be classified as readily combustible solids of Division 4.1 when the time of burning of one or more of the test runs, performed in accordance with the test method described in the Manual of Tests and Criteria, Part III, sub-section 33.2.1, is less than 45 s or the rate of burning is more than 2.2 mm/s. Powders of metals or metal alloys are classified in Division 4.1 when they can be ignited and the reaction spreads over the whole length of the sample in 10 minutes or less.

2.4.2.2.2.2 Solids which may cause fire through friction are classified in Division 4.1 by analogy with existing entries (e.g. matches) until definitive criteria are established.

2.4.2.2.3 **Assignment of packing groups**

2.4.2.2.3.1 Packing groups are assigned on the basis of the test methods referred to in 2.4.2.2.2.1. For readily combustible solids (other than metal powders), packing group II must be assigned if the burning time is less than 45 s and the flame passes the wetted zone. Packing group II must be assigned to powders of metal or metal alloys if the zone of reaction spreads over the whole length of the sample in five minutes or less.

2.4.2.2.3.2 Packing groups are assigned on the basis of the test methods referred to in 2.4.2.2.2.1. For readily combustible solids (other than metal powders), packing group III must be assigned if the burning time is less than 45 s and the wetted zone stops the flame propagation for at least four minutes. Packing group III must be assigned to metal powders if the reaction spreads over the whole length of the sample in more than five minutes but not more than ten minutes.

2.4.2.2.3.3 For solids which may cause fire through friction, the packing group must be assigned by analogy with existing entries or in accordance with any appropriate special provision.

2.4.2.3 Division 4.1 Self-reactive substances

2.4.2.3.1 Definitions and properties

2.4.2.3.1.1 *Definitions*

For the purposes of this Code:

Self-reactive substances are thermally unstable substances liable to undergo a strongly exothermic decomposition even without participation of oxygen (air). Substances are not considered to be self reactive substances of Division 4.1, if:

(a) they are explosives according to the criteria of Class 1; or
(b) they are oxidising substances according to the classification procedure of Division 5.1 (see 2.5.2.1.1) except that mixtures of oxidising substances which contain 5.0% or more of combustible organic substances must be subjected to the classification procedure defined in Note 3; or
(c) they are organic peroxides according to the criteria of Division 5.2; or
(d) their heat of decomposition is less than 300 J/g; or
(e) their self-accelerating decomposition temperature (SADT) (see 2.4.2.3.4) is greater than 75 °C for a 50 kg package.

NOTE 1: *The heat of decomposition can be determined using any internationally recognised method e.g. differential scanning calorimetry and adiabatic calorimetry.*

NOTE 2: *Any substance which shows the properties of a self-reactive substance must be classified as such, even if this substance gives a positive test result according to 2.4.3.2 for inclusion in Division 4.2.*

NOTE 3: *Mixtures of oxidising substances meeting the criteria of Division 5.1 which contain 5.0% or more of combustible organic substances, which do not meet the criteria mentioned in (a), (c), (d) or (e) above, must be subjected to the self-reactive substance classification procedure.*

A mixture showing the properties of a self-reactive substance, type B to F, must be classified as a self-reactive substance of Division 4.1.

A mixture showing the properties of a self-reactive substance, type G, according to the principle of 2.4.2.3.3.2 (g) must be considered for classification as a substance of Division 5.1 (see 2.5.2.1.1).

2.4.2.3.1.2 Properties

The decomposition of self reactive substances can be initiated by heat, contact with catalytic impurities (e.g. acids, heavy metal compounds, bases), friction or impact. The rate of decomposition increases with temperature and varies with the substance.

Decomposition, particularly if no ignition occurs, may result in the evolution of toxic gases or vapours. For certain self-reactive substances, the temperature must be controlled. Some self-reactive substances may decompose explosively, particularly if confined. This characteristic may be modified by the addition of diluents or by the use of appropriate packagings.

Some self-reactive substances burn vigorously. Self-reactive substances are, for example, some compounds of the types listed below:

(a) Aliphatic azo compounds (-C-N=N-C-);

(b) Organic azides ($-C-N_3$);

(c) Diazonium salts ($-CN_2^+Z^-$);

(d) N nitroso compounds (-N-N=O);

(e) Aromatic sulphonylhydrazides ($-SO_2-NH-NH_2$).

This list is not exhaustive and substances with other reactive groups and some mixtures of substances may have similar properties.

2.4.2.3.2 Classification of self-reactive substances

2.4.2.3.2.1 Self-reactive substances are classified into seven types according to the degree of danger they present. The types of self reactive substance range from type A, which may not be accepted for transport in the packaging in which it is tested, to type G, which is not subject to the provisions for self-reactive substances of Division 4.1. The classification of types B to F is directly related to the maximum quantity allowed in one packaging.

2.4.2.3.2.2 Self-reactive substances permitted for transport in packagings are listed in 2.4.2.3.2.3, those permitted for transport in IBCs are listed in packing instruction IBC520 and those permitted for transport in portable tanks are listed in portable tank instruction T23. For each permitted substance listed, the appropriate generic entry of the Dangerous Goods List (UN Nos. 3221 to 3240) is assigned, and appropriate subsidiary hazards and remarks providing relevant transport information are given. The generic entries specify:

(a) self-reactive substance type (B to F); and

(b) physical state (liquid or solid); and

(c) temperature control, when required (see 2.4.2.3.4).

2.4.2.3.2.3 List of currently assigned self-reactive substances in packagings

In the column "Packing Method", codes "OP1" to "OP8" refer to packing methods in packing instruction P520. Self-reactive substances to be transported must fulfil the classification and the control and emergency temperatures (derived from the SADT) as listed. For substances permitted in IBCs, see packing instruction IBC520, and for those permitted in tanks, see portable tank instruction T23. The formulations listed in packing instruction IBC520 of 4.1.4.2 and in portable tank instruction T23 of 4.2.5.2.6 may also be transported packed in accordance with packing method OP8 of packing instruction P520 of 4.1.4.1, with the same control and emergency temperatures, if applicable.

NOTE: *The classification shown in the following table is based on the technically pure substance (except where a concentration of less than 100% is specified). For other concentrations, the substances may be classified differently following the procedures in 2.4.2.3.3 and 2.4.2.3.4.*

Table 2.4.2.3.2.3: Assigned self-reactive substances in packagings

SELF-REACTIVE SUBSTANCE	Concentration (%)	Packing method	Temperature (°C)		UN generic entry	Remarks (see notes at end of table)
			Control	Emergency		
ACETONE-PYROGALLOL COPOLYMER 2-DIAZO-1-NAPHTHOL-5-SULPHONATE	100	OP8			3228	
AZODICARBONAMIDE FORMULATION TYPE B, TEMPERATURE CONTROLLED	< 100	OP5			3232	(1) (2)
AZODICARBONAMIDE FORMULATION TYPE C	< 100	OP6			3224	(3)
AZODICARBONAMIDE FORMULATION TYPE C, TEMPERATURE CONTROLLED	< 100	OP6			3234	(4)
AZODICARBONAMIDE FORMULATION TYPE D	< 100	OP7			3226	(5)
AZODICARBONAMIDE FORMULATION TYPE D, TEMPERATURE CONTROLLED	< 100	OP7			3236	(6)
2,2' –AZODI(2,4–DIMETHYL– 4–METHOXYVALERONITRILE)	100	OP7	-5	+5	3236	
2,2' –AZODI(2,4–DIMETHYL–VALERONITRILE)	100	OP7	+10	+15	3236	
2,2' –AZODI(ETHYL–2–METHYLPROPIONATE)	100	OP7	+20	+25	3235	
1,1–AZODI(HEXAHYDROBENZONITRILE)	100	OP7			3226	
2,2'–AZODI(ISOBUTYRONITRILE)	100	OP6	+40	+45	3234	
2,2'–AZODI(ISOBUTYRONITRILE) as a water based paste	≤ 50	OP6			3224	
2,2'–AZODI(2–METHYLBUTYRONITRILE)	100	OP7	+35	+40	3236	
BENZENE–1,3–DISULPHONYL HYDRAZIDE, as a paste	52	OP7			3226	
BENZENESULPHONYL HYDRAZIDE	100	OP7			3226	
4–(BENZYL(ETHYL)AMINO)–3–ETHOXYBENZENEDIAZONIUM ZINC CHLORIDE	100	OP7			3226	
4–(BENZYL(METHYL)AMINO)–3– ETHOXYBENZENEDIAZONIUM ZINC CHLORIDE	100	OP7	+40	+45	3236	
3–CHLORO–4–DIETHYLAMINOBENZENEDIAZONIUM ZINC CHLORIDE	100	OP7			3226	
2–DIAZO–1–NAPHTHOL–4– SULPHONYL CHLORIDE	100	OP5			3222	(2)

SELF-REACTIVE SUBSTANCE	Concentration (%)	Packing method	Temperature (°C)		UN generic entry	Remarks (see notes at end of table)
			Control	Emergency		
2–DIAZO–1–NAPHTHOL–5– SULPHONYL CHLORIDE	100	OP5			3222	(2)
2–DIAZO–1–NAPHTHOL SULPHONIC ACID ESTER MIXTURE, TYPE D	<100	OP7			3226	(9)
2,5–DIBUTOXY–4–(4–MORPHOLINYL) BENZENEDIAZONIUM, TETRACHLOROZINCATE (2:1)	100	OP8			3228	
2,5–DIETHOXY–4–MORPHOLINOBENZENEDIAZONIUM ZINC CHLORIDE	67-100	OP7	+35	+40	3236	
2,5–DIETHOXY–4–MORPHOLINOBENZENEDIAZONIUM ZINC CHLORIDE	66	OP7	+40	+45	3236	
2,5–DIETHOXY–4–MORPHOLINOBENZENEDIAZONIUM TETRAFLUOROBORATE	100	OP7	+30	+35	3236	
2,5–DIETHOXY–4–(4–MORPHOLINYL)–BENZENEDIAZONIUM SULPHATE	100	OP7			3226	
2,5– DIETHOXY–4–(PHENYLSULPHONYL)–BENZENEDIAZONIUM ZINC CHLORIDE	67	OP7	+40	+45	3236	
DIETHYLENEGLYCOL BIS (ALLYL CARBONATE) + DI ISOPROPYLPEROXYDICARBONATE	≥ 88 + ≤ 12	OP8	-10	0	3237	
2,5–DIMETHOXY–4–(4–METHYLPHENYLSULPHONYL) BENZENEDIAZONIUM ZINC CHLORIDE	79	OP7	+40	+45	3236	
4–(DIMETHYLAMINO)–BENZENEDIAZONIUM TRICHLOROZINCATE (–1)	100	OP8			3228	
4–DIMETHYLAMINO–6–(2–DIMETHYLAMINOETHOXY) TOLUENE–2–DIAZONIUM ZINC CHLORIDE	100	OP7	+40	+45	3236	
N,N'–DINITROSO–N,N'–DIMETHYL TEREPHTHALAMIDE, as a paste	72	OP6			3224	
N,N'–DINITROSOPENTAMETHYLENETETRAMINE	82	OP6			3224	(7)
DIPHENYLOXIDE–4,4'–DISULPHONYL HYDRAZIDE	100	OP7			3226	
4–DIPROPYLAMINOBENZENEDIAZONIUM ZINC CHLORIDE	100	OP7			3226	

SELF-REACTIVE SUBSTANCE	**Concentration (%)**	**Packing method**	**Temperature (°C)**		**UN generic entry**	**Remarks (see notes at end of table)**
			Control	**Emergency**		
2–(N,N–ETHOXYCARBONYL–PHENYLAMINO)–3–METHOXY–4–(N–METHYL–N–CYCLOHEXYLAMINO BENZENEDIAZONIUM ZINC CHLORIDE	63-92	OP7	+40	+45	3236	
2–(N,N–ETHOXYCARBONYL– PHENYLAMINO)–3–METHOXY–4–(N–METHYL–N– CYCLOHEXYLAMINO) BENZENEDIAZONIUM ZINC CHLORIDE	62	OP7	+35	+40	3236	
N–FORMYL–2–(NITROMETHYLENE)–1,3–PERHYDROTHIAZINE	100	OP7	+45	+50	3236	
2–(2–HYDROXYETHOXY)–1– (PYRROLIDIN–1–YL) BENZENE–4–DIAZONIUM ZINC CHLORIDE	100	OP7	+ 45	+ 50	3236	
3–(2–HYDROXYETHOXY)–4– (PYRROLIDIN–1–YL) BENZENE DIAZONIUM ZINC CHLORIDE	100	OP7	+40	+45	3236	
2–(N,N–METHYLAMINOETHYL– CARBONYL)–4– (3,4–DIMETHYL–PHENYLSULPHONYL) BENZENEDIAZONIUM HYDROGEN SULPHATE	96	OP7	+45	+50	3236	
4–METHYLBENZENESULPHONYL– HYDRAZIDE	100	OP7			3226	
3–METHYL–4–(PYRROLIDIN–1–YL) BENZENEDIAZONIUM TETRAFLUOROBORATE	95	OP6	+45	+50	3234	
4–NITROSOPHENOL	100	OP7	+35	+40	3236	
PHOSPHOROTHIOIC ACID, O[(CYANOPHENYL METHYLENE) AZANYL] O,O-DIETHYL ESTER	82-91 (Z isomer)	OP8			3227	(10)
SELF–REACTIVE LIQUID, SAMPLE		OP2			3223	(8)
SELF–REACTIVE LIQUID, SAMPLE, TEMPERATURE CONTROLLED		OP2			3233	(8)
SELF–REACTIVE SOLID, SAMPLE		OP2			3224	(8)
SELF–REACTIVE SOLID, SAMPLE, TEMPERATURE CONTROLLED		OP2			3234	(8)
SODIUM 2–DIAZO–1–NAPHTHOL– 4–SULPHONATE	100	OP7			3226	
SODIUM 2–DIAZO–1–NAPHTHOL– 5–SULPHONATE	100	OP7			3226	
TETRAMINE PALLADIUM (II) NITRATE	100	OP6	+30	+35	3234	

Notes to table 2.4.2.3.2.3:

(1) Azodicarbonamide formulations which fulfil the criteria of 2.4.2.3.3.2 (b). The control and emergency temperatures must be determined by the procedure given in 7.1.5.3 to 7.1.5.3.1.3.

(2) “EXPLOSIVE” subsidiary hazard label (Model No.1, see 5.2.2.2.2) required.

(3) Azodicarbonamide formulations which fulfil the criteria of 2.4.2.3.3.2 (c).

(4) Azodicarbonamide formulations which fulfil the criteria of 2.4.2.3.3.2 (c). The control and emergency temperatures must be determined by the procedure given in 7.1.5.3 to 7.1.5.3.1.3.

(5) Azodicarbonamide formulations which fulfil the criteria of 2.4.2.3.3.2 (d).

(6) Azodicarbonamide formulations which fulfil the criteria of 2.4.2.3.3.2 (d). The control and emergency temperatures must be determined by the procedure given in 7.1.5.3 to 7.1.5.3.1.3.

(7) With a compatible diluent having a boiling point of not less than 150 °C.

(8) See 2.4.2.3.2.4 (b).

(9) This entry applies to mixtures of esters of 2-diazo-1-naphthol-4-sulphonic acid and 2-diazo-1-naphthol-5-sulphonic acid meeting the criteria of 2.4.2.3.3.2 (d).

(10) This entry applies to the technical mixture in n-butanol within the specified concentration limits of the (Z) isomer.

2.4.2.3.2.4 Classification of self-reactive substances not listed in 2.4.2.3.2.3, packing instruction IBC520 or portable tank instruction T23 and assignment to a generic entry must be made by the competent authority of the country or jurisdiction of origin on the basis of a test report. Principles applying to the classification of such substances are provided in 2.4.2.3.3. The applicable classification procedures, test methods and criteria, and an example of a suitable test report, are given in the Manual of Tests and Criteria, Part II. The determination must contain the classification and the relevant transport conditions.

(a) Activators, such as zinc compounds, may be added to some self-reactive substances to change their reactivity. Depending on both the type and the concentration of the activator, this may result in a decrease in thermal stability and a change in explosive properties. If either of these properties is altered, the new formulation must be assessed in accordance with this classification procedure;

(b) Samples of self-reactive substances or formulations of self-reactive substances not listed in 2.4.2.3.2.3, for which a complete set of test results is not available and which are to be transported for further testing or evaluation, may be assigned to one of the appropriate entries for self-reactive substances type C provided the following conditions are met:

  (i) the available data indicate that the sample would be no more dangerous than self-reactive substances type B;

  (ii) the sample is packaged in accordance with packing method OP2 (see applicable packing instruction) and the quantity per cargo transport unit is limited to 10 kg; and

  (iii) the available data indicate that the control temperature, if any, is sufficiently low to prevent any dangerous decomposition and sufficiently high to prevent any dangerous phase separation.

2.4.2.3.3 Principles for classification of self-reactive substances

NOTE: *This section refers only to those properties of self-reactive substances which are decisive for their classification. A flow chart, presenting the classification principles in the form of a graphically arranged scheme of questions concerning the decisive properties together with the possible answers, is given in Figure 2.4.1. These properties must be determined experimentally using the test methods and criteria given in the Manual of Tests and Criteria, Part II.*

2.4.2.3.3.1 A self-reactive substance is regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.

2.4.2.3.3.2 The following principles apply to the classification of self-reactive substances not listed in 2.4.2.3.2.3.

(a) Any substance which can detonate or deflagrate rapidly, as packaged for transport, is prohibited from transport under the provisions for self-reactive substances of Division 4.1 in that packaging (defined as self-reactive substance type A, exit box A of Figure 2.4.1);

(b) Any substance possessing explosive properties and which, as packaged for transport, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package, must also bear an “EXPLOSIVE” subsidiary hazard label (Model No.1, see 5.2.2.2.2). Such a substance may be packaged in amounts of up to 25 kg unless the maximum quantity has to be limited to a lower amount to preclude detonation or rapid deflagration in the package (defined as self-reactive substance type B, exit box B of Figure 2.4.1);

(c) Any substance possessing explosive properties may be transported without an "EXPLOSIVE" subsidiary hazard label when the substance as packaged (maximum 50 kg) for transport cannot detonate or deflagrate rapidly or undergo a thermal explosion (defined as self-reactive substance type C, exit box C of Figure 2.4.1);

(d) Any substance which in laboratory testing:

   (i) detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement; or

   (ii) does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement; or

   (iii) does not detonate or deflagrate at all and shows a medium effect when heated under confinement,

   may be accepted for transport in packages of not more than 50 kg net mass (defined as self-reactive substance type D, exit box D of Figure 2.4.1);

(e) Any substance which, in laboratory testing, neither detonates nor deflagrates at all and shows low or no effect when heated under confinement may be accepted for transport in packages of not more than 400 kg/450 litres (defined as self-reactive substance type E, exit box E of Figure 2.4.1);

(f) Any substance which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows only a low or no effect when heated under confinement as well as low or no explosive power may be considered for transport in IBCs or tanks (defined as self-reactive substance type F, exit box F of Figure 2.4.1); (for additional provisions see 4.1.7.2.2 and 4.2.1.13);

(g) Any substance which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows no effect when heated under confinement nor any explosive power is exempted from classification as a self-reactive substance of Division 4.1 provided that the formulation is thermally stable (self-accelerating decomposition temperature 60 °C to 75 °C for a 50 kg package) and any diluent meets the requirements of 2.4.2.3.5 (defined as self-reactive substance type G, exit box G of Figure 2.4.1). If the formulation is not thermally stable or a compatible diluent having a boiling point less than 150 °C is used for desensitisation, the formulation must be defined as SELF REACTIVE LIQUID/SOLID TYPE F.

2.4.2.3.4 Temperature control requirements

Self-reactive substances are subject to temperature control in transport if their self-accelerating decomposition temperature (SADT) is less than or equal to 55 °C. Test methods for determining the SADT are given in the Manual of Tests and Criteria, Part II, section 28. The test selected must be conducted in a manner which is representative, both in size and material, of the package to be transported.

2.4.2.3.5 Desensitisation of self-reactive substances

2.4.2.3.5.1 In order to ensure safety during transport, self-reactive substances may be desensitised through the use of a diluent. If a diluent is used, the self-reactive substance must be tested with the diluent present in the concentration and form used in transport.

2.4.2.3.5.2 Diluents which may allow a self-reactive substance to concentrate to a dangerous extent in the event of leakage from a package must not be used.

2.4.2.3.5.3 The diluent must be compatible with the self-reactive substance. In this regard, compatible diluents are those solids or liquids which have no detrimental influence on the thermal stability and hazard type of the self-reactive substance.

2.4.2.3.5.4 Liquid diluents in liquid formulations requiring temperature control must have a boiling point of at least 60 °C and a flash point not less than 5 °C. The boiling point of the liquid must be at least 50 °C higher than the control temperature of the self-reactive substance (see 7.1.5.3.1).

Figure 2.4.1: Flow chart scheme for self-reactive substances

Figure 2.4.1: FLOW CHART SCHEME FOR SELF-REACTIVE SUBSTANCES

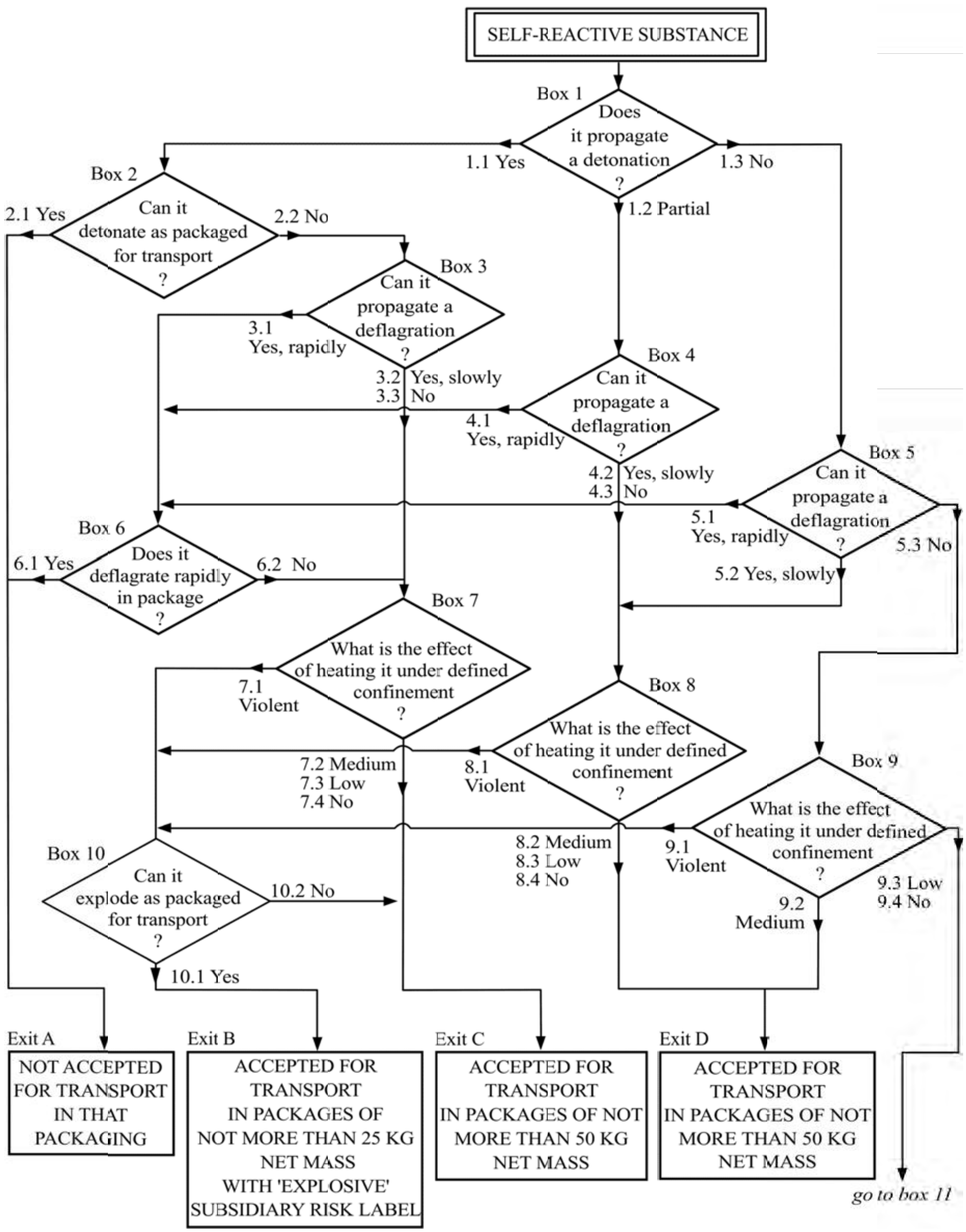
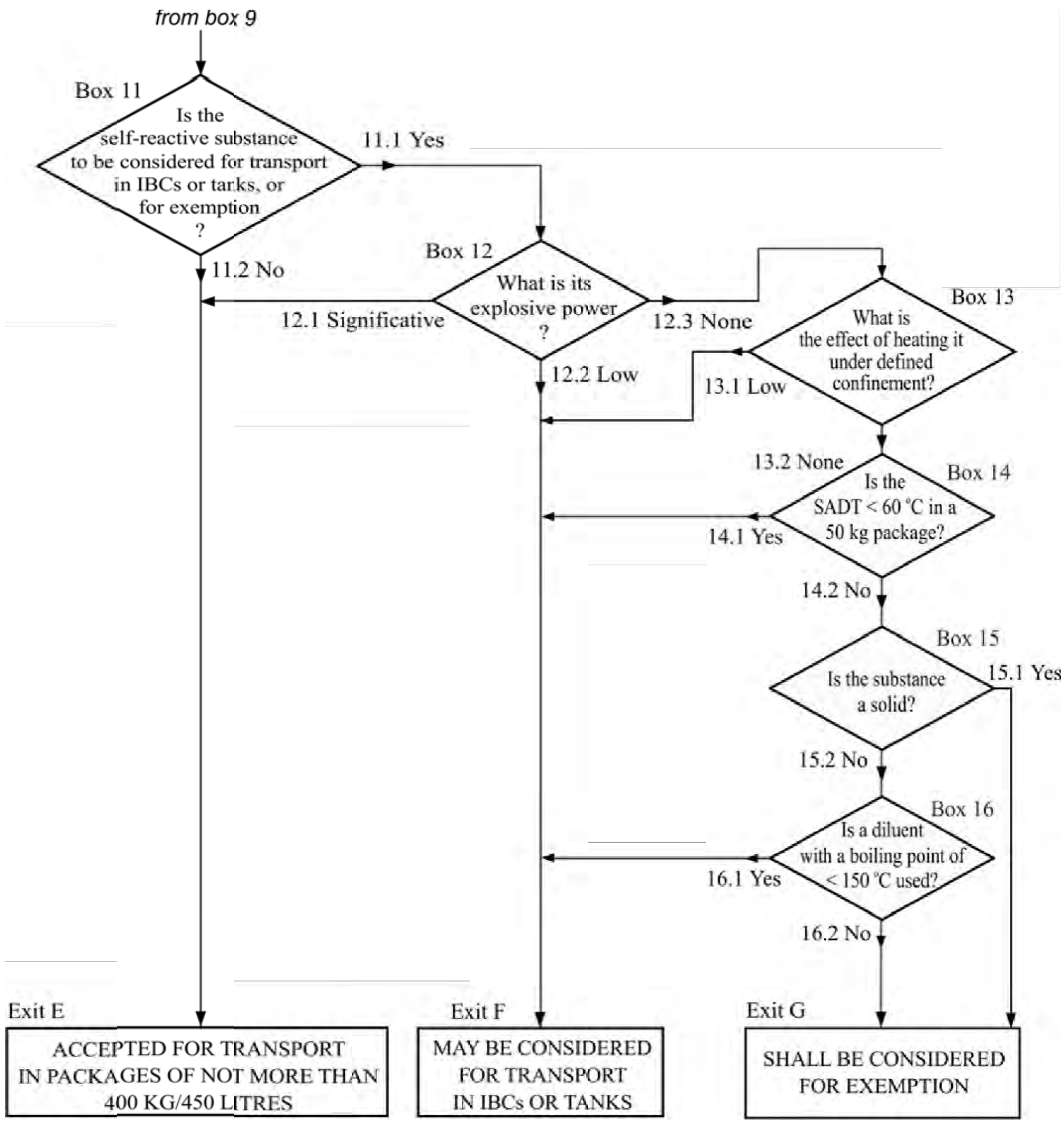


Figure 2.4.1: Flow chart scheme for self-reactive substances (cont'd)



2.4.2.4 Division 4.1 Solid desensitised explosives

2.4.2.4.1 Definition

Solid desensitised explosives are explosive substances which are wetted with water or alcohols or are diluted with other substances, to form a homogeneous solid mixture to suppress their explosive properties (see 2.1.3.6.3).

Entries in the Dangerous Goods List for solid desensitised explosives are:

UN 1310	UN 1320	UN 1321	UN 1322	UN 1336	UN 1337	UN 1344
UN 1347	UN 1348	UN 1349	UN 1354	UN 1355	UN 1356	UN 1357
UN 1517	UN 1571	UN 2555	UN 2556	UN 2557	UN 2852	UN 2907
UN 3317	UN 3319	UN 3344	UN 3364	UN 3365	UN 3366	UN 3367
UN 3368	UN 3369	UN 3370	UN 3376	UN 3380	UN 3474	

2.4.2.4.2 Substances that:

(a) have been provisionally accepted into Class 1 according to Test Series 1 and 2 but exempted from Class 1 by Test Series 6; and

(b) are not self-reactive substances of Division 4.1; and

(c) are not substances of Class 5;

are also assigned to Division 4.1. Though not desensitised explosives, UN 2956, UN 3241, UN 3242 and UN 3251 are such entries that are assigned to Division 4.1.

2.4.2.5 Division 4.1 Polymerizing substances and mixtures (stabilized)

2.4.2.5.1 Definitions and properties

Polymerizing substances are substances which, without stabilization, are liable to undergo a strongly exothermic reaction resulting in the formation of larger molecules or resulting in the formation of polymers under conditions normally encountered in transport. Such substances are considered to be polymerizing substances of Division 4.1 when:

(a) Their self-accelerating polymerization temperature (SAPT) is 75 °C or less under the conditions (with or without chemical stabilization as offered for transport) and in the packaging, IBC or portable tank in which the substance or mixture is to be transported;

(b) They exhibit a heat of reaction of more than 300 J/g; and

(c) They do not meet any other criteria for inclusion in Classes 1-8.

A mixture meeting the criteria of a polymerizing substance shall be classified as a polymerizing substance of Division 4.1.

2.4.2.5.2 Polymerizing substances are subject to temperature control in transport if their self-accelerating polymerization temperature (SAPT) is:

(a) When offered for transport in a packaging or IBC, 50 °C or less in the packaging or IBC in which the substance is to be transported; or

(b) When offered for transport in a portable tank, 45 °C or less in the portable tank in which the substance is to be transported

NOTE: *Substances meeting the criteria of a polymerizing substance and also for inclusion in Classes 1 to 8 are subject to the requirements of special provision 386 of Chapter 3.3.*

2.4.3 DIVISION 4.2 - SUBSTANCES LIABLE TO SPONTANEOUS COMBUSTION

2.4.3.1 Definitions and properties

2.4.3.1.1 Division 4.2 includes:

(a) Pyrophoric substances, which are substances, including mixtures and solutions (liquid or solid), which even in small quantities ignite within five minutes of coming in contact with air. These are the Division 4.2 substances are the most liable to spontaneous combustion; and

(b) Self-heating substances, which are substances, other than pyrophoric substances, which in contact with air without energy supply are liable to self heating. These substances will ignite only when in large amounts (kilograms) and after long periods of time (hours or days).

2.4.3.1.2 Self-heating of a substance is a process where the gradual reaction of that substance with oxygen (in air) generates heat. If the rate of heat production exceeds the rate of heat loss, then the temperature of the substance will rise which, after an induction time, may lead to self-ignition and combustion.

2.4.3.2 Classification in Division 4.2

2.4.3.2.1 Solids must be considered pyrophoric solids of Division 4.2 if, in tests performed in accordance with the test method given in the Manual of Tests and Criteria, Part III, sub-section 33.3.1.4, the sample ignites in one of the tests.

2.4.3.2.2 Liquids must be considered pyrophoric liquids of Division 4.2 if, in tests performed in accordance with the test method given in the Manual of Tests and Criteria, Part III, sub-section 33.3.1.5, the liquid ignites in the first part of the test, or if it ignites or chars the filter paper.

2.4.3.2.3 Self-heating substances

2.4.3.2.3.1 A substance must be classified as a self-heating substance of Division 4.2 if, in tests performed in accordance with the test method given in the *Manual of Tests and Criteria*, Part III, sub-section 33.3.1.6:

(a) a positive result is obtained using a 25 mm cube sample at 140 °C;

(b) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 100 mm cube sample at 120 °C and the substance is to be transported in packages with a volume of more than 3 m^3;

(c) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 100 mm cube sample at 100 °C and the substance is to be transported in packages with a volume of more than 450 litres;

(d) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a positive result is obtained using a 100 mm cube sample at 100 °C.

NOTE: *Self-reactive substances giving also a positive result with this test method, must not be classified in Division 4.2 but in Division 4.1 (see 2.4.2.3.1.1).*

2.4.3.2.3.2 A substance should not be classified in Division 4.2 if:

(a) a negative result is obtained in a test using a 100 mm cube sample at 140 °C;

(b) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C, a negative result is obtained in a test using a 100 mm cube sample at 120 °C and the substance is to be transported in packages with a volume not more than 3 m^3;

(c) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C, a negative result is obtained in a test using a 100 mm cube sample at 100 °C and the substance is to be transported in packages with a volume not more than 450 litres.

2.4.3.3 Assignment of packing groups

2.4.3.3.1 Packing group I must be assigned to all pyrophoric solids and liquids.

2.4.3.3.2 Packing group II must be assigned to self-heating substances which give a positive result in a test using a 25 mm sample cube at 140 °C.

2.4.3.3.3 Packing group III must be assigned to self-heating substances if:

(a) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C and the substance is to be transported in packages with a volume of more than 3 m^3;

(b) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C, a positive result is obtained in a test using a 100 mm cube sample at 120 °C and the substance is to be transported in packages with a volume of more than 450 litres;

(c) a positive result is obtained in a test using a 100 mm sample cube at 140 °C and a negative result is obtained in a test using a 25 mm cube sample at 140 °C and a positive result is obtained in a test using a 100 mm cube sample at 100 °C.

2.4.4 DIVISION 4.3 - SUBSTANCES WHICH IN CONTACT WITH WATER EMIT FLAMMABLE GASES

2.4.4.1 Definitions and properties

Certain substances in contact with water may emit flammable gases that can form explosive mixtures with air. Such mixtures are easily ignited by all ordinary sources of ignition, for example naked lights, sparking handtools or unprotected lamps. The resulting blast wave and flames may endanger people and the environment. The test method referred to in 2.4.4.2 is used to determine whether the reaction of a substance with water leads to the development of a dangerous amount of gases which may be flammable. This test method should not be applied to pyrophoric substances.

2.4.4.2 Classification in Division 4.3

Substances which in contact with water emit flammable gases must be classified in Division 4.3 if, in tests performed in accordance with the test method given in the Manual of Tests and Criteria, Part III, sub-section 33.4.1:

(a) spontaneous ignition takes place in any step of the test procedure; or

(b) there is an evolution of a flammable gas at a rate greater than 1 litre per kilogram of the substance per hour.

2.4.4.3 Assignment of packing groups

2.4.4.3.1 Packing group I must be assigned to any substance which reacts vigorously with water at ambient temperatures and demonstrates generally a tendency for the gas produced to ignite spontaneously, or which reacts readily with water at ambient temperatures such that the rate of evolution of flammable gas is equal to or greater than 10 litres per kilogram of substance over any one minute.

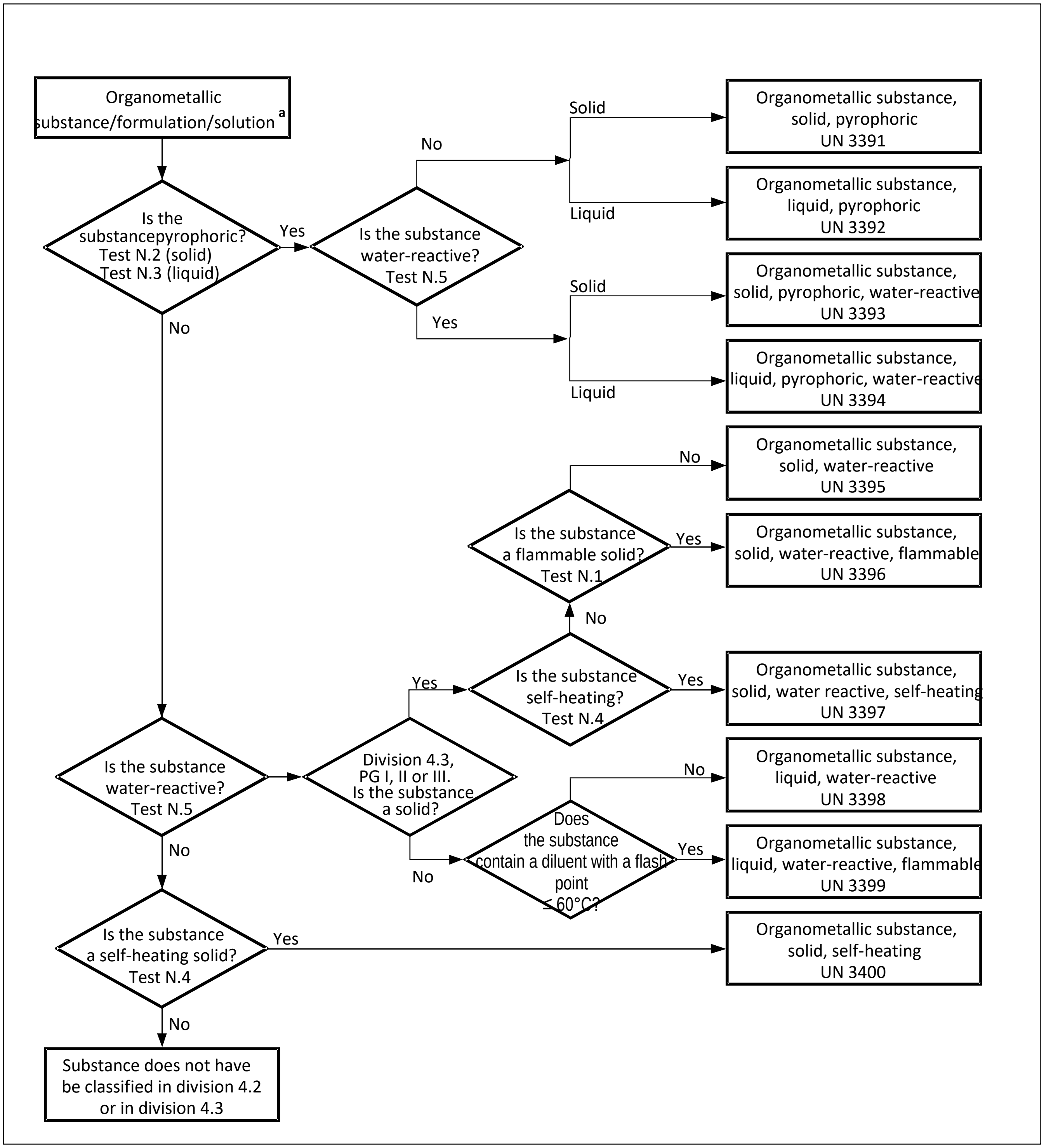
2.4.4.3.2 Packing group II must be assigned to any substance which reacts readily with water at ambient temperatures such that the maximum rate of evolution of flammable gas is equal to or greater than 20 litres per kilogram of substance per hour, and which does not meet the criteria for packing group I.

2.4.4.3.3 Packing group III must be assigned to any substance which reacts slowly with water at ambient temperatures such that the maximum rate of evolution of flammable gas is greater than 1 litre per kilogram of substance per hour, and which does not meet the criteria for packing groups I or II.

2.4.5 CLASSIFICATION OF ORGANOMETALLIC SUBSTANCES

Depending on their properties, organometallic substances may be classified in Divisions 4.2 or 4.3, as appropriate, in accordance with the flowchart scheme given in figure 2.4.2.

Figure 2.4.2: Flowchart scheme for organometallic substances[b]



[a] *If applicable and testing is relevant, taking into account reactivity properties, class 6.1 and 8 properties should be considered according to the precedence of hazard table 2.0.3.3.*

[b] *Test methods N.1 to N.5 can be found in the Manual of tests and Criteria, Part III, Section 33.*

CHAPTER 2.5 - CLASS 5 - OXIDISING SUBSTANCES AND ORGANIC PEROXIDES

Introductory Note

NOTE: *Because of the different properties exhibited by dangerous goods within Divisions 5.1 and 5.2, it is impracticable to establish a single criterion for classification in either division. Tests and criteria for assignment to the two divisions of Class 5 are addressed in this Chapter.*

2.5.1 DEFINITIONS AND GENERAL PROVISIONS

Class 5 is divided into two divisions as follows:

(a) Division 5.1 Oxidising substances

Substances which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material. Such substances may be contained in an article;

(b) Division 5.2 Organic peroxides

Organic substances which contain the bivalent -O-O- structure and may be considered derivatives of hydrogen peroxide, where one or both of the hydrogen atoms have been replaced by organic radicals. Organic peroxides are thermally unstable substances, which may undergo exothermic self-accelerating decomposition. In addition, they may have one or more of the following properties:

- (i) be liable to explosive decomposition;
- (ii) burn rapidly;
- (iii) be sensitive to impact or friction;
- (iv) react dangerously with other substances;
- (v) cause damage to the eyes.

2.5.2 DIVISION 5.1 - OXIDISING SUBSTANCES

2.5.2.1 Classification in Division 5.1

2.5.2.1.1 Oxidising substances are classified in Division 5.1 in accordance with the test methods, procedures and criteria in 2.5.2.2, 2.5.2.3 and the Manual of Tests and Criteria, Part III, section 34. In the event of divergence between test results and known experience, judgement based on known experience must take precedence over test results.

NOTE: *Where substances of this Division are listed in the Dangerous Goods List in Chapter 3.2, reclassification of those substances in accordance with this criteria should be undertaken only when this is necessary for safety.*

2.5.2.1.2 By exception, solid ammonium nitrate based fertilizers shall be classified in accordance with the procedure as set out in the Manual of Tests and Criteria, Part III, Section 39

2.5.2.1.3 For substances having other hazards, e.g. toxicity or corrosivity, the requirements of Chapter 2.0 must be met.

2.5.2.2 Oxidising solids

2.5.2.2.1 Criteria for classification in Division 5.1

2.5.2.2.1.1 Tests are performed to measure the potential for the solid substance to increase the burning rate or burning intensity of a combustible substance when the two are thoroughly mixed. The procedure is given in the Manual of Tests and Criteria, Part III, sub-section 34.4.1 (test O.1) or alternatively, in sub-section 34.4.3 (test O.3). Tests are conducted on the substance to be evaluated mixed with dry fibrous cellulose in mixing ratios of 1:1 and 4:1, by mass, of sample to cellulose. The burning characteristics of the mixtures are compared:

(a) In the test O.1, with the standard 3:7 mixture, by mass, of potassium bromate to cellulose. If the burning time is equal to or less than this standard mixture, the burning times must be compared with those from the packing group I or II reference standards, 3:2 and 2:3 ratios, by mass, of potassium bromate to cellulose respectively; or

(b) In the test O.3, with the standard 1:2 mixture, by mass, of calcium peroxide to cellulose. If the burning rate is equal to or greater than this standard mixture, the burning rates must be compared with those from the packing group I or II reference standards 3:1 and 1:1 ratios, by mass, of calcium peroxide to cellulose, respectively.

2.5.2.2.1.2 The classification test results are assessed on the basis of:

(a) The comparison of the mean burning time (for the test O.1) or burning rate (for the test O.3) with those of the reference mixtures; and

(b) Whether the mixture of substance and cellulose ignites and burns.

2.5.2.2.1.3 A solid substance is classified in Division 5.1 if the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits:

(a) In the test O.1, a mean burning time equal to or less than the mean burning time of a 3:7 mixture (by mass) of potassium bromate and cellulose; or

(b) In the test O.3, a mean burning rate equal to or greater than the mean burning rate of a 1:2 mixture (by mass) of calcium peroxide and cellulose.

2.5.2.2.2 Assignment of packing groups

Solid oxidising substances are assigned to a packing group according to the test procedure in the Manual of Tests and Criteria, Part III, section 34.4.1, (test O.1) or sub section 34.4.3 (test O.3) in accordance with the following criteria:

(a) Test O.1:

(i) Packing group I: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:2 mixture, by mass, of potassium bromate and cellulose;

(ii) Packing group II: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 2:3 mixture (by mass) of potassium bromate and cellulose and the criteria for packing group I are not met;

(iii) Packing group III: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 3:7 mixture (by mass) of potassium bromate and cellulose and the criteria for packing groups I and II are not met;

(iv) Not Division 5.1: any substance which, in both the 4:1 and 1:1 sample-to-cellulose ratio (by mass) tested, does not ignite and burn, or exhibits mean burning times greater than that of a 3:7 mixture (by mass) of potassium bromate and cellulose.

(b) Test O.3:

(i) Packing group I: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time less than the mean burning time of a 3:1 mixture (by mass) of calcium peroxide and cellulose;

(ii) Packing group II: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 1:1 mixture (by mass) of calcium peroxide and cellulose and the criteria for packing group I are not met;

(iii) Packing group III: any substance which, in the 4:1 or 1:1 sample-to-cellulose ratio (by mass) tested, exhibits a mean burning time equal to or less than the mean burning time of a 1:2 mixture (by mass) of calcium peroxide and cellulose and the criteria for packing groups I and II are not met;

(iv) Not Division 5.1: any substance which, in both the 4:1 and 1:1 sample-to-cellulose ratio (by mass) tested, does not ignite and burn, or exhibits mean burning times greater than that of a 1:2 mixture (by mass) of calcium peroxide and cellulose.

2.5.2.3 Oxidising liquids

2.5.2.3.1 Criteria for classification in Division 5.1

2.5.2.3.1.1 A test is performed to determine the potential for a liquid substance to increase the burning rate or burning intensity of a combustible substance or for spontaneous ignition to occur when the two are thoroughly mixed. The procedure is given in the Manual of Tests and Criteria, Part III, sub-section 34.4.2 (Test O.2). It measures the pressure rise time during combustion. Whether a liquid is an oxidising substance of Division 5.1 and, if so, whether packing groups I, II or III are assigned, is decided on the basis of the test result (see also precedence of hazards characteristics in 2.0.3).

2.5.2.3.1.2 The classification test results are assessed on the basis of:

(a) whether the mixture of substance and cellulose spontaneously ignites;

(b) the comparison of the mean time taken for the pressure to rise from 690 kPa to 2070 kPa gauge with those of the reference substances.

2.5.2.3.1.3 A liquid substance is classified in Division 5.1 if the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose.

2.5.2.3.2 Assignment of packing groups

Liquid oxidising substances are assigned to a packing group according to the test procedure in the Manual of Tests and Criteria, Part III, section 34.4.2, in accordance with the following criteria:

(a) Packing group I: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, spontaneously ignites; or the mean pressure rise time of a 1:1 mixture, by mass, of substance and cellulose is less than that of a 1:1 mixture, by mass, of 50% perchloric acid and cellulose;

(b) Packing group II: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 40% aqueous sodium chlorate solution and cellulose; and the criteria for packing group I are not met;

(c) Packing group III: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a mean pressure rise time less than or equal to the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose; and the criteria for packing groups I and II are not met;

(d) Not Division 5.1: any substance which, in the 1:1 mixture, by mass, of substance and cellulose tested, exhibits a pressure rise of less than 2070 kPa gauge; or exhibits a mean pressure rise time greater than the mean pressure rise time of a 1:1 mixture, by mass, of 65% aqueous nitric acid and cellulose.

2.5.3 DIVISION 5.2 - ORGANIC PEROXIDES

2.5.3.1 Properties

2.5.3.1.1 Organic peroxides are liable to exothermic decomposition at normal or elevated temperatures. The decomposition can be initiated by heat, contact with impurities (e.g. acids, heavy-metal compounds, amines), friction or impact. The rate of decomposition increases with temperature and varies with the organic peroxide formulation. Decomposition may result in the evolution of harmful, or flammable, gases or vapours. For certain organic peroxides the temperature must be controlled during transport. Some organic peroxides may decompose explosively, particularly if confined. This characteristic may be modified by the addition of diluents or by the use of appropriate packagings. Many organic peroxides burn vigorously.

2.5.3.1.2 Contact of organic peroxides with the eyes is to be avoided. Some organic peroxides will cause serious injury to the cornea, even after brief contact, or will be corrosive to the skin.

2.5.3.2 Classification of organic peroxides

2.5.3.2.1 Any organic peroxide must be considered for classification in Division 5.2, unless the organic peroxide formulation contains:

(a) not more than 1.0% available oxygen from the organic peroxides when containing not more than 1.0% hydrogen peroxide; or

(b) not more than 0.5% available oxygen from the organic peroxides when containing more than 1.0% but not more than 7.0% hydrogen peroxide.

NOTE: *The available oxygen content (%) of an organic peroxide formulation is given by the formula:*

$$16 \times \sum (n_i \times c_i / m_i)$$

where:

n_i = *number of peroxygen groups per molecule of organic peroxide i;*

c_i = *concentration (mass %) of organic peroxide i;*

m_i = *molecular mass of organic peroxide i.*

2.5.3.2.2 Organic peroxides are classified into seven types according to the degree of danger they present. The types of organic peroxide range from type A, which may not be accepted for transport in the packaging in which it is tested, to type G, which is not subject to the provisions for organic peroxides of Division 5.2. The classification of types B to F is directly related to the maximum quantity allowed in one packaging.

2.5.3.2.3 Organic peroxides permitted for transport in packagings are listed in 2.5.3.2.4, those permitted for transport in IBCs are listed in packing instruction IBC520 and those permitted for transport in portable tanks are listed in portable tank instruction T23. For each permitted substance listed, the generic entry of the Dangerous Goods List (UN Nos. 3101 to 3120) is assigned, appropriate subsidiary hazards and remarks providing relevant transport information are given.

The generic entries specify:

(a) organic peroxide type (B to F);

(b) physical state (liquid or solid); and

(c) temperature control, when required (see 2.5.3.4).

2.5.3.2.3.1 Mixtures of the listed formulations may be classified as the same type of organic peroxide as that of the most dangerous component and be transported under the conditions of transport given for this type. However, as two stable components can form a thermally less stable mixture, the self-accelerating decomposition temperature (SADT) of the mixture must be determined and, if necessary, temperature control applied as required by 2.5.3.4.

2.5.3.2.4 List of currently assigned organic peroxides in packagings

In the following table “Packing Method” codes “OP1” to “OP8” refer to packing methods in packing instruction P520. Peroxides to be transported should fulfil the classification and the control and emergency temperatures (derived from the SADT) as listed. For substances permitted in IBCs see packing instruction IBC520, and for those permitted in tanks, see portable tank instruction T23. The formulations listed in packing instruction IBC520 of 4.1.4.2 and in portable tank instruction T23 of 4.2.5.2.6 may also be transported packed in accordance with packing method OP8 of packing instruction P520 of 4.1.4.1, with the same control and emergency temperatures, if applicable.

Table 2.5.3.2.4: Assigned organic peroxides in packagings

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
ACETYL ACETONE PEROXIDE	≤ 42	≥ 48			≥ 8	OP7			3105	2)
	≤ 32 as a paste					OP7			3106	20)
ACETYL CYCLOHEXANESULPHONYL PEROXIDE	≤ 82				≥ 12	OP4	-10	0	3112	3)
	≤ 32		≥ 68			OP7	-10	0	3115	
tert-AMYL HYDROPEROXIDE	≤ 88	≥ 6			≥ 6	OP8			3107	
tert-AMYL PEROXYACETATE	≤ 62	≥ 38				OP7			3105	
tert-AMYL PEROXYBENZOATE	≤ 100					OP5			3103	
tert-AMYL PEROXY-2-ETHYLHEXANOATE	≤ 100					OP7	+20	+25	3115	
tert-AMYL PEROXY-2-ETHYLHEXYL CARBONATE	≤ 100					OP7			3105	
tert-AMYL PEROXY ISOPROPYL CARBONATE	≤ 77	≥ 23				OP5			3103	
tert-AMYL PEROXYNEODECANOATE	≤ 77		≥ 23			OP7	0	+10	3115	
	≤ 47	≥ 53				OP8	0	+ 10	3119	
tert-AMYL PEROXYPIVALATE	≤ 77		≥ 23			OP5	+10	+15	3113	
tert-AMYLPEROXY-3,5,5-TRIMETHYLHEXANOATE	≤ 100					OP7			3105	
tert-BUTYL CUMYL PEROXIDE	> 42 – 100					OP8			3109	

ORGANIC PEROXIDE	**Concentration (%)**	**Diluent type A (%)**	**Diluent type B (%) 1)**	**Inert solid (%)**	**Water (%)**	**Packing Method**	**Temperature (°C)**		**UN No. (Generic entry)**	**Subsidiary hazards and remarks** (see notes at end of table)
							Control	**Emergency**		
	≤ 52			≥ 48		OP8			3108	
n-BUTYL-4,4-DI-(tert-BUTYLPEROXY)VALERATE	> 52 – 100					OP5			3103	
	≤ 52			≥ 48		OP8			3108	
tert-BUTYL HYDROPEROXIDE	> 79 – 90				≥ 10	OP5			3103	13)
	≤ 80	≥ 20				OP7			3105	4) 13)
	≤ 79				> 14	OP8			3107	13) 23)
	≤ 72				≥ 28	OP8			3109	13)
tert-BUTYL HYDROPEROXIDE + DI-tert-BUTYLPEROXIDE	< 82 + > 9				≥ 7	OP5			3103	13)
tert-BUTYL MONOPEROXYMALEATE	> 52 – 100					OP5			3102	3)
	≤ 52	≥ 48				OP6			3103	
	≤ 52			≥ 48		OP8			3108	
	≤ 52 as a paste					OP8			3108	
tert-BUTYL PEROXYACETATE	> 52 – 77	≥ 23				OP5			3101	3)
	> 32 – 52	≥ 48				OP6			3103	
	≤ 32		≥ 68			OP8			3109	
tert-BUTYL PEROXYBENZOATE	> 77 – 100					OP5			3103	
	> 52 – 77	≥23				OP7			3105	
	≤ 52			≥ 48		OP7			3106	
tert-BUTYL PEROXYBUTYL FUMARATE	≤ 52	≥ 48				OP7			3105	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
tert-BUTYL PEROXYCROTONATE	≤ 77	≥ 23				OP7			3105	
tert-BUTYL PEROXYDIETHYLACETATE	≤ 100					OP5	+20	+25	3113	
tert-BUTYL PEROXY-2-ETHYLHEXANOATE	> 52 – 100					OP6	+20	+25	3113	
	> 32 – 52		≥ 48			OP8	+30	+35	3117	
	≤ 52			≥ 48		OP8	+20	+25	3118	
	≤ 32		≥ 68			OP8	+40	+45	3119	
tert-BUTYL PEROXY-2-ETHYLHEXANOATE + 2,2-DI-(tert-BUTYLPEROXY) BUTANE	≤ 12 + ≤ 14	≥ 14		≥ 60		OP7			3106	
	≤ 31 + ≤ 36		≥ 33			OP7	+35	+40	3115	
tert-BUTYL PEROXY-2-ETHYLHEXYLCARBONATE	≤ 100					OP7			3105	
tert-BUTYL PEROXYISOBUTYRATE	> 52 – 77		≥ 23			OP5	+15	+20	3111	3)
	≤ 52		≥ 48			OP7	+15	+20	3115	
tert-BUTYLPEROXY ISOPROPYLCARBONATE	≤ 77	≥ 23				OP5			3103	
1-(2-tert-BUTYLPEROXY ISOPROPYL) -3-ISOPROPENYLBENZENE	≤ 77	≥ 23				OP7			3105	
	≤ 42			≥ 58		OP8			3108	
tert-BUTYL PEROXY-2-METHYLBENZOATE	≤ 100					OP5			3103	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
tert-BUTYL PEROXYNEODECANOATE	> 77 – 100					OP7	-5	+5	3115	
	≤ 77		≥ 23			OP7	0	+10	3115	
	≤ 52 as a stable dispersion in water					OP8	0	+10	3119	
	≤ 42 as a stable dispersion in water (frozen)					OP8	0	+10	3118	
	≤ 32	≥ 68				OP8	0	+10	3119	
tert-BUTYL PEROXYNEOHEPTANOATE	≤ 77	≥ 23				OP7	0	+10	3115	
	≤ 42 as a stable dispersion in water					OP8	0	+10	3117	
tert-BUTYL PEROXYPIVALATE	> 67 – 77	≥ 23				OP5	0	+10	3113	
	> 27 – 67		≥ 33			OP7	0	+10	3115	
	≤ 27		≥ 73			OP8	+30	+35	3119	
tert-BUTYLPEROXY STEARYLCARBONATE	≤ 100					OP7			3106	
tert-BUTYL PEROXY-3,5,5-TRIMETHYLHEXANOATE	> 37 – 100					OP7			3105	
	≤ 37		≥ 63			OP8			3109	
	≤ 42			≥ 58		OP7			3106	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
3-CHLOROPEROXYBENZOIC ACID	> 57 – 86			≥ 14		OP1			3102	(3)
	≤ 57			≥ 3	≥ 40	OP7			3106	
	≤ 77			≥ 6	≥ 17	OP7			3106	
CUMYL HYDROPEROXIDE	> 90 – 98	≤10				OP8			3107	13)
	≤ 90	≥ 10				OP8			3109	13) 18)
CUMYL PEROXYNEODECANOATE	≤ 77		≥ 23			OP7	-10	0	3115	
	≤ 52 as a stable dispersion in water					OP8	-10	0	3119	
	≤ 87	≥ 13				OP7	- 10	0	3115	
CUMYL PEROXYNEOHEPTANOATE	≤ 77	≥ 23				OP7	-10	0	3115	
CUMYL PEROXYPIVALATE	≤ 77		≥ 23			OP7	-5	+5	3115	
CYCLOHEXANONE PEROXIDE(S)	≤ 91				≥ 9	OP6			3104	13)
	≤ 72	≥ 28				OP7			3105	5)
	≤ 72 as a paste					OP7			3106	5) 20)
	≤ 32			≥ 68					Exempt	29)
([3R-(3R,5aS,6S,8aS,9R,10R,12S,12aR**)]-DECAHYDRO-10-METHOXY-3,6,9-TRIMETHYL-3,12-EPOXY-12H-PYRANO[4,3-j]-1,2-BENZODIOXEPIN)	≤ 100					OP7			3106	
DIACETONE ALCOHOL PEROXIDES	≤ 57		≥ 26		≥ 8	OP7	+40	+45	3115	6)

ORGANIC PEROXIDE	**Concentration (%)**	**Diluent type A (%)**	**Diluent type B (%) 1)**	**Inert solid (%)**	**Water (%)**	**Packing Method**	**Temperature (°C)**		**UN No. (Generic entry)**	**Subsidiary hazards and remarks** (see notes at end of table)
							Control	**Emergency**		
DIACETYL PEROXIDE	≤ 27		≥ 73			OP7	+20	+25	3115	7) 13)
DI-tert-AMYL PEROXIDE	≤ 100					OP8			3107	
2,2-DI-(tert-AMYLPEROXY) BUTANE	≤ 57	≥ 43				OP7			3105	
1,1-DI-(tert-AMYLPEROXY) CYCLOHEXANE	≤ 82	≥ 18				OP6			3103	
DIBENZOYL PEROXIDE	> 52 – 100			≤ 48		OP2			3102	3)
	> 77 – 94				≥ 6	OP4			3102	3)
	≤ 77				≥ 23	OP6			3104	
	≤ 62			≥ 28	≥ 10	OP7			3106	
	> 52 – 62 as a paste					OP7			3106	20)
	> 35 – 52			≥ 48		OP7			3106	
	> 36 – 42	≥ 18			≤ 40	OP8			3107	
	≤ 56.5 as a paste				≥ 15	OP8			3108	
	≤ 52 as a paste					OP8			3108	20)
	≤ 42 as a stable dispersion in water					OP8			3109	
	≤ 35			≥ 65					Exempt	29)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
DI-(4-tert-BUTYLCYCLOHEXYL) PEROXYDICARBONATE	≤ 100					OP6	+30	+35	3114	
	≤ 42 as a stable dispersion in water					OP8	+30	+35	3119	
	≤42 (as a paste)					OP8	35	40	3118	
DI-tert-BUTYL PEROXIDE	> 52 – 100					OP8			3107	
	≤ 52		≥ 48			OP8			3109	25)
DI-tert-BUTYL PEROXYAZELATE	≤ 52	≥ 48				OP7			3105	
2,2-DI-(tert-BUTYLPEROXY) BUTANE	≤ 52	≥ 48				OP6			3103	
1,6-DI-(tert-BUTYLPEROXYCARBONYLOXY) HEXANE	≤ 72	≥ 28				OP5			3103	
1,1-DI-(tert-BUTYLPEROXY) CYCLOHEXANE	> 80 – 100					OP5			3101	3)
	> 52 – 80	≥ 20				OP5			3103	
	> 42 – 52	≥ 48				OP7			3105	
	≤ 72		≥ 28			OP5			3103	30)
	≤ 42	≥ 13		≥ 45		OP7			3106	
	≤ 42	≥ 58				OP8			3109	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
	≤ 27	≥ 25				OP8			3107	21)
	≤ 13	≥ 13	≥ 74			OP8			3109	
1,1-DI-(tert-BUTYLPEROXY)-CYCLOHEXANE + tert-BUTYL PEROXY-2-ETHYLHEXANOATE	≤43 + ≤ 16	≥ 41				OP 7			3105	
DI-n-BUTYL PEROXYDICARBONATE	> 27 – 52		≥ 48			OP7	-15	-5	3115	
	≤ 42 as a stable dispersion in water (frozen)					OP8	-15	-5	3118	
	≤ 27		≥ 73			OP8	-10	0	3117	
DI-sec-BUTYL PEROXYDICARBONATE	> 52 – 100					OP4	-20	-10	3113	
	≤ 52		≥ 48			OP7	-15	-5	3115	
DI-(tert-BUTYLPEROXYISOPROPYL) BENZENE(S)	> 42 – 100			≤ 57		OP7			3106	
	≤ 42			≥ 58					Exempt	29)
DI-(tert-BUTYLPEROXY) PHTHALATE	> 42 – 52	≥ 48				OP7			3105	
	≤ 52 as a paste					OP7			3106	20)
	≤ 42	≥ 58				OP8			3107	
2,2-DI-(tert-BUTYLPEROXY)PROPANE	≤ 52	≥ 48				OP7			3105	
	≤ 42	≥ 13		≥ 45		OP7			3106	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
1,1-DI-(tert-BUTYLPEROXY)-3,3,5-TRIMETHYLCYCLOHEXANE	> 90 – 100					OP5			3101	3)
	≤ 90		≥ 10			OP5			3103	30)
	> 57 – 90	≥ 10				OP5			3103	
	≤ 77		≥ 23			OP5			3103	
	≤ 57			≥ 43		OP8			3110	
	≤ 57	≥ 43				OP8			3107	
	≤ 32	≥ 26	≥ 42			OP8			3107	
DICETYL PEROXYDICARBONATE	≤ 100					OP8	+30	+35	3120	
	≤ 42 as a stable dispersion in water					OP8	+30	+35	3119	
DI-4-CHLOROBENZOYL PEROXIDE	≤ 77				≥ 23	OP5			3102	3)
	≤ 52 as a paste					OP7			3106	20)
	≤ 32			≥ 68					Exempt	29)
DICUMYL PEROXIDE	> 52 – 100					OP8			3110	12)
	≤ 52			≥ 48					Exempt	29)
DICYCLOHEXYL PEROXYDICARBONATE	> 91 – 100					OP3	+10	+15	3112	3)
	≤ 91				≥ 9	OP5	+10	+15	3114	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
	≤ 42 as a stable dispersion in water					OP8	+15	+20	3119	
DIDECANOYL PEROXIDE	≤ 100					OP6	+30	+35	3114	
2,2-DI-(4,4-DI (tert-BUTYLPEROXY)CYCLOHEXYL) PROPANE	≤ 42			≥ 58		OP7			3106	
	≤ 22		≥ 78			OP8			3107	
DI-2,4-DICHLOROBENZOYL PEROXIDE	≤ 77				≥ 23	OP5			3102	3)
	≤ 52 as a paste					OP8	+ 20	+ 25	3118	
	≤ 52 as a paste with silicon oil					OP7			3106	
DI-(2-ETHOXYETHYL) PEROXYDICARBONATE	≤ 52		≥ 48			OP7	-10	0	3115	
DI-(2-ETHYLHEXYL) PEROXYDICARBONATE	> 77 – 100					OP5	-20	-10	3113	
	≤ 77		≥ 23			OP7	-15	-5	3115	
	≤ 62 as a stable dispersion in water					OP8	-15	-5	3117	
	≤ 52 as a stable dispersion in water (frozen)					OP8	-15	-5	3120	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
2,2-DIHYDROPEROXYPROPANE	≤ 27			≥ 73		OP5			3102	3)
DI-(1-HYDROXYCYCLOHEXYL) PEROXIDE	≤ 100					OP7			3106	
DIISOBUTYRYL PEROXIDE	> 32 – 52 ≤ 42 (as a stable dispersion in water)		≥ 48			OP5 OP8	-20 -20	-10 -10	3111 3119	3)
	≤ 32		≥ 68			OP7	-20	-10	3115	
DIISOPROPYLBENZENE DIHYDROPEROXIDE	≤ 82	≥ 5			≥ 5	OP7			3106	24)
DIISOPROPYL PEROXYDICARBONATE	> 52 – 100					OP2	-15	-5	3112	3)
	≤ 52		≥ 48			OP7	-20	-10	3115	
	≤ 32	≥ 68				OP7	-15	-5	3115	
DILAUROYL PEROXIDE	≤ 100					OP7			3106	
	≤ 42 as a stable dispersion in water					OP8			3109	
DI-(3-METHOXYBUTYL) PEROXYDICARBONATE	≤ 52		≥ 48			OP7	-5	+5	3115	
DI-(2-METHYLBENZOYL) PEROXIDE	≤ 87				≥ 13	OP5	+30	+35	3112	3)

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
DI-(3-METHYLBENZOYL) PEROXIDE + BENZOYL (3-METHYLBENZOYL) PEROXIDE + DIBENZOYL PEROXIDE	≤ 20 + ≤ 18 + ≤ 4		≥ 58			OP7	+35	+40	3115	
DI-(4-METHYLBENZOYL) PEROXIDE	≤ 52 as a paste with silicon oil					OP7			3106	
2,5-DIMETHYL-2,5-DI-(BENZOYLPEROXY)HEXANE	> 82 – 100					OP5			3102	3)
	≤ 82			≥ 18		OP7			3106	
	≤ 82				≥ 18	OP5			3104	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE	≤ 77			≥ 23		OP8			3108	
	≤ 52	≥ 48				OP8			3109	
	≤ 47 as a paste					OP8			3108	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE	> 90 – 100					OP5			3103	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXANE	> 52 – 90	≥ 10				OP7			3105	
2,5-DIMETHYL-2,5-DI-(tert-BUTYLPEROXY)HEXYNE-3	> 86 – 100					OP5			3101	3)
	> 52 – 86	≥ 14				OP5			3103	26)
	≤ 52			≥ 48		OP7			3106	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
2,5-DIMETHYL-2,5-DI-(2-ETHYLHEXANOYLPEROXY) HEXANE	≤ 100					OP5	+20	+25	3113	
2,5-DIMETHYL-2,5-DIHYDROPEROXYHEXANE	≤ 82				≥ 18	OP6			3104	
2,5-DIMETHYL-2,5-DI-(3,5,5-TRIMETHYLHEXANOYLPEROXY) HEXANE	≤ 77	≥ 23				OP7			3105	
1,1-DIMETHYL-3-HYDROXYBUTYL PEROXYNEO-HEPTANOATE	≤ 52	≥ 48				OP8	0	+10	3117	
DIMYRISTYL PEROXYDICARBONATE	≤ 100					OP7	+20	+25	3116	
	≤ 42 as a stable dispersion in water					OP8	+20	+25	3119	
DI-(2-NEODECANOYLPEROXYISOPROPYL) BENZENE	≤ 52	≥ 48				OP7	-10	0	3115	
DI-n-NONANOYL PEROXIDE	≤ 100					OP7	0	+10	3116	
DI-n-OCTANOYL PEROXIDE	≤ 100					OP5	+10	+15	3114	
DI-(2-PHENOXYETHYL) PEROXYDICARBONATE	> 85 – 100					OP5			3102	3)
	≤ 85				≥ 15	OP7			3106	
DIPROPIONYL PEROXIDE	≤ 27		≥ 73			OP8	+15	+20	3117	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
DI-n-PROPYL PEROXYDICARBONATE	≤ 100					OP3	-25	-15	3113	
	≤ 77		≥ 23			OP5	-20	-10	3113	
DISUCCINIC ACID PEROXIDE	> 72 – 100					OP4			3102	3) 17)
	≤ 72				≥ 28	OP7	+10	+15	3116	
DI-(3,5,5-TRIMETHYLHEXANOYL) PEROXIDE	> 52 – 82	≥ 18				OP7	0	+10	3115	
	≤ 52 as a stable dispersion in water					OP8	+10	+15	3119	
	>38 – 52	≥ 48				OP8	+10	+15	3119	
	≤ 38	≥ 62				OP8	+20	+25	3119	
ETHYL 3,3-DI-(tert-AMYLPEROXY)BUTYRATE	≤ 67	≥ 33				OP7			3105	
ETHYL 3,3-DI-(tert-BUTYLPEROXY)BUTYRATE	> 77 – 100					OP5			3103	
	≤ 77	≥ 23				OP7			3105	
	≤ 52			≥ 48		OP7			3106	
1-(2-ETHYLHEXANOYLPEROXY)-1,3-DIMETHYLBUTYLPEROXY PIVALATE	≤ 52	≥ 45	≥ 10			OP7	-20	-10	3115	
tert-HEXYL PEROXYNEODECANOATE	≤ 71	≥ 29				OP7	0	+10	3115	
tert-HEXYL PEROXYPIVALATE	≤ 72		≥ 28			OP7	+10	+15	3115	

ORGANIC PEROXIDE	Concentration (%)	Diluent type A (%)	Diluent type B (%) 1)	Inert solid (%)	Water (%)	Packing Method	Temperature (°C)		UN No. (Generic entry)	Subsidiary hazards and remarks (see notes at end of table)
							Control	Emergency		
3-HYDROXY-1,1-DIMETHYLBUTYL PEROXYNEODECANOATE	≤ 77	≥ 23				OP 7	- 5	+ 5	3115	
	≤ 52 as a stable dispersion in water					OP 8	- 5	+ 5	3119	
	≤ 52	≥ 48				OP 8	- 5	+ 5	3117	
ISOPROPYL sec-BUTYL PEROXYDICARBONATE + DI-sec-BUTYL PEROXYDICARBONATE + DI-ISOPROPYL PEROXYDICARBONATE	≤ 32 + ≤ 15 – 18 + ≤ 12 – 15	≥ 38				OP7	-20	-10	3115	
	≤ 52 + ≤ 28 + ≤ 22					OP5	-20	-10	3111	3)
ISOPROPYLCUMYL HYDROPEROXIDE	≤ 72	≥ 28				OP8			3109	13)
p-MENTHYL HYDROPEROXIDE	> 72 – 100					OP7			3105	13)
	≤ 72	≥ 28				OP8			3109	27)
METHYLCYCLOHEXANONE PEROXIDE(S)	≤ 67		≥ 33			OP7	+35	+40	3115	
METHYL ETHYL KETONE PEROXIDE(S)	See remark 8)	≥ 48				OP5			3101	3) 8) 13)
	See remark 9)	≥ 55				OP7			3105	9)

ORGANIC PEROXIDE	**Concentration (%)**	**Diluent type A (%)**	**Diluent type B (%) 1)**	**Inert solid (%)**	**Water (%)**	**Packing Method**	**Temperature (°C)**		**UN No. (Generic entry)**	**Subsidiary hazards and remarks** (see notes at end of table)
							Control	**Emergency**		
	See remark 10)	≥ 60				OP8			3107	10)
METHYL ISOBUTYL KETONE PEROXIDE(S)	≤ 62	≥ 19				OP7			3105	22)
METHYL ISOPROPYL KETONE PEROXIDE(S)	See remark 31)	≥ 70				OP8			3109	31)
ORGANIC PEROXIDE, LIQUID, SAMPLE						OP2			3103	11)
ORGANIC PEROXIDE, LIQUID, SAMPLE, TEMPERATURE CONTROLLED						OP2			3113	11)
ORGANIC PEROXIDE, SOLID, SAMPLE						OP2			3104	11)
ORGANIC PEROXIDE, SOLID, SAMPLE, TEMPERATURE CONTROLLED						OP2			3114	11)
3,3,5,7,7-PENTAMETHYL-1,2,4-TRIOXEPANE	≤ 100					OP8			3107	
PEROXYACETIC ACID, TYPE D, stabilised	≤ 43					OP7			3105	13) 14) 19)
PEROXYACETIC ACID, TYPE E, stabilised	≤ 43					OP8			3107	13) 15) 19)
PEROXYACETIC ACID, TYPE F, stabilised	≤ 43					OP8			3109	13) 16) 19)
PEROXYLAURIC ACID	≤ 100					OP8	+35	+40	3118	
1-PHENYLETHYL HYDROPEROXIDE	≤38		≥62			OP8			3109	
PINANYL HYDROPEROXIDE	> 56 – 100					OP7			3105	13)

ORGANIC PEROXIDE	**Concentration (%)**	**Diluent type A (%)**	**Diluent type B (%) 1)**	**Inert solid (%)**	**Water (%)**	**Packing Method**	**Temperature (°C)**		**UN No. (Generic entry)**	**Subsidiary hazards and remarks** (see notes at end of table)
							Control	**Emergency**		
	≤ 56	≥ 44				OP8			3109	
POLYETHER POLY-tert-BUTYLPEROXYCARBONATE	≤ 52		≥ 23			OP8			3107	
1,1,3,3-TETRAMETHYLBUTYL HYDROPEROXIDE	≤ 100					OP7			3105	
1,1,3,3-TETRAMETHYLBUTYL PEROXY-2 ETHYL-HEXANOATE	≤ 100					OP7	+15	+20	3115	
1,1,3,3- TETRAMETHYLBUTYL PEROXYNEODECANOATE	≤ 72		≥ 28			OP7	-5	+5	3115	
	≤ 52 as a stable dispersion in water					OP8	-5	+5	3119	
1,1,3,3-TETRAMETHYLBUTYL PEROXYPIVALATE	≤ 77	≥ 23				OP7	0	+10	3315	
(Listing transferred to correct alphabetical position)										
3,6,9-TRIETHYL-3,6,9-TRIMETHYL-1,4,7 TRIPEROXONANE	≤ 42	≥ 58				OP7			3105	28)
3,6,9-TRIETHYL-3,6,9-TRIMETHYL-1,4,7 TRIPEROXONANE	≥ 17	≥ 18		≥ 65		OP8			3110	

Notes on 2.5.3.2.4:

1) Diluent type B may always be replaced by diluent type A. The boiling point of diluent type B should be at least 60 °C higher than the SADT of the organic peroxide.

2) Available oxygen ≤ 4.7 %.

3) "EXPLOSIVE" subsidiary hazard label required (Model No.1, see 5.2.2.2.2).

4) Diluent may be replaced by di-tert-butyl peroxide.

5) Available oxygen ≤ 9 %.

6) With ≤ 9 % hydrogen peroxide; available oxygen ≤ 10 %.

7) Only non-metallic packagings allowed.

8) Available oxygen > 10 % and ≤ 10.7 %, with or without water.

9) Available oxygen ≤ 10 %, with or without water.

10) Available oxygen ≤ 8.2 %, with or without water.

11) See 2.5.3.2.5.1.

12) Up to 2 000 kg per receptacle assigned to ORGANIC PEROXIDE TYPE F on the basis of large scale trials.

13) "CORROSIVE" subsidiary hazard label required (Model No 8, see 5.2.2.2.2).

14) Peroxyacetic acid formulations which fulfil the criteria of 2.5.3.3.2 (d).

15) Peroxyacetic acid formulations which fulfil the criteria of 2.5.3.3.2 (e).

16) Peroxyacetic acid formulations which fulfil the criteria of 2.5.3.3.2 (f).

17) Addition of water to this organic peroxide will decrease its thermal stability.

18) No "CORROSIVE" subsidiary hazard label required for concentrations below 80 %.

19) Mixtures with hydrogen peroxide, water and acid(s).

20) With diluent type A, with or without water.

21) With ≥ 25 % diluent type A by mass, and in addition ethylbenzene.

22) With ≥ 19 % diluent type A by mass, and in addition methyl isobutyl ketone.

23) With < 6 % di-tert-butyl peroxide.

24) With ≤ 8 % 1-isopropylhydroperoxy-4-isopropylhydroxybenzene.

25) Diluent type B with boiling point > 110 °C.

26) With < 0.5 % hydroperoxides content.

27) For concentrations more than 56 %, "CORROSIVE" subsidiary hazard label (Model No 8, see 5.2.2.2.2) required.

28) Available active oxygen ≤ 7.6 % in diluent Type A having a 95 % boil-off point in the range of 200 - 260 °C.

29) Not subject to the requirements of this Code for Division 5.2.

30) Diluent type B with boiling point > 130 °C.

31) Active oxygen ≤ 6.7 %.

2.5.3.2.5 Classification of organic peroxides not listed in 2.5.3.2.4, packing instruction IBC520 or portable tank instruction T23 and assignment to a generic entry must be made by the competent authority of the country or jurisdiction of origin on the basis of a test report. Principles applying to the classification of such substances are provided in 2.5.3.3. The applicable classification procedures, test methods and criteria, and an example of a suitable test report, are given in the current edition of the Manual of Tests and Criteria, Part II. The determination must contain the classification and the relevant transport conditions.

2.5.3.2.5.1 Samples of new organic peroxides or new formulations of organic peroxides not listed in 2.5.3.2.4, for which complete test data are not available and which are to be transported for further testing or evaluation, may be assigned to one of the appropriate entries for ORGANIC PEROXIDE TYPE C provided the following conditions are met:

(a) The available data indicate that the sample would be no more dangerous than ORGANIC PEROXIDE TYPE B;

(b) The sample is packaged in accordance with packing method OP2 (see applicable packing instruction) and the quantity per cargo transport unit is limited to 10 kg;

(c) The available data indicate that the control temperature, if any, is sufficiently low to prevent any dangerous decomposition and sufficiently high to prevent any dangerous phase separation.

2.5.3.3 Principles for classification of organic peroxides

NOTE: *This section refers only to those properties of organic peroxides which are decisive for their classification. A flow chart, presenting the classification principles in the form of a graphically arranged scheme of questions concerning the decisive properties together with the possible answers, is given in Figure 2.5.1. These properties must be determined experimentally. Suitable test methods with pertinent evaluation criteria are given in the Manual of Tests and Criteria, Part II.*

2.5.3.3.1 An organic peroxide formulation must be regarded as possessing explosive properties when in laboratory testing the formulation is liable to detonate, to deflagrate rapidly or to show a violent effect when heated under confinement.

2.5.3.3.2 The following principles apply to the classification of organic peroxide formulations not listed in 2.5.3.2.4:

(a) Any organic peroxide formulation which can detonate or deflagrate rapidly, as packaged for transport, is prohibited from transport in that packaging under Division 5.2 (defined as ORGANIC PEROXIDE TYPE A, exit box A of Figure 2.5.1);

(b) Any organic peroxide formulation possessing explosive properties and which, as packaged for transport, neither detonates nor deflagrates rapidly, but is liable to undergo a thermal explosion in that package, must bear an “EXPLOSIVE” subsidiary hazard label (Model No.1, see 5.2.2.2.2). Such an organic peroxide may be packaged in amounts of up to 25 kg unless the maximum quantity has to be limited to a lower amount to preclude detonation or rapid deflagration in the package (defined as ORGANIC PEROXIDE TYPE B, exit box B of Figure 2.5.1);

(c) Any organic peroxide formulation possessing explosive properties may be transported without an “EXPLOSIVE” subsidiary hazard label when the substance as packaged (maximum 50 kg) for transport cannot detonate or deflagrate rapidly or undergo a thermal explosion (defined as ORGANIC PEROXIDE TYPE C, exit box C of Figure 2.5.1);

(d) Any organic peroxide formulation which in laboratory testing:

(i) detonates partially, does not deflagrate rapidly and shows no violent effect when heated under confinement; or

(ii) does not detonate at all, deflagrates slowly and shows no violent effect when heated under confinement; or

(iii) does not detonate or deflagrate at all and shows a medium effect when heated under confinement;

is acceptable for transport in packages of not more than 50 kg net mass (defined as ORGANIC PEROXIDE TYPE D, exit box D of Figure 2.5.1);

(e) Any organic peroxide formulation which, in laboratory testing, neither detonates nor deflagrates at all and shows low or no effect when heated under confinement is acceptable for transport in packages of not more than 400 kg/450 litres (defined as ORGANIC PEROXIDE TYPE E, exit box E of Figure 2.5.1);

(f) Any organic peroxide formulation which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows only a low or no effect when heated under confinement as well as low or no explosive power may be considered for transport in IBCs or tanks (defined as ORGANIC PEROXIDE TYPE F, exit box F of Figure 2.5.1); for additional requirements see 4.1.7 and 4.2.1.13;

Any organic peroxide formulation which, in laboratory testing, neither detonates in the cavitated state nor deflagrates at all and shows no effect when heated under confinement nor any explosive power is exempted from Division 5.2, provided that the formulation is thermally stable (self-accelerating decomposition temperature is 60 °C or higher for a 50 kg package) and for liquid formulations diluent type A is used for desensitisation (defined as ORGANIC PEROXIDE TYPE G, exit box G of Figure 2.5.1). If the formulation is not thermally stable or a diluent other than type A is used for desensitisation, the formulation must be defined as ORGANIC PEROXIDE TYPE F.

Figure 2.5.1: Flow chart scheme for organic peroxides

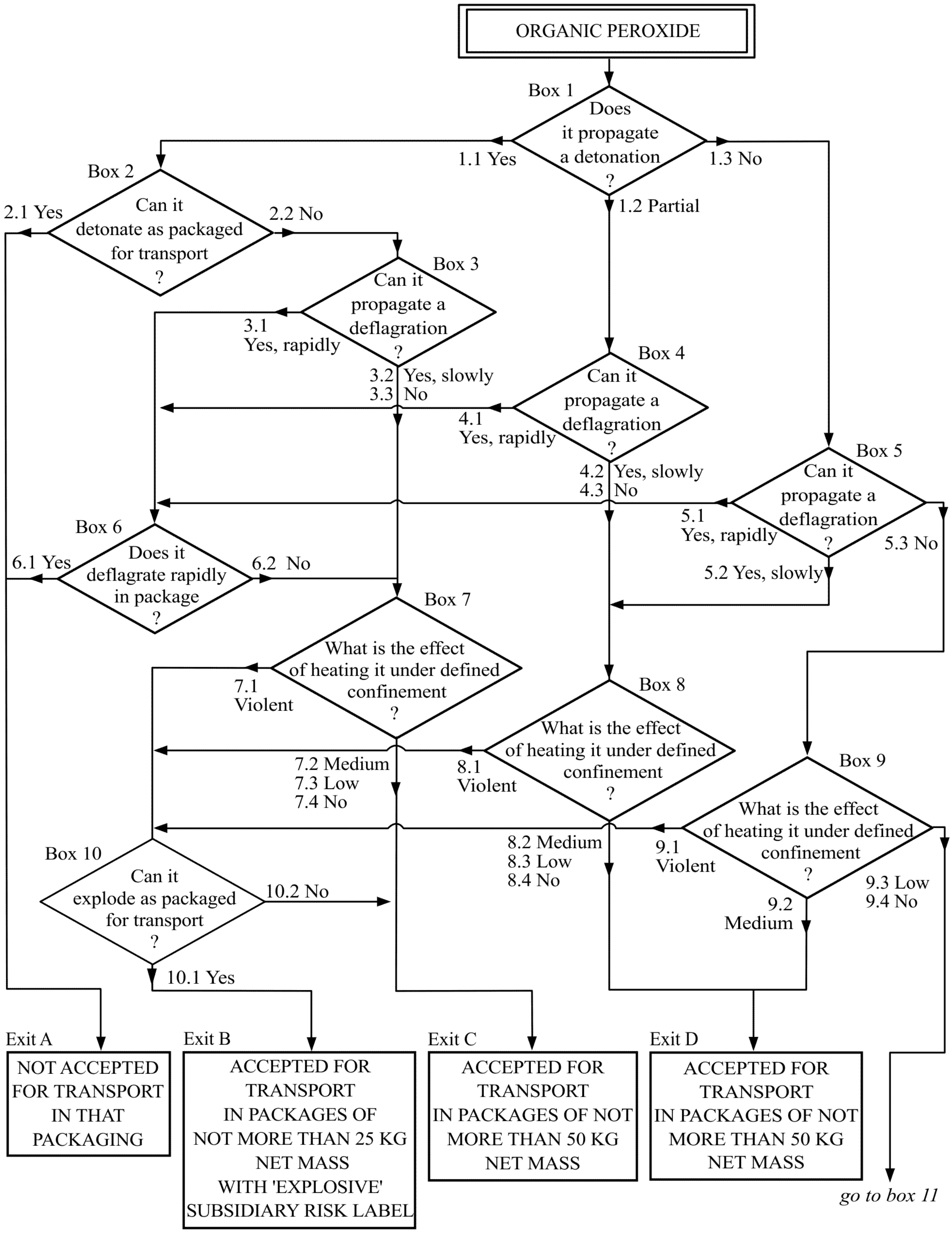
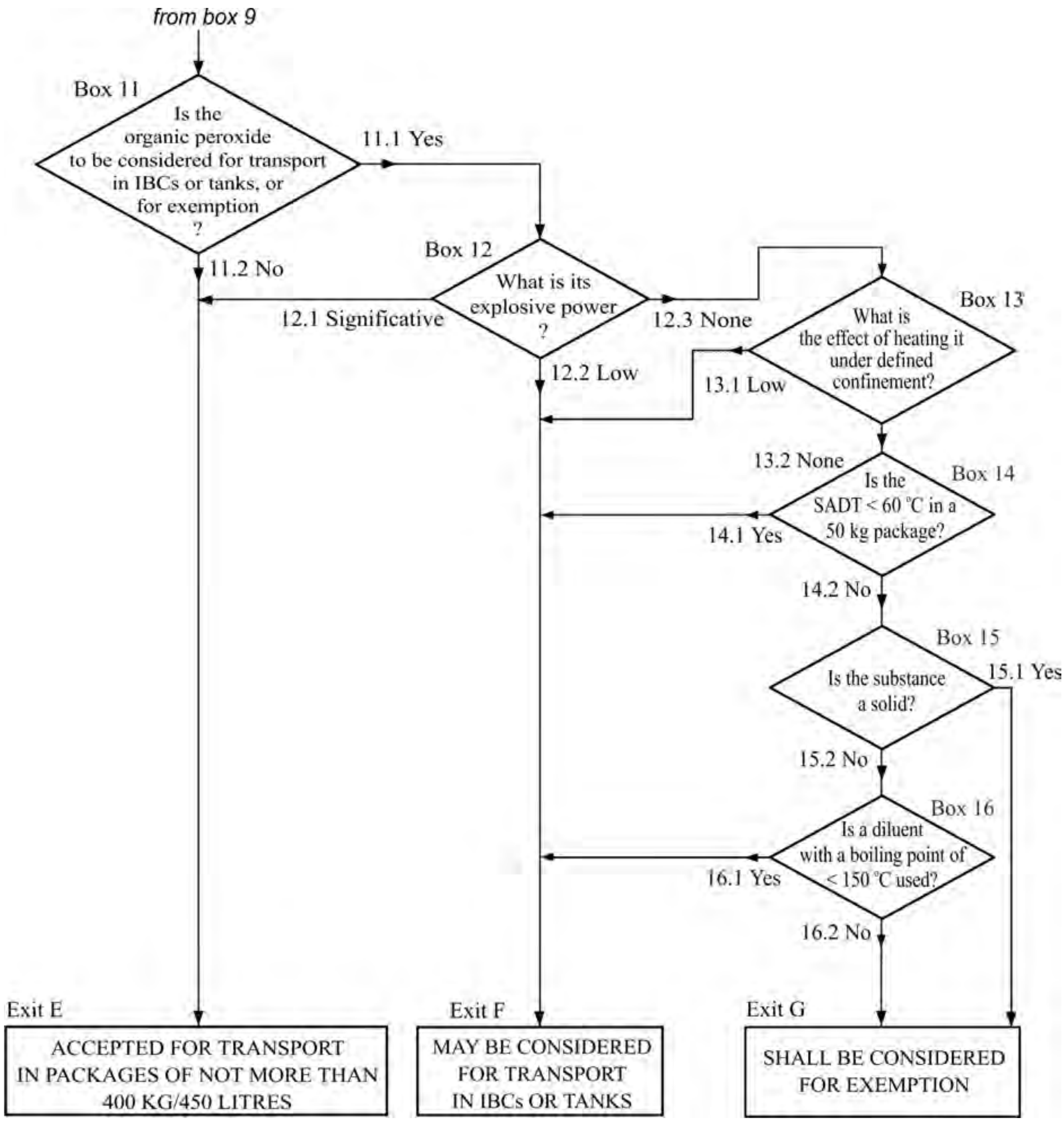


Figure 2.5.1: FLOW CHART SCHEME FOR ORGANIC PEROXIDES (cont'd)



2.5.3.4 Temperature control requirements

2.5.3.4.1 The following organic peroxides must be subjected to temperature control during transport:

(a) Organic peroxides type B and C with an SADT ≤ 50 °C; and
(b) Organic peroxides type D showing a medium effect when heated under confinement[1] with an SADT ≤ 50 °C or showing a low or no effect when heated under confinement with an SADT ≤ 45 °C; and
(c) Organic peroxides types E and F with an SADT ≤ 45 °C.

2.5.3.4.2 Test methods for determining the SADT are given in the Manual of Tests and Criteria, Part II, section 28. The test selected must be conducted in a manner which is representative, both in size and material, of the package to be transported.

2.5.3.4.3 Test methods for determining the flammability are given in the Manual of Tests and Criteria, Part III, sub-section 32.4. Because organic peroxides may react vigorously when heated it is recommended to determine their flash point using small sample sizes such as described in ISO 3679.

2.5.3.5 Desensitisation of organic peroxides

2.5.3.5.1 In order to ensure safety during transport, organic peroxides are in many cases desensitised by organic liquids or solids, inorganic solids or water. Where a percentage of a substance is stipulated, this refers to the percentage by mass, rounded to the nearest whole number. In general, desensitisation must be such that, in case of spillage or fire, the organic peroxide will not concentrate to a dangerous extent.

2.5.3.5.2 Unless otherwise stated for the individual organic peroxide formulation, the following definitions apply for diluents used for desensitisation:

(a) Diluents type A are organic liquids which are compatible with the organic peroxide and which have a boiling point of not less than 150 °C. Type A diluents may be used for desensitising all organic peroxides;
(b) Diluents type B are organic liquids which are compatible with the organic peroxide and which have a boiling point of less than 150 °C but not less than 60 °C and a flash point of not less than 5 °C. Type B diluents may be used for desensitisation of all organic peroxides provided that the boiling point is at least 60 °C higher than the SADT in a 50 kg package.

2.5.3.5.3 Diluents, other than type A or type B, may be added to organic peroxide formulations as listed in 2.5.3.2.4 provided that they are compatible. However, replacement of all or part of a type A or type B diluent by another diluent with differing properties requires that the organic peroxide formulation be re-assessed in accordance with the normal acceptance procedure for Division 5.2.

2.5.3.5.4 Water may only be used for the desensitisation of organic peroxides which are shown in 2.5.3.2.4 or in the determination according to 2.5.3.2.5 as being with water or as a stable dispersion in water.

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[1] *As determined by test series E as prescribed in the Manual of Tests and Criteria, Part II.*

2.5.3.5.5 Organic and inorganic solids may be used for desensitisation of organic peroxides provided that they are compatible.

2.5.3.5.6 Compatible liquids and solids are those which have no detrimental influence on the thermal stability and hazard type of the organic peroxide formulation.

CHAPTER 2.6 - CLASS 6 – TOXIC SUBSTANCES AND INFECTIOUS SUBSTANCES

Introductory Notes

NOTE 1: *Genetically modified micro-organisms and organisms (GMMOs and GMOs) which do not meet the definition of a toxic or an infectious substance should be considered for classification in Class 9 and assignment to UN 3245. This Code does not apply to the transport of GMMOs and GMOs to which 2.9.2.2 applies.*

NOTE 2: *Toxins from plant, animal or bacterial sources which do not contain any infectious substances, or toxins that are contained in substances which are not infectious substances, should be considered for classification in Division 6.1 and assignment to UN 3172.*

2.6.1 DEFINITIONS

Class 6 is divided into two divisions as follows:

(a) **Division 6.1** Toxic substances

These are substances liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact;

(b) **Division 6.2** Infectious substances

These are substances known or reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

2.6.2 DIVISION 6.1 - TOXIC SUBSTANCES

2.6.2.1 Definitions

For the purposes of this Code:

2.6.2.1.1 **LD_{50} (median lethal dose) for acute oral toxicity** is the statistically derived single dose of a substance that can be expected to cause death within 14 days in 50 per cent of young adult albino rats when administered by the oral route. The LD_{50} value is expressed in terms of mass of test substance per mass of test animal (mg/kg).

2.6.2.1.2 **LD_{50} for acute dermal toxicity** is that dose of the substance which, administered by continuous contact for 24 hours with the bare skin of albino rabbits, is most likely to cause death within 14 days in one half of the animals tested. The number of animals tested must be sufficient to give a statistically significant result and be in conformity with good pharmacological practice. The result is expressed in milligrams per kg body mass.

2.6.2.1.3 **LC_{50} for acute toxicity on inhalation** is that concentration of vapour, mist or dust which, administered by continuous inhalation to both male and female young adult albino rats for one hour, is most likely to cause death within 14 days in one half of the animals tested. A solid substance must be tested if at least 10% (by mass) of its total mass is likely to be dust in a respirable range, e.g. the aerodynamic diameter of that particle-fraction is 10 microns or less. A liquid substance must be tested if a mist is likely to be generated in a leakage of the transport containment.

Both for solid and liquid substances more than 90% (by mass) of a specimen prepared for inhalation toxicity must be in the respirable range as defined above.

The result is expressed in milligrams per litre of air for dusts and mists or in millilitres per cubic metre of air (parts per million) for vapours.

2.6.2.2 Assignment of packing groups

2.6.2.2.1 Substances of Division 6.1, including pesticides, are allocated among the three packing groups according to their degree of toxic hazard in transport as follows:

(a) **Packing group I:** Substances and preparations presenting a very severe toxicity hazard;

(b) **Packing group II:** Substances and preparations presenting a serious toxicity hazard;

(c) **Packing group III: S**ubstances and preparations presenting a relatively low toxicity hazard.

2.6.2.2.2 In making this grouping, account must be taken of human experience in instances of accidental poisoning and of special properties possessed by any individual substance, such as liquid state, high volatility, any special likelihood of penetration, and special biological effects.

2.6.2.2.3 In the absence of human experience the grouping must be based on data obtained from animal experiments. Three possible routes of administration must be examined. These routes are exposure through:

(a) Oral ingestion; and

(b) Dermal contact; and

(c) Inhalation of dusts, mists, or vapours.

2.6.2.2.3.1 Appropriate animal tests for the various routes of exposure are described in 2.6.2.1. When a substance exhibits a different order of toxicity by two or more of these routes of administration, the highest degree of danger indicated by the tests must be assigned.

2.6.2.2.4 The criteria to be applied for grouping a substance according to the toxicity it exhibits by all three routes of administration are presented in the following paragraphs.

2.6.2.2.4.1 The grouping criteria for the oral and dermal routes as well as for inhalation of dusts and mists are as shown in the following table.

Table 2.6.2.2.4.1: Grouping criteria for administration through oral ingestion, dermal contact and inhalation of dusts and mists

Packing group	Oral toxicity LD_{50} (mg/kg)	Dermal toxicity LD_{50} (mg/kg)	Inhalation toxicity by dusts and mists LC_{50} (mg/L)
I	≤ 5.0	≤ 50	≤ 0.2
II	> 5 and ≤ 50	> 50 and ≤ 200	> 0.2 and ≤ 2.0
III [a.]	> 50 and ≤ 300	> 200 and ≤ 1000	> 2.0 and ≤ 4.0
Tables note: **a** Tear gas substances are included in packing group II even if their toxicity data correspond to packing group III values.			

NOTE: *Substances meeting the criteria of Class 8 and with an inhalation toxicity of dusts and mists (LC_{50}) leading to packing group I are only accepted for an allocation to Division 6.1 if the toxicity through oral ingestion or dermal contact is at least in the range of packing group I or II. Otherwise an allocation to Class 8 is made when appropriate (see 2.8.2.4).*

2.6.2.2.4.2 The criteria for inhalation toxicity of dusts and mists in 2.6.2.2.4.1 are based on LC_{50} data relating to 1hour exposures and where such information is available it must be used. However, where only LC_{50} data relating to 4 hours exposures to dusts and mists are available, such figures can be multiplied by four and the product substituted in the above criteria, i.e. LC_{50} (4 hours) × 4 is considered the equivalent of LC_{50} (1 hour).

2.6.2.2.4.3 Liquids having toxic vapours must be assigned to the following packing groups, where "V" is the saturated vapour concentration in millilitres per cubic metre of air (volatility) at 20 °C and standard atmospheric pressure:

(a) Packing group I:

If V ≥ 10 LC_{50} and LC_{50} ≤ 1,000 ml/m^3;

(b) Packing group II:

If V ≥ LC_{50} and LC_{50} ≤ 3,000 ml/m^3, and not meeting the criteria for packing group I;

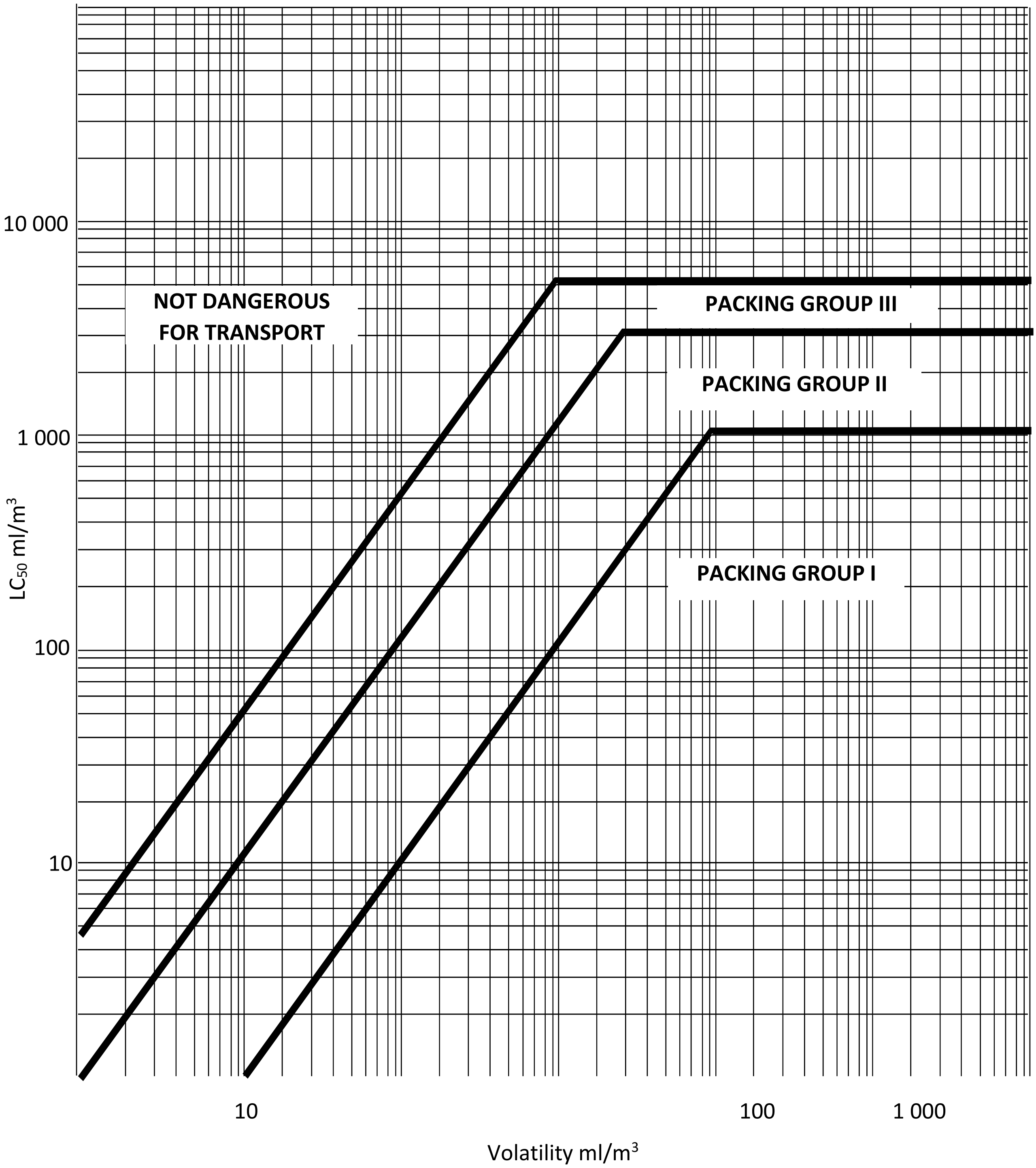
(c) Packing group III[1]:

If V ≥ 1/5 LC_{50} and LC_{50} ≤ 5,000 ml/m^3, and not meeting the criteria for packing groups I or II.

2.6.2.2.4.4 In Figure 2.6.1, the criteria according to 2.6.2.2.4.3 are expressed in graphical form, as an aid to easy classification. However, because of approximations inherent in the use of graphs, substances on or near packing group borderlines must be checked using numerical criteria.

[1] *Tear gas substances are included in packing group II even if their toxicity data correspond to packing group III values.*

Figure 2.6.1: Inhalation toxicity: packaging group borderlines



2.6.2.2.4.5 The criteria for inhalation toxicity of vapours in 2.6.2.2.4.3 are based on LC50 data relating to 1 hour exposure, and where such information is available it must be used. However, where only LC50 data relating to 4 hours exposures to the vapours are available, such figures can be multiplied by two and the product substituted in the above criteria, i.e. LC50 (4 hours) × 2 is considered to be the equivalent of LC50 (1 hour).

2.6.2.2.4.6 Mixtures of liquids that are toxic by inhalation must be assigned to packing groups according to 2.6.2.2.4.7 or 2.6.2.2.4.8.

2.6.2.2.4.7 If LC_{50} data are available for each of the toxic substances comprising a mixture, the packing group may be determined as follows:

(a) Estimate the LC_{50} of the mixture using the formula:

$$LC_{50}(mixture) = \frac{1}{\sum_{i=1}^{n}\left(\frac{f_i}{LC_{50i}}\right)}$$

where:

fi= mole fraction of the i^{th} component substance of the liquid;

LC_{50i} =mean lethal concentration of the i^{th} component substance in ml/m^3;

(b) Estimate the volatility of each component substance using the formula:

$$V_i = \left(\frac{P_i \times 10^6}{101.3}\right) ml/m^3$$

where:

Pi = partial pressure of the i^{th} component substance in kPa at 20 °C and one atmosphere pressure;

(c) Calculate the ratio of the volatility to the LC_{50} using the formula:

$$R = \sum_{i=1}^{n}\left(\frac{V_i}{LC_{50_i}}\right);$$

(d) Using the calculated values LC_{50} (mixture) and R, the packing group for the mixture is determined:

(i) Packing group I: $R \geq 10$ and LC_{50}(mixture) ≤ 1000 ml/m^3;

(ii) Packing group II: $R \geq 1$ and LC_{50}(mixture) ≤ 3000 ml/m^3 and not meeting criteria for packing group I;

(iii) Packing group III: $R \geq 1/5$ and LC_{50}(mixture) ≤ 5000 ml/m^3 and not meeting criteria for packing groups I or II.

2.6.2.2.4.8 In the absence of LC_{50} data on the toxic constituent substances, the mixture may be assigned a packing group based on the following simplified threshold toxicity tests. When these threshold tests are used, the most restrictive packing group determined is used for transporting the mixture.

(a) A mixture is assigned to packing group I only if it meets both of the following criteria:

(i) A sample of the liquid mixture is vapourised and diluted with air to create a test atmosphere of 1000 ml/m^3 vapourised mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 1000 ml/m^3;

(ii) A sample of the vapour in equilibrium with the liquid mixture at 20 °C is diluted with 9 equal volumes of air to form a test atmosphere. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have a volatility equal to or greater than 10 times the mixture LC_{50};

(b) A mixture is assigned to packing group II only if it meets both of the following criteria, and the mixture does not meet the criteria for packing group I:

(i) A sample of the liquid mixture is vapourised and diluted with air to create a test atmosphere of 3000 ml/m^3 vapourised mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 3000 ml/m^3;

(ii) A sample of the vapour in equilibrium with the liquid mixture at 20 °C is used to form a test atmosphere. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have a volatility equal to or greater than the mixture LC_{50};

(c) A mixture is assigned to packing group III only if it meets both of the following criteria, and the mixture does not meet the criteria for packing groups I or II:

(i) A sample of the liquid mixture is vapourised and diluted with air to create a test atmosphere of 5000 ml/m^3 vapourised mixture in air. Ten albino rats (five male and five female) are exposed to the test atmosphere for one hour and observed for fourteen days. If five or more of the animals die within the fourteen day observation period, the mixture is presumed to have an LC_{50} equal to or less than 5000 ml/m^3;

(ii) The vapour pressure of the liquid mixture is measured and if the vapour concentration is equal to or greater than 1000 ml/m^3, the mixture is presumed to have a volatility equal to or greater than 1/5 the mixture LC_{50}.

2.6.2.3 Methods for determining oral and dermal toxicity of mixtures

2.6.2.3.1 When classifying and assigning the appropriate packing group to mixtures in Division 6.1, in accordance with the oral and dermal toxicity criteria in 2.6.2.2, it is necessary to determine the acute LD_{50} of the mixture.

2.6.2.3.2 If a mixture contains only one active substance, and the LD_{50} of that constituent is known, in the absence of reliable acute oral and dermal toxicity data on the actual mixture to be transported, the oral or dermal LD_{50} may be obtained by the following method:

$$LD_{50}\ value\ of\ preparation = \frac{LD_{50}\ value\ of\ active\ substance \times 100}{percentage\ of\ active\ substance\ by\ mass}$$

2.6.2.3.3 If a mixture contains more than one active constituent, there are three possible approaches that may be used to determine the oral or dermal LD_{50} of the mixture. The preferred method is to obtain reliable acute oral and dermal toxicity data on the actual mixture to be transported. If reliable, accurate data is not available, then either of the following methods may be performed:

(a) Classify the formulation according to the most hazardous constituent of the mixture as if that constituent were present in the same concentration as the total concentration of all active constituents; or

(b) Apply the formula:

$$\frac{C_A}{T_A} + \frac{C_B}{T_B} + \cdots + \frac{C_Z}{T_Z} = \frac{100}{T_M}$$

where:

C = the % concentration of constituent A, B ... Z in the mixture;

T = the oral LD_{50} values of constituent A, B ... Z;

T_M = the oral LD_{50} value of the mixture.

NOTE: *This formula can also be used for dermal toxicities provided that this information is available on the same species for all constituents. The use of this formula does not take into account any potentiation or protective phenomena.*

2.6.2.4 Classification of pesticides

2.6.2.4.1 All active pesticide substances and their preparations for which the LC_{50} and/or LD_{50} values are known and which are classified in Division 6.1 must be classified under appropriate packing groups in accordance with the criteria given in 2.6.2.2. Substances and preparations which are characterised by subsidiary hazards must be classified according to the precedence of hazard table in Chapter 2.0 with the assignment of appropriate packing groups.

2.6.2.4.2 If the oral or dermal LD_{50} value for a pesticide preparation is not known, but the LD_{50} value of its active substance(s) is known, the LD_{50} value for the preparation may be obtained by applying the procedures in 2.6.2.3.

NOTE 1: *LD_{50} toxicity data for a number of common pesticides may be obtained from the most current edition of the document "The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification" available from the International Programme on Chemical Safety, World Health Organisation (WHO), 1211 Geneva 27, Switzerland. While that document may be used as a source of LD_{50} data for pesticides, its classification system must not be used for purposes of transport classification of, or assignment of packing groups to, pesticides, which must be in accordance with this Code.*

2.6.2.4.3 The proper shipping name used in the transport of the pesticide must be selected on the basis of the active ingredient, of the physical state of the pesticide and any subsidiary hazards it may exhibit.

NOTE: Pesticide substances and their preparations that are not specifically named in the Dangerous Goods List in 3.2.5, must be assigned to the most appropriate generic pesticide name and its corresponding UN number which are listed for pesticides of Class 3 or Division 6.1 in Table 3.3 in 3.2.6.

2.6.2.5 Substances not accepted for transport

Chemically unstable substances of Division 6.1 shall not be accepted for transport unless the necessary precautions have been taken to prevent the possibility of a dangerous decomposition or polymerization under normal conditions of transport. For the precautions necessary to prevent polymerization, see special provision 386 of Chapter 3.3. To this end particular care shall be taken to ensure that receptacles and tanks do not contain any substances liable to promote these reactions.

2.6.3 DIVISION 6.2 - INFECTIOUS SUBSTANCES

NOTE 1: *Guidance on the transport of pathological samples may be found in the latest edition of "Requirements for the Packaging and Transport of Pathology Specimens and Associated Materials" from National Pathology Accreditation Advisory Council (NPAAC). at* <*www.health.gov.au/internet/main/publishing.nsf/Content/health-npaac-publication.htm*>.

2.6.3.1 Definitions

For the purposes of this Code:

2.6.3.1.1 **Infectious substances** are substances which are known or are reasonably expected to contain pathogens. Pathogens are defined as micro-organisms (including bacteria, viruses, parasites, fungi) and other agents such as prions, which can cause disease in humans or animals.

2.6.3.1.2 **Biological products** are those products derived from living organisms which are manufactured and distributed in accordance with the requirements of appropriate national authorities, which may have special licensing requirements, and are used either for prevention, treatment, or diagnosis of disease in humans or animals, or for development, experimental or investigational purposes related thereto. They include, but are not limited to, finished or unfinished products such as vaccines.

2.6.3.1.3 **Cultures** (laboratory stocks) are the result of a process by which pathogens are intentionally propagated. This definition does not include human or animal patient specimens as defined in 2.6.3.1.4.

2.6.3.1.4 **Patient specimens** are those, collected directly from humans or animals, including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluid swabs, and body parts being transported for purposes such as research, diagnosis, investigational activities, disease treatment and prevention.

2.6.3.1.5 <Deleted>

2.6.3.1.6 **Medical or clinical wastes** are wastes derived from the veterinary treatment of animals, the medical treatment of humans or from bio-research..

NOTE: *An exposure occurs when an infectious substance is released outside of the protective packaging, resulting in physical contact with humans or animals.*

2.6.3.2 Classification of infectious substances

2.6.3.2.1 Infectious substances must be classified in Division 6.2 and assigned to UN 2814, UN 2900, UN 3291, UN 3373 or UN 3549 as appropriate.

2.6.3.2.2 Infectious substances are divided into the following categories:

2.6.3.2.2.1 Category A: An infectious substance which is transported in a form that, when exposure to it occurs, is capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals. Indicative examples of substances that meet these criteria are given in the table in this paragraph.

NOTE: *An exposure occurs when an infectious substance is released outside of the protective packaging, resulting in physical contact with humans or animals.*

(a) Infectious substances meeting these criteria which cause disease in humans or both in humans and animals must be assigned to UN 2814. Infectious substances which cause disease only in animals must be assigned to UN 2900.

(b) Assignment to UN 2814 or UN 2900 must be based on the known medical history and symptoms of the source human or animal, endemic local conditions, or professional judgement concerning individual circumstances of the source human or animal.

NOTE 1: The proper shipping name for UN 2814 is INFECTIOUS SUBSTANCE, *AFFECTING HUMANS. The proper shipping name for UN 2900 is INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only.*

NOTE 2: *The following table is not exhaustive. Infectious substances, including new or emerging pathogens, which do not appear in the table but which meet the same criteria must be assigned to Category A. In addition, if there is doubt as to whether or not a substance meets the criteria it must be included in Category A.*

NOTE 3: *In the following table, the micro-organisms written in italics are bacteria or fungi.*

Indicative examples of infectious substances included in category A in any form unless otherwise indicated (2.6.3.2.2.1 (a))	
UN Number and Proper Shipping Name	**Micro-organism**
UN 2814 Infectious substances affecting humans	*Bacillus anthracis (cultures only)* *Brucella abortus (cultures only)* *Brucella melitensis (cultures only)* *Brucella suis (cultures only)* *Burkholderia mallei - Pseudomonas mallei* – Glanders *(cultures only)* *Burkholderia pseudomallei – Pseudomonas pseudomallei (cultures only)* *Chlamydia psittaci* - avian strains (cultures only) *Clostridium botulinum (cultures only)* *Coccidioides immitis (cultures only)* *Coxiella burnetii (cultures only)* Crimean-Congo hemorrhagic fever virus Dengue virus (cultures only) Eastern equine encephalitis virus (cultures only) *Escherichia coli*, verotoxigenic (cultures only) Ebola virus Flexal virus *Francisella tularensis (cultures only)* Guanarito virus Hantaan virus Hantaviruses causing hemorragic fever with renal syndrome Hendra virus Hepatitis B virus (cultures only) Herpes B virus (cultures only) Human immunodeficiency virus (cultures only) Highly pathogenic avian influenza virus (cultures only) Japanese Encephalitis virus (cultures only) Junin virus Kyasanur Forest disease virus Lassa virus Machupo virus Marburg virus Monkeypox virus *Mycobacterium tuberculosis (cultures only)* Nipah virus Omsk hemorrhagic fever virus Poliovirus (cultures only) Rabies virus (cultures only) *Rickettsia prowazekii (cultures only)* *Rickettsia rickettsii* (cultures only) Rift Valley fever virus (cultures only) Russian spring-summer encephalitis virus (cultures only)
UN 2814 Infectious substances affecting humans (cont.)	Sabia virus *Shigella dysenteriae type 1 (cultures only)* Tick-borne encephalitis virus (cultures only) Variola virus *Venezuelan equine encephalitis virus (cultures only)* *West Nile virus (cultures only)* *Yellow fever virus (cultures only)* *Yersinia pestis (cultures only)*
UN 2900	*African swine fever virus (cultures only)*

Indicative examples of infectious substances included in category A in any form unless otherwise indicated (2.6.3.2.2.1 (a))	
UN Number and Proper Shipping Name	**Micro-organism**
Infectious substances affecting animals only	*Avian paramyxovirus Type 1 -Velogenic Newcastle disease virus (cultures only)* *Classical swine fever virus (cultures only)* *Foot and mouth disease virus (cultures only)* *Lumpy skin disease virus (cultures only)* *Mycoplasma mycoides - Contagious bovine pleuropneumonia (cultures only)* *Peste des petits ruminants virus (cultures only)* *Rinderpest virus (cultures only)* *Sheep-pox virus (cultures only)* *Goatpox virus (cultures only)* *Swine vesicular disease virus (cultures only)* Vesicular stomatitis virus (cultures only)

2.6.3.2.2.2 Category B: An infectious substance which does not meet the criteria for inclusion in Category A. Infectious substances in Category B must be assigned to UN 3373, except for medical or clinical wastes containing infectious substances in Category B (see 2.6.3.5).

NOTE: *The proper shipping name of UN 3373 is "BIOLOGICAL SUBSTANCE, CATEGORY B."*

2.6.3.2.3 Exemptions

2.6.3.2.3.1 Substances which do not contain infectious substances or substances which are unlikely to cause disease in humans or animals are not subject to this Code unless they meet the criteria for inclusion in another class.

NOTE: *Examples of such substances not subject to this Code are Diagnostic specimens resulting from medical practice (specimens being transported from a doctor's office or surgery to a laboratory, from a hospital to a diagnostic laboratory or from one laboratory to another, except where it is being transported to determine if an infectious substance is present) medical research, veterinary practice or plant material being transported to a diagnostic laboratory.*

2.6.3.2.3.2 Substances containing microorganisms which are non-pathogenic to humans or animals are not subject to this Code unless they meet the criteria for inclusion in another class.

2.6.3.2.3.3 Substances in a form that any present pathogens have been neutralised or inactivated such that they no longer pose a health risk are not subject to this Code unless they meet the criteria for inclusion in another class.

NOTE: *Medical equipment that has been drained of free liquid meets the requirements of this paragraph and is not subject to this Code.*

2.6.3.2.3.4 Environmental samples (including food and water samples) which are not considered to pose a significant risk of infection are not subject to this Code unless they meet the criteria for inclusion in another class.

2.6.3.2.3.5 Dried blood spots, collected by applying a drop of blood onto absorbent material, are not subject to this Code.

2.6.3.2.3.6 Faecal occult blood screening tests, are not subject to this Code.

2.6.3.2.3.7 Blood or blood components which have been collected for the purposes of transfusion or for the preparation of blood products to be used for transfusion or transplantation and any tissues or organs intended for use in transplantation as well as samples drawn in connection with such purpose are not subject to this Code.

2.6.3.2.3.8 Human or animal specimens for which there is minimal likelihood that pathogens are present are not subject to this Code if the specimen is transported in a packaging which will prevent any leakage and which is marked with the words “Exempt human specimen” or “Exempt animal specimen”, as appropriate. The packaging should meet the following conditions:

(a) The packaging should consist of three components:
   (i) a leak-proof primary receptacle(s);
   (ii) a leak-proof secondary packaging; and
   (iii) an outer packaging of adequate strength for its capacity, mass and intended use, and with at least one surface having minimum dimensions of 100 mm × 100 mm;

(b) For liquids, absorbent material in sufficient quantity to absorb the entire contents should be placed between the primary receptacle(s) and the secondary packaging so that, during transport, any release or leak of a liquid substance will not reach the outer packaging and will not compromise the integrity of the cushioning material;

(c) When multiple fragile primary receptacles are placed in a single secondary packaging, they should be either individually wrapped or separated to prevent contact between them.

NOTE 1: *An element of professional judgment is required to determine if a substance is exempt under this paragraph. That judgment should be based on the known medical history, symptoms and individual circumstances of the source, human or animal, and endemic local conditions. Examples of specimens which may be transported under this paragraph include the blood or urine tests to monitor cholesterol levels, blood glucose levels, hormone levels, or prostate specific antibodies (PSA); those required to monitor organ function such as heart, liver or kidney function for humans or animals with non-infectious diseases, or therapeutic drug monitoring; those conducted for insurance or employment purposes and are intended to determine the presence of drugs or alcohol; pregnancy test; biopsies to detect cancer; and antibody detection in humans or animals, in the absence of any concern for infection (e.g. evaluation of vaccine induced immunity, diagnosis of autoimmune disease, etc.).*

NOTE 2: *For air transport, packagings for specimens exempted under this paragraph must meet the conditions in (a) to (c).*

2.6.3.2.3.9 Except for:

(a) medical waste (UN 3291 and UN 3549);

(b) medical devices or equipment contaminated with or containing infectious substances in Category A (UN 2814 or UN 2900); and

(c) medical devices or equipment contaminated with or containing other dangerous goods that meet the definition of another hazard class;

medical devices or equipment potentially contaminated with or containing infectious substances which are being transported for disinfection, cleaning, sterilisation, repair, or equipment evaluation are not subject to the provisions of this Code if packed in packagings designed and constructed in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents. Packagings must be designed to meet the construction requirements listed in 6.1.4 or 6.6.5.

These packagings must meet the general packing requirements of 4.1.1.1 and 4.1.1.2 and be capable of retaining the medical devices and equipment when dropped from a height of 1.2 m. For air transport, additional requirements may apply.

The packagings must be marked "USED MEDICAL DEVICE" or "USED MEDICAL EQUIPMENT". When using overpacks, these must be marked in the same way, except when the inscription remains visible.

2.6.3.3 Biological products

2.6.3.3.1 For the purposes of this Code, biological products are divided into the following groups:

(a) Those which are manufactured and packaged in accordance with the requirements of appropriate national authorities and transported for the purposes of final packaging or distribution, and use for personal health care by medical professionals or individuals. Substances in this group are not subject to this Code.

(b) Those which do not fall under paragraph (a) and are known or reasonably believed to contain infectious substances and which meet the criteria for inclusion in Category A or Category B. Substances in this group must be assigned to UN 2814, UN 2900 or UN 3373, as appropriate.

NOTE: *Some licensed biological products may present a biohazard only in certain parts of the world. In that case, competent authorities may require these biological products to be in compliance with local requirements for infectious substances or may impose other restrictions.*

2.6.3.4 Genetically modified micro-organisms and organisms

2.6.3.4.1 Genetically modified micro-organisms not meeting the definition of infectious substance must be classified according to Chapter 2.9.

2.6.3.5 Medical or clinical wastes

2.6.3.5.1 Medical or clinical waste containing:

(a) Category A infectious substances shall be assigned to UN 2814, UN 2900 or UN 3549 as appropriate. Solid medical waste containing Category A infectious substances generated from the medical treatment of humans or veterinary treatment of animals may be assigned to UN 3549. The UN 3549 entry shall not be used for waste from bio-research or liquid waste;

(b) Category B infectious substances shall be assigned to UN 3291

2.6.3.5.2 Medical or clinical wastes which are reasonably believed to have a low probability of containing infectious substances must be assigned to UN 3291. For the assignment, international, regional or national waste catalogues may be taken into account.

NOTE: *The proper shipping name for UN 3291 is “CLINICAL WASTE, UNSPECIFIED, N.O.S.” or “(BIO) MEDICAL WASTE, N.O.S” or “REGULATED MEDICAL WASTE, N.O.S.”*

2.6.3.5.3 Decontaminated medical or clinical wastes which previously contained infectious substances are not subject to this Code unless they meet the criteria for inclusion in another class.

2.6.3.6 Infected animals

2.6.3.6.1 Unless an infectious substance cannot be consigned by any other means, live animals must not be used to consign such a substance. A live animal which has been intentionally infected and is known or suspected to contain an infectious substance must only be transported under terms and conditions approved by the relevant health authority.

2.6.3.6.2 <Deleted>

CHAPTER 2.7 – CLASS 7 - RADIOACTIVE MATERIAL

Introductory Notes

NOTE 1: *Much of chapter 2.7 has been deleted from the previous editions of the ADG Code. This was determined at a meeting of Standing Council on Transport and Infrastructure (SCOTI) as part of the Transport of Dangerous Goods (TPG) Amendment Package (AP) Number 2. The reasons for this change are explained in Note 1 below.*

The following information from the Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) now replaces the information found in earlier editions of the ADG Code.

RPS 2 Code of Practice for the Safe Transport of Radioactive Material

RPS No. 2.1 - Safety Guide for the Safe Transport of Radioactive Material

RPS No. 2.2 - Safety Guide for the Approval Processes for the Safe Transport of Radioactive Materials (2012)

NOTE 2: *THE TRANSPORT OF CLASS 7 IS NOT SUBJECT TO THIS CODE except when it is being transported on the same road vehicle or train as dangerous goods of other classes. When Class 7 dangerous goods are being transported with other dangerous goods, the segregation requirements of Part 9 apply.*

Transport of Class 7 by road or rail in Australia is subject to separate state and territory legislation and the Code of Practice for the Safe Transport of Radioactive Substances.

2.7.2.1.1 and Table 2.7.2.1.1 are provided for information only.

NOTE 3: *For Class 7, the type of packaging may have a decisive effect on classification.*

2.7.1 <DELETED>

2.7.2 CLASSIFICATION

2.7.2.1 General provisions

2.7.2.1.1 Radioactive material must be assigned to one of the UN number specified in Table 2.7.2.1.1 in accordance with state and territory legislation and the code of practice for the safe transport of radioactive substance that implements 2.7.2.2 to 2.7.2.5 taking into account the material characteristics determined in 2.7.2.3.

Table 2.7.2.1.1: Assignment of UN Numbers

UN Nos	Proper Shipping Name and Description[a]
Excepted packages (1.5.1.5 of UN20)	
UN 2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING

UN Nos	Proper Shipping Name and Description[a]
UN 2909	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM
UN 2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL
UN 2911	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES
UN 3507	URANIUM HEXAFLOURIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE less than 0.1 Kg per package, non-fissile or fissile-excepted[b, c]
Low specific activity radioactive material (2.7.2.3.1)	
UN 2912	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non-fissile or fissile-excepted[b]
UN 3321	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted[b]
UN 3322	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted[b]
UN 3324	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE
UN 3325	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE
Surface contaminated objects (2.7.2.3.2)	
UN 2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I, SCO-II or SCO-III), non-fissile or fissile-excepted[b]
UN 3326	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE
Type A packages (2.7.2.4.4)	
UN 2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non-fissile or fissile-excepted[b]
UN 3327	RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form
UN 3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted[b]
UN 3333	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE
Type B(U) package (2.7.2.4.6)	
UN 2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non-fissile or fissile-excepted[b]
UN 3328	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE
Type B(M) package (2.7.2.4.6)	
UN 2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non-fissile or fissile-excepted[b]
UN 3329	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE
Type C package (2.7.2.4.6)	
UN 3323	RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted[b]

UN Nos	Proper Shipping Name and Description[a]
UN 3330	RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE
Special arrangement (2.7.2.5)	
UN 2919	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non-fissile or fissile-excepted[b]
UN 3331	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE
Uranium hexafluoride (2.7.2.4.5)	
UN 2977	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE
UN 2978	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted[b]
UN 3507	URANIUM HEXAFLOURIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE less than 0.1 Kg per package, non-fissile or fissile-excepted[b, c]
Table notes:	**a** The proper shipping name is found in the column “proper shipping name and description” and is restricted to that part shown in CAPITAL LETTERS. In the cases of UN Nos. 2909, 2911, 2913 and 3326, where alternative proper shipping names are separated by the word “or” only the relevant shipping name must be used. **b** The term “fissile-excepted” refers only to material excepted under UN 21 2.7.2.3.5. **c** For UN No. 3507, see also special provision 369 in Chapter 3.3.

2.7.2.2 <Deleted>

2.7.2.3 <Deleted>

2.7.2.4 <Deleted>

2.7.2.5 <Deleted>

CHAPTER 2.8 – CLASS 8 - CORROSIVE SUBSTANCES

2.8.1 DEFINITION AND GENERAL PROVISIONS

For the purposes of this Code:

2.8.1.1 **Corrosive substances** are substances which, by chemical action, will cause irreversible damage to the skin, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport.

2.8.1.2 For substances and mixtures that are corrosive to skin, general classification provisions are provided in section 2.8.2. Skin corrosion refers to the production of irreversible damage to the skin, namely, visible necrosis through the epidermis and into the dermis occurring after exposure to a substance or mixture.

2.8.1.3 Liquids and solids which may become liquid during transport, which are judged not to be skin corrosive shall still be considered for their potential to cause corrosion to certain metal surfaces in accordance with the criteria in 2.8.3.3 (c) (ii).

2.8.2 GENERAL CLASSIFICATION PROVISIONS

2.8.2.1 Substances and preparations of Class 8 are divided among the three packing groups according to their degree of danger in transport :

(a) Packing group I: Very dangerous substances and mixtures;

(b) Packing group II: Substances and mixtures presenting medium danger;

(c) Packing group III: Substances and mixtures presenting minor danger.

2.8.2.2 Allocation of substances listed in the Dangerous Goods List in Chapter 3.2 to the packing groups in Class 8 has been made on the basis of experience taking into account such additional factors as inhalation risk (see 2.8.2.4) and reactivity with water (including the formation of dangerous decomposition products).

2.8.2.3 New substances and mixtures, can be assigned to packing groups on the basis of the length of time of contact necessary to produce irreversible damage of intact skin tissue in accordance with the criteria in 2.8.3. Alternatively, for mixtures, the criteria in 2.8.4 can be used.

2.8.2.4 A substance or mixture meeting the criteria of Class 8 having an inhalation toxicity of dusts and mists ($LC50$) in the range of packing group I, but toxicity through oral ingestion or dermal contact only in the range of packing group III or less, must be allocated to Class 8 (see note under 2.6.2.2.4.1).

2.8.3 PACKING GROUP ASSIGNMENT FOR SUBSTANCES AND MIXTURES

2.8.3.1 Existing human and animal data including information from single or repeated exposure shall be the first line of evaluation, as they give information directly relevant to effects on the skin.

2.8.3.2 In assigning the packing group to a substance in accordance with 2.8.2.3, account shall be taken of human experience in instances of accidental exposure. In the absence of human experience the classification must be based on data obtained from experiments in accordance with OECD Test Guidelines[1,2,3,4]. A substance or mixture which is determined not to be corrosive in accordance with OECD Test Guidelines[1,2,3,4]. may be considered not to be corrosive to skin for the purposes of this Code without further testing. If the *in vitro* test results indicate that the substance or mixture is corrosive and not assigned to packing group I, but the test method does not allow discrimination between packing groups II and III, it shall be considered to be packing group II.

2.8.3.3 Packing groups are assigned to corrosive substances in accordance with the following criteria (see table 2.8.3.4):

(a) Packing group I is assigned to substances that cause irreversible damage of intact skin tissue within an observation period up to 60 minutes starting after the exposure time of three minutes or less;

(b) Packing group II is assigned to substances that cause irreversible damage of intact skin tissue within an observation period up to 14 days starting after the exposure time of more than three minutes but not more than 60 minutes;

(c) Packing group III is assigned to substances that:

(i) cause irreversible damage of intact skin tissue within an observation period up to 14 days starting after the exposure time of more than 60 minutes but not more than 4 hours; or

(ii) are judged not to cause irreversible damage of intact skin tissue but which exhibit a corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 °C, when tested on both materials. For the purposes of testing steel, type S235JR+CR (1.0037 resp. St 37-2), S275J2G3+CR (1.0144 resp. St 44-3), ISO 3574 or Unified Numbering System (UNS) G10200 or a similar type or SAE 1020, and for testing aluminium, non-clad, types 7075–T6 or AZ5GU-T6 shall be used. An acceptable test is prescribed in the Manual of Tests and Criteria, Part III, Section 37.

NOTE 1: *Where an initial test on either steel or aluminium indicates the substance being tested is corrosive the follow up test on the other metal is not required.*

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[1] OECD Guideline for the testing of chemicals No. 404 "Acute Dermal Irritation/Corrosion" 2015

[2] OECD Guideline for the testing of chemicals No. 435 "In Vitro Membrane Barrier Test Method for Skin Corrosion" 2015

[3] OECD Guideline for the testing of chemicals No. 431 "In Vitro skin corrosion: reconstructed human epidermis (RHE) test method" 2016

[4] OECD Guideline for the testing of chemicals No. 430 In Vitro Skin Corrosion: Transcutaneous Electrical Resistance Test Method (TER)" 2015

NOTE 2: *In the absence of corrosive test data, liquid waste substances that have a pH less than 2.0 or greater than 12.5 should be assigned to packing group II*[1]

Table 2.8.3.4: Table summarising the criteria in 2.8.3.3

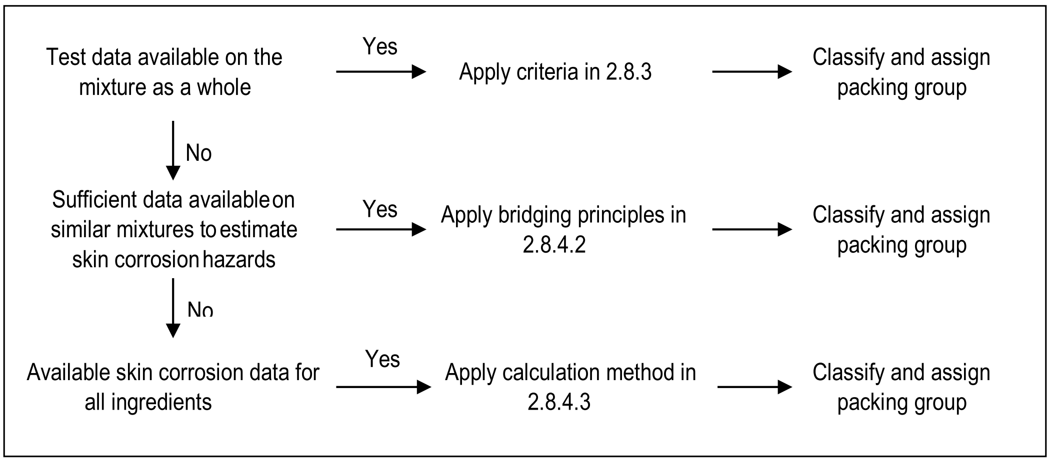
Packing Group	Exposure Time	Observation Period	Effect
I	≤ 3 min	≤ 60 min	Irreversible damage of intact skin
II	> 3 min ≤ 1 h	≤ 14 d	Irreversible damage of intact skin
III	> 1 h ≤ 4 h	≤ 14 d	Irreversible damage of intact skin
III	–	–	Corrosion rate on either steel or aluminium surfaces exceeding 6.25 mm a year at a test temperature of 55 ºC when tested on both materials

2.8.4 ALTERNATIVE PACKING GROUP ASSIGNMENT METHODS FOR MIXTURES: STEP-WISE APPROACH

2.8.4.1 General provisions

2.8.4.1.1 For mixtures it is necessary to obtain or derive information that allows the criteria to be applied to the mixture for the purpose of classification and assignment of packing groups. The approach to classification and assignment of packing groups is tiered, and is dependent upon the amount of information available for the mixture itself, for similar mixtures and/or for its ingredients. The flow chart of Figure 2.8.4.1 below outlines the process to be followed:

Figure 2.8.4.1: Step-wise approach to classify and assign packing group of corrosive mixtures



[1] *This is NOT a general rule that can be applied to non-waste substances where corrosive test data must be obtained.*

2.8.4.2 Bridging principles

2.8.4.2.1 Where a mixture has not been tested to determine its skin corrosion potential, but there are sufficient data on both the individual ingredients and similar tested mixtures to adequately classify and assign a packing group for the mixture, these data will be used in accordance with the following bridging principles. This ensures that the classification process uses the available data to the greatest extent possible in characterizing the hazards of the mixture.

(a) Dilution: If a tested mixture is diluted with a diluent which does not meet the criteria for Class 8 and does not affect the packing group of other ingredients, then the new diluted mixture may be assigned to the same packing group as the original tested mixture.

NOTE: *in certain cases, diluting a mixture or substance may lead to an increase in the corrosive properties. If this is the case, this bridging principle cannot be used.*

(b) Batching: The skin corrosion potential of a tested production batch of a mixture can be assumed to be substantially equivalent to that of another untested production batch of the same commercial product when produced by or under the control of the same manufacturer, unless there is reason to believe there is significant variation such that the skin corrosion potential of the untested batch has changed. If the latter occurs, a new classification is necessary.

(c) Concentration of mixtures of packing group I: If a tested mixture meeting the criteria for inclusion in packing group I is concentrated, the more concentrated untested mixture may be assigned to packing group I without additional testing.

(d) Interpolation within one packing group: For three mixtures (A, B and C) with identical ingredients, where mixtures A and B have been tested and are in the same skin corrosion packing group, and where untested mixture C has the same Class 8 ingredients as mixtures A and B but has concentrations of Class 8 ingredients intermediate to the concentrations in mixtures A and B, then mixture C is assumed to be in the same skin corrosion packing group as A and B.

(e) Substantially similar mixtures: Given the following:

(i) Two mixtures: (A+B) and (C+B);

(ii) The concentration of ingredient B is the same in both

(iii) The concentration of ingredient A in mixture (A+B) equals the concentration of ingredient C in mixture (C+B);

(iv) Data on skin corrosion for ingredients A and C are available and substantially equivalent, i.e. they are the same skin corrosion packing group and do not affect the skin corrosion potential of B.

If mixture (A+B) or (C+B) is already classified based on test data, then the other mixture may be assigned to the same packing group.

2.8.4.3 Calculation method based on the classification of the substances

2.8.4.3.1 Where a mixture has not been tested to determine its skin corrosion potential, nor is sufficient data available on similar mixtures, the corrosive properties of the substances in the mixture shall be considered to classify and assign a packing group.

Applying the calculation method is only allowed if there are no synergistic effects that make the mixture more corrosive than the sum of its substances. This restriction applies only if packing group II or III would be assigned to the mixture.

2.8.4.3.2 When using the calculation method, all Class 8 ingredients present at a concentration of ≥ 1% shall be taken into account, or < 1% if these ingredients are still relevant for classifying the mixture to be corrosive to skin.

2.8.4.3.3 To determine whether a mixture containing corrosive substances shall be considered a corrosive mixture and to assign a packing group, the calculation method in the flow chart in Figure 2.8.4.3 shall be applied. For this calculation method, generic concentration limits apply where 1% is used in the first step for the assessment of the packing group I substances, and where 5% is used for the other steps respectively.

2.8.4.3.4 When a specific concentration limit (SCL) is assigned to a substance following its entry in the Dangerous Goods List or in a Special Provision, this limit shall be used instead of the generic concentration limits (GCL).

2.8.4.3.5 For this purpose, the summation formula for each step of the calculation method shall be adapted. This means that, where applicable, the generic concentration limit shall be substituted by the specific concentration limit assigned to the substance(s) (SCLi), and the adapted formula is a weighted average of the different concentration limits assigned to the different substances in the mixture:

$$\frac{PGx_1}{GCL} + \frac{PGx_2}{SCL_2} + \cdots + \frac{PGx_i}{SCL_i} \geq 1$$

Where:

PGx_i = concentration of substance 1, 2 …I in the mixture, assigned to packing group x (I, II or III)

GCL = generic concentration limit

SCL_i = specific concentration limit assigned to substance i

The criterion for a packing group is fulfilled when the result of the calculation is ≥ 1. The generic concentration limits to be used for the evaluation in each step of the calculation method are those found in Figure 2.8.4.3.

Examples for the application of the above formula can be found in the note below.

NOTE: *Examples for the application of the above formula*

Example 1: A mixture contains one corrosive substance in a concentration of 5% assigned to packing group I without a specific concentration limit:

$Calculation\ for\ packing\ group$ I:

$$\frac{5}{5\ (GCL)} = 1 \rightarrow assign\ to\ class\ 8, packing\ group\ \mathrm{I}.$$

Example 2: A mixture contains three substances corrosive to skin; two of them (A and B) have specific concentration limits; for the third one (C) the generic concentration limits applies. The rest of the mixture needs not to be taken into consideration:

Substance X in the mixture and its packing group assignment within Class 8	Concentration (conc)in the mixture in %	Specific concentration limit (SCL)for packing group I	Specific concentration limit (SCL) for packing group II	Specific concentration limit (SCL) for packing group III
A, assigned to packing group I	3	30%	none	none
B, assigned to packing group I	2	20%	10%	none
C, assigned to packing group III	10	none	none	none

$Calculation\ for\ packing\ group\ I$:

$$\frac{3\ (conc\ A)}{30\ (SCL\ PGI)} + \frac{2\ (conc\ B)}{20\ (SCL\ PGI)} = 0.2 < 1$$

The criterion for packing group I is not fulfilled

$Calculation\ for\ packing\ group\ II$:

$$\frac{3\ (conc\ A)}{5\ (SCL\ PGII)} + \frac{2\ (conc\ B)}{10\ (SCL\ PGII)} = 0.8 < 1$$

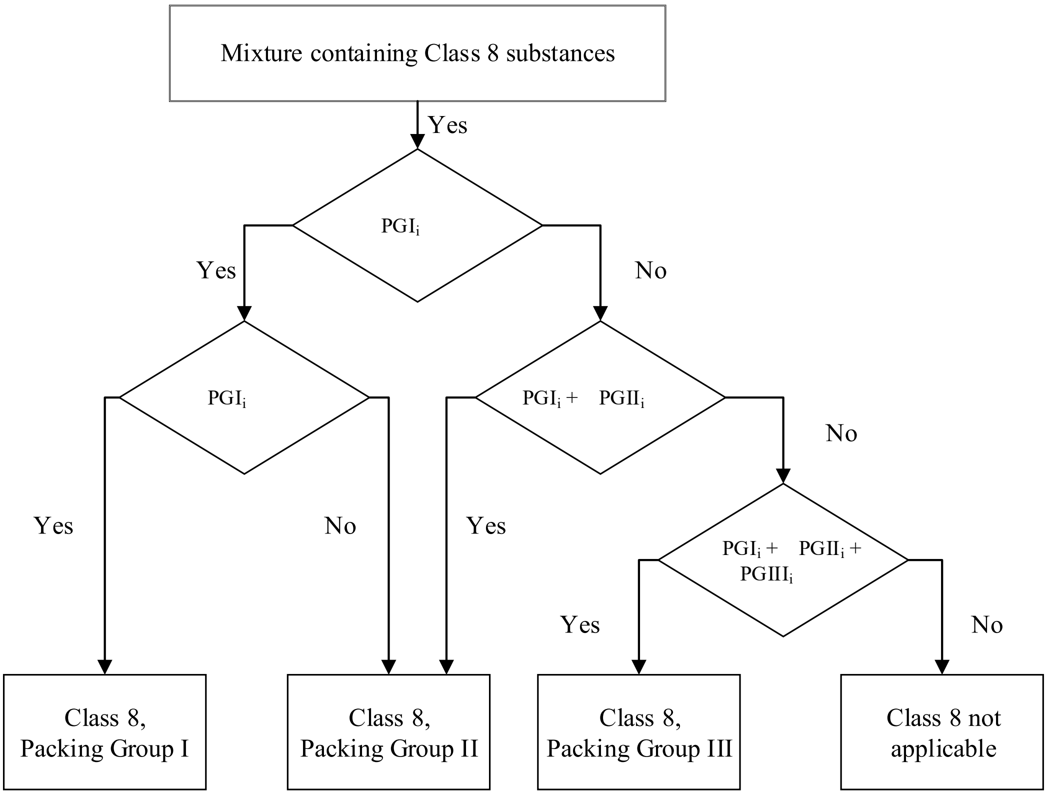
The criterion for packing group II is not fulfilled

$Calculation\ for\ packing\ group\ III$:

$$\frac{3\ (conc\ A)}{5\ (SCL\ PGIII)} + \frac{2\ (conc\ B)}{5\ (SCL\ PGIII)} + \frac{10\ (conc\ C)}{5\ (GCL\ PGIII)} = 3 \geq 1$$

The criterion for packing group III is fulfilled, the mixture shall be assigned to class 8, packing group III

Figure 2.8.4.3: Calculation method



2.8.5 SUBSTANCES NOT ACCEPTED FOR TRANSPORT

Chemically unstable substances of Class 8 shall not be accepted for transport unless the necessary precautions have been taken to prevent the possibility of a dangerous decomposition or polymerization under normal conditions of transport. For the precautions necessary to prevent polymerization, see special provision 386 of Chapter 3.3. To this end particular care shall be taken to ensure that receptacles and tanks do not contain any substances liable to promote these reactions.

CHAPTER 2.9 - CLASS 9 - MISCELLANEOUS DANGEROUS SUBSTANCES AND ARTICLES, INCLUDING ENVIRONMENTALLY HAZARDOUS SUBSTANCES

2.9.1 DEFINITIONS

2.9.1.1 Class 9 substances and articles (miscellaneous dangerous substances and articles) are substances and articles which, during transport present a danger not covered by other classes.

2.9.1.2 **<Deleted>**

2.9.2 ASSIGNMENT TO CLASS 9

The substances and articles of Class 9 are subdivided as follows:

Substances which, on inhalation as fine dust, may endanger health

2212	ASBESTOS, AMPHIBOLE (amosite, tremolite, actinolite, anthophylite, crocidolite)
2590	ASBESTOS, CHRYSOTILE

Substances evolving flammable vapour

2211	POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour
3314	PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour

Lithium batteries

3090	LITHIUM METAL BATTERIES (including lithium alloy batteries)
3091	LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT (including lithium alloy batteries) or
3091	LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT (including lithium alloy batteries)
3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
3481	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT (including lithium ion polymer batteries) or
3481	LITHIUM ION BATTERIES PACKED WITH EQUIPMENT (including lithium ion polymer batteries)
3536	LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT

NOTE: See 2.9.4.

Capacitors

3499	CAPACITOR, ELECTRIC DOUBLE LAYER (with an energy storage capacity greater than 0.3 Wh)

3508 CAPACITOR, ASYMMETRIC (with an energy storage capacity greater than 0.3 Wh)

Life-saving appliances

2990 LIFE SAVING APPLIANCES, SELF INFLATING

3072 LIFE SAVING APPLIANCES NOT SELF INFLATING containing dangerous goods as equipment

3268 SAFETY DEVICES, electrically initiated.

Substances and articles which, in the event of fire, may form dioxins

This group of substances includes:

2315 POLYCHLORINATED BIPHENYLS, LIQUID

3432 POLYCHLORINATED BIPHENYLS, SOLID

3151 POLYHALOGENATED BIPHENYLS, LIQUID or

3151 HALOGENATED MONOMETHYLDIPHENYLMETHANES, LIQUID, or

3151 POLYHALOGENATED TERPHENYLS, LIQUID

3152 POLYHALOGENATED BIPHENYLS, SOLID or

3152 HALOGENATED MONOMETHYLDIPHENYLMETHANES, SOLID or

3152 POLYHALOGENATED TERPHENYLS, SOLID

Examples of articles are transformers, condensers and apparatus containing those substances.

Substances transported or offered for transport at elevated temperatures

(a) Liquid

3257 ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100 °C and below its flash-point (including molten metal, molten salts, etc.)

(b) Solid

3258 ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240 °C

Environmentally hazardous substances

(a) Solid

3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

(b) Liquid

3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

These designations are used for substances and mixtures which are dangerous to the aquatic environment that do not meet the classification criteria of any other class or another substance within Class 9. These designations may also be used for wastes not otherwise subject to this Code but which are covered under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and for substances designated to be environmentally hazardous substances by the competent authority of the country of origin, transit or destination which do not meet the criteria for an environmentally hazardous substance according to this Code or for any other hazard Class. The criteria for substances which are hazardous to the aquatic environment are given in section 2.9.3.

Genetically modified micro-organisms (GMMOs) and genetically modified organisms (GMOs)

3245 GENETICALLY MODIFIED MICRO-ORGANISMS or

3245 GENETICALLY MODIFIED ORGANISMS

GMMOs and GMOs which do not meet the definition of toxic substances (see 2.6.2) or infectious substances (see 2.6.3) must be assigned to UN 3245.

GMMOs or GMOs are not subject to this Code when authorised for use by the competent authorities of the countries of origin, transit and destination.

Genetically modified live animals must be transported under terms and conditions of the competent authorities of the countries of origin and destination.

Ammonium nitrate based fertilizers

2071 Solid ammonium nitrate based fertilizers shall be classified in accordance with the procedure as set out in the Manual of Tests and Criteria, Part III, Section 39.

Other substances or articles presenting a danger during transport, but not meeting the definitions of another class:

1841	ACETALDEHYDE AMMONIA
1845	CARBON DIOXIDE, SOLID (DRY ICE)
1931	ZINC DITHIONITE (ZINC HYDROSULPHITE)
1941	DIBROMODIFLUOROMETHANE
1990	BENZALDEHYDE
2216	FISH MEAL (FISH SCRAP), STABILISED
2807	MAGNETISED MATERIAL
2969	CASTOR BEANS or
2969	CASTOR MEAL or
2969	CASTOR POMACE or
2969	CASTOR FLAKE
3166	VEHICLE, FLAMMABLE GAS POWERED or
3166	VEHICLE, FLAMMABLE LIQUID POWERED or
3166	VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED or
3166	VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED
3171	BATTERY-POWERED VEHICLE or BATTERY-POWERED EQUIPMENT
3316	CHEMICAL KIT or FIRST AID KIT
3334	AVIATION REGULATED LIQUID, N.O.S.
3335	AVIATION REGULATED SOLID, N.O.S.
3359	FUMIGATED CARGO TRANSPORT UNIT
3363	DANGEROUS GOODS IN ARTICLES or
3363	DANGEROUS GOODS IN MACHINERY or
3363	DANGEROUS GOODS IN APPARATUS
3509	PACKAGINGS DISCARDED, EMPTY, UNCLEANED
3530	ENGINE, INTERNAL COMBUSTION

3530 MACHINERY, INTERNAL COMBUSTION
3548 ARTICLES CONTAINING MISCELLANEOUS DANGEROUS GOODS N.O.S.

2.9.2.1 GMMOs or GMOs are not subject to this Code when they are:

(a) licensed by the Office of the Gene Technology Regulator (OGTR); **or**
(b) approved by Food Standards Australia New Zealand (FSANZ); **or**
(c) exempt from such licences and approvals under the Gene Technology Act 2000.

2.9.3 ENVIRONMENTALLY HAZARDOUS SUBSTANCES (AQUATIC ENVIRONMENT)

2.9.3.1 General definitions

2.9.3.1.1 Environmentally hazardous substances include, inter alia, liquid or solid substances pollutant to the aquatic environment and solutions and mixtures of such substances (such as preparations and wastes).

2.9.3.1.2 The aquatic environment may be considered in terms of the aquatic organisms that live in the water, and the aquatic ecosystem of which they are part[1]. The basis, therefore, of the identification of hazard is the aquatic toxicity of the substance or mixture, although this may be modified by further information on the degradation and bioaccumulation behaviour.

2.9.3.1.3 While the following classification procedure is intended to apply to all substances and mixtures, it is recognised that in some cases, e.g. metals or poorly soluble inorganic compounds, special guidance will be necessary [2].

2.9.3.1.4 The following definitions apply for acronyms or terms used in this section:

BCF: Bioconcentration Factor

BOD: Biochemical Oxygen Demand

COD: Chemical Oxygen Demand

GLP: Good Laboratory Practices

EC_X: the concentration associated with x% response

EC_{50}: the effective concentration of substance that causes 50% of the maximum response

ErC_{50}: EC_{50} in terms of reduction of growth

K_{OW}: octanol/water partition coefficient

LC_{50} (50% lethal concentration): the concentration of a substance in water which causes the death of 50% (one half) in a group of test animals

$L(E)C_{50}$: LC_{50} or EC_{50}

[1] This does not address aquatic pollutants for which there may be a need to consider effects beyond the aquatic environment such as the impacts on human health etc.

[2] This can be found in Annex 10 of the GHS.

NOEC: (No Observed Effect Concentration): the test concentration immediately below the lowest tested concentration with statistically significant adverse effect. The NOEC has not statistically significant adverse effect compared to the control

OECD Test Guidelines: Test guidelines published by the Organisation for Economic Cooperation and Development (OECD) at <www.oecd.org/chemicalsafety/testing/oecdguidelinesforthetestingofchemicals.htm>.

2.9.3.2 Definitions and data requirements

2.9.3.2.1 The basic elements for classification of environmentally hazardous substances (aquatic environment) are:

(a) acute aquatic toxicity; and
(b) chronic aquatic toxicity; and
(c) potential for or actual bioaccumulation; and
(d) degradation (biotic or abiotic) for organic chemicals.

2.9.3.2.2 While data from internationally harmonised test methods are preferred, in practice, data from national methods may also be used where they are considered as equivalent. In general, freshwater and marine species toxicity data can be considered as equivalent data and are preferably to be derived using OECD Test Guidelines or equivalent according to the principles of Good Laboratory Practices (GLP). Where such data are not available, classification must be based on the best available data.

2.9.3.2.3 Acute aquatic toxicity means the intrinsic property of a substance to be injurious to an organism in a short-term aquatic exposure to that substance.

Acute (short-term) hazard, for classification purposes, means the hazard of a chemical caused by its acute toxicity to an organism during short-term aquatic exposure to that chemical.

Acute aquatic toxicity should normally be determined using a fish 96 hour LC_{50} (OECD Test Guideline 203 or equivalent), a crustacea species 48 hour EC_{50} (OECD Test Guideline 202 or equivalent) and/or an algal species 72 or 96 hour EC_{50} (OECD Test Guideline 201 or equivalent). These species are considered as surrogates for all aquatic organisms. Data on other species such as Lemna may also be considered if the test methodology is suitable.

2.9.3.2.4 Chronic aquatic toxicity means the intrinsic property of a substance to cause adverse effects to aquatic organisms during aquatic exposures which are determined in relation to the life-cycle of the organism.

Long-term hazard, for classification purposes, means the hazard of a chemical caused by its chronic toxicity following long-term exposure in the aquatic environment.

Chronic toxicity data are less available than acute data and the range of testing procedures less standardised. Data generated according to the OECD Test Guidelines 210 (Fish Early Life Stage) or 211 (Daphnia Reproduction) and 201 (Algal Growth Inhibition) may be accepted. Other validated and internationally accepted tests may also be used. The NOECs or other equivalent ECx must be used.

2.9.3.2.5 Bioaccumulation means net result of uptake, transformation and elimination of a substance in an organism due to all routes of exposure (i.e. air, water, sediment/soil and food).

The potential for bioaccumulation should normally be determined by using the octanol/water partition coefficient, usually reported as a log Kow determined according to OECD Test Guideline 107, 117 or 123. While this represents a potential to bioaccumulate, an experimentally determined Bioconcentration Factor (BCF) provides a better measure and must be used in preference when available. A BCF must be determined according to OECD Test Guideline 305.

2.9.3.2.6 Degradation means the decomposition of organic molecules to smaller molecules and eventually to carbon dioxide, water and salts.

Environmental degradation may be biotic or abiotic (e.g. hydrolysis) and the criteria used reflect this fact. Ready biodegradation is most easily defined using the biodegradability tests (A-F) of OECD Test Guideline 301. A pass level in these tests may be considered as indicative of rapid degradation in most aquatic environments. As these are freshwater tests, use of results from OECD Test Guideline 306, which is more suitable for the marine environment, is also included.

Where such data are not available, a BOD(5 days)/COD ratio >0.5 is considered as indicative of rapid degradation. Abiotic degradation such as hydrolysis, primary degradation, both abiotic and biotic, degradation in non-aquatic media and proven rapid degradation in the environment may all be considered in defining rapid degradability[1].

Substances are considered rapidly degradable in the environment if the following criteria are met:

(a) In 28-day ready biodegradation studies, the following levels of degradation are achieved:
    (i) Tests based on dissolved organic carbon: 70%;
    (ii) Tests based on oxygen depletion or carbon dioxide generation: 60% of theoretical maxima;

These levels of biodegradation must be achieved within 10 days of the start of degradation which point is taken as the time when 10% of the substance has been degraded unless the substance is identified as a complex, multi-component substance with structurally similar constituents. In this case, and where there is sufficient justification, the 10-day window condition may be waived and the pass level applied at 28 days[2]; or

(b) In those cases where only BOD and COD data are available, when the ratio of BOD5/COD is ≥ 0.5; or

(c) If other convincing scientific evidence is available to demonstrate that the substance or mixture can be degraded (biotically and/or abiotically) in the aquatic environment to a level above 70% within a 28 day period.

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[1] Special guidance on data interpretation is provided in Chapter 4.1 and Annex 9 of the GHS.

[2] See Chapter 4.1 and Annex 9, paragraph A9.4.2.2.3 of the GHS.

2.9.3.3 Substance classification categories and criteria

2.9.3.3.1 Substances must be classified as "environmentally hazardous substances (aquatic environment)", if they satisfy the criteria for Acute 1, Chronic 1 or Chronic 2, according to Table 2.9.1. These criteria describe in detail the classification categories. They are diagrammatically summarised in Table 2.9.2.

Table 2.9.1: Categories for substances hazardous to the aquatic environment (see Note 1 at end of table)

Hazard type	Hazard category	Concentration
(a) Acute (short-term) aquatic hazard	**Category Acute 1** :(see Note 2)	
	96 hr LC_{50} (for fish)	≤ 1 mg/L and/or
	48 hr EC_{50} (for crustacea)	≤ 1 mg/L and/or
	72 or 96hr ErC_{50} (for algae or other aquatic plants)	≤ 1 mg/L *(see Note 3)*
Hazard type	**Hazard category**	**Concentration**
(b) Long-term aquatic hazard		
	(i) Non-rapidly degradable substances (see Note 4) for which there are adequate chronic toxicity data available	
(see also Figure 2.9.1)	**Category Chronic 1**: (see Note 2)	
	Chronic NOEC or EC_x (for fish)	≤ 0.1 mg/l and/or
	Chronic NOEC or EC_x (for crustacea)	≤ 0.1 mg/l and/or
	Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 0.1 mg/l
	Category Chronic 2:	
	Chronic NOEC or EC_x (for fish)	≤ 1 mg/l and/or
	Chronic NOEC or EC_x (for crustacea)	≤ 1 mg/l and/or
	Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 1 mg/l
(b) Long-term aquatic hazard, cont.		
	(ii) Rapidly degradable substances for which there are adequate chronic toxicity data available	
(see also Figure 2.9.1)	**Category Chronic 1**: (see Note 2)	
	Chronic NOEC or EC_x (for fish)	≤ 0.01 mg/l and/or
	Chronic NOEC or EC_x (for crustacea)	≤ 0.01 mg/l and/or
	Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 0.01 mg/l
	Category Chronic 2	
	Chronic NOEC or EC_x (for fish)	≤ 0.1 mg/l and/or
	Chronic NOEC or EC_x (for crustacea)	≤ 0.1 mg/l and/or
	Chronic NOEC or EC_x (for algae or other aquatic plants)	≤ 0.1 mg/l
	(iii) Substances for which adequate chronic toxicity data are not available	
	Category Chronic 1: (see Note 2)	
	96 hr LC_{50} (for fish)	≤ 1 mg/l and/or

Hazard type	Hazard category	Concentration
	48 hr EC_{50} (for crustacea)	≤ 1 mg/l and/or
	72 or 96hr ErC_{50} (for algae or other aquatic plants)	≤ 1 mg/l *(see Note 3)*
	and the substance is not rapidly degradable and/or the experimentally determined BCF is ≥ 500 (or, if absent the log K_{ow} ≥ 4 *(see Notes 4 and 5)*.	
	Category Chronic 2:	
	96 hr LC_{50} (for fish)	>1 but ≤ 10 mg/l and/or
	48 hr EC_{50} (for crustacea)	>1 but ≤ 10 mg/l and/or
	72 or 96hr ErC_{50} (for algae or other aquatic plants)	>1 but ≤ 10 mg/l *(see Note 3)*
	and the substance is not rapidly degradable and/or the experimentally determined BCF is ≥ 500 (or, if absent the log K_{ow} ≥ 4 *(see Notes 4 and 5)*.	

Table notes:

NOTE 1: *The organisms fish, crustacea and algae are tested as surrogate species covering a range of trophic levels and taxa, and the test methods are highly standardised. Data on other organisms may also be considered, however, provided they represent equivalent species and test endpoints.*

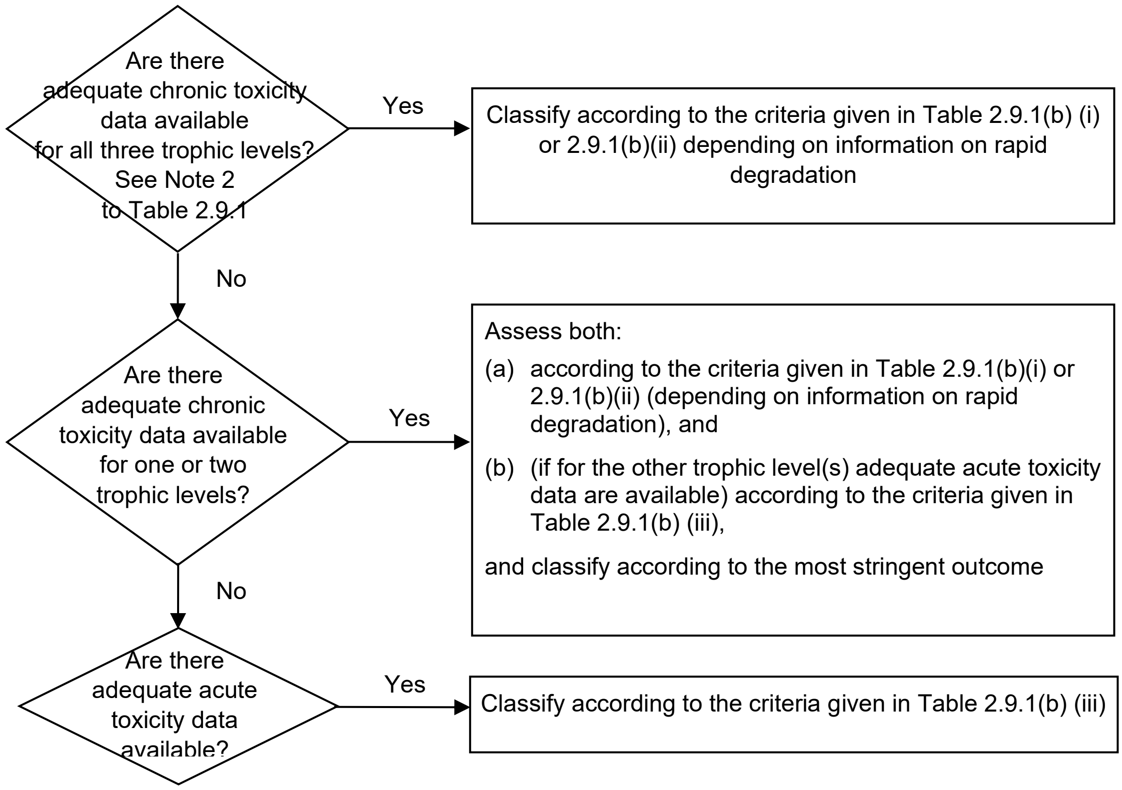
NOTE 2: *When classifying substances as Acute 1 and/or Chronic 1 it is necessary at the same time to indicate an appropriate M factor (see 2.9.3.4.6.4) to apply the summation method.*

NOTE 3: *Where the algal toxicity ErC_{50} (= EC_{50} (growth rate)) falls more than 100 times below the next most sensitive species and results in a classification based solely on this effect, consideration must be given to whether this toxicity is representative of the toxicity to aquatic plants. Where it can be shown that this is not the case, professional judgment must be used in deciding if classification must be applied. Classification must be based on the ErC_{50}. In circumstances where the basis of the EC_{50} is not specified and no ErC_{50} is recorded, classification must be based on the lowest EC_{50} available.*

NOTE 4: *Lack of rapid degradability is based on either a lack of ready biodegradability or other evidence of lack of rapid degradation. When no useful data on degradability are available, either experimentally determined or estimated data, the substance must be regarded as not rapidly degradable.*

NOTE 5: *Potential to bioaccumulate, based on an experimentally derived BCF ≥ 500 or, if absent, a log Kow ≥ 4 provided log Kow is an appropriate descriptor for the bioaccumulation potential of the substance. Measured log Kow values take precedence over estimated values and measured BCF values take precedence over log Kow values.*

Figure 2.9.1: Categories for substances long-term hazardous to the aquatic environment



2.9.3.3.2 The classification scheme in Table 2.9.2 below summarises the classification criteria for substances

Table 2.9.2: Classification scheme for substances hazardous to the aquatic environment

Classification categories			
Acute hazard (see Note 1)	**Long-term hazard (see Note 2)**		
	Adequate chronic toxicity data available		**Adequate chronic toxicity data not available (see Note 1)**
	Non-rapidly degradable substances (see Note 3)	**Rapidly degradable substances** (see Note 3)	
Category: Acute 1	**Category: Chronic 1**	**Category: Chronic 1**	**Category: Chronic 1**
$L(E)C_{50} \leq 1.00$	NOEC or $EC_x \leq 0.1$	NOEC or $EC_x \leq 0.01$	$L(E)C_{50} \leq 1.00$ and lack of rapid degradability and/or BCF ≥ 500 or, if absent log $K_{ow} \geq 4$
	Category: Chronic 2	**Category: Chronic 2**	**Category: Chronic 2**
	$0.1 <$ NOEC or $EC_x \leq 1$	$0.01 <$ NOEC or $EC_x \leq 0.1$	$1.00 < L(E)C_{50} \leq 10.0$ and lack of rapid degradability and/or BCF ≥ 500 or, if absent log $K_{ow} \geq 4$

Table notes:

NOTE 1: *Acute toxicity band based on L(E)C_{50} values in mg/l for fish, crustacea and/or algae or other aquatic plants (or Quantitative Structure Activity Relationships (QSAR) estimation if no experimental data [1]).*

NOTE 2: *Substances are classified in the various chronic categories unless there are adequate chronic toxicity data available for all three trophic levels above the water solubility or above 1 mg/l. ("Adequate" means that the data sufficiently cover the endpoint of concern. Generally this would mean measured test data, but in order to avoid unnecessary testing it can on a case by case basis also be estimated data, e.g. (Q)SAR, or for obvious cases expert judgment).*

NOTE 3: *Chronic toxicity band based on NOEC or equivalent ECx values in mg/l for fish or crustacea or other recognised measures for chronic toxicity.*

2.9.3.4 Mixtures classification categories and criteria

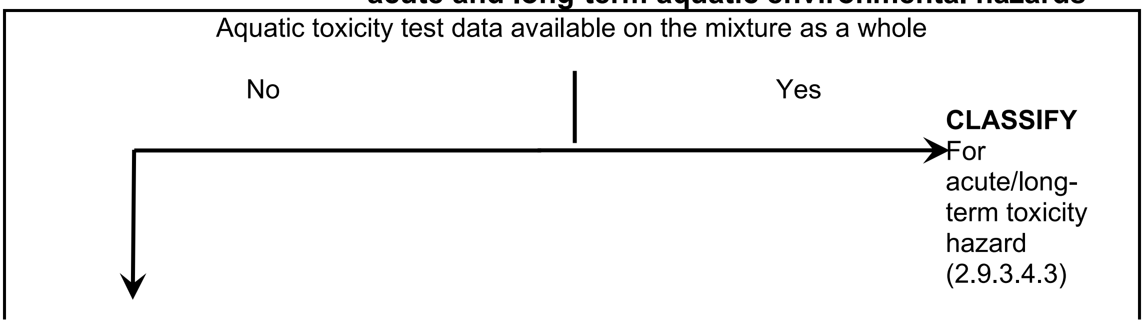
2.9.3.4.1 The classification system for mixtures covers the classification categories which are used for substances, meaning categories Acute 1 and Chronic 1 and 2. In order to make use of all available data for purposes of classifying the aquatic environmental hazards of the mixture, the following assumption is made and is applied where appropriate:

The "relevant ingredients" of a mixture are those which are present in a concentration of 1% (w/w) or greater, unless there is a presumption (e.g. in the case of highly toxic ingredients) that an ingredient present at less than 1% can still be relevant for classifying the mixture for aquatic environmental hazards.

2.9.3.4.2 The approach for classification of aquatic environmental hazards is tiered, and is dependent upon the type of information available for the mixture itself and for its ingredients. Elements of the tiered approach include:

(a) classification based on tested mixtures;
(b) classification based on bridging principles;
(c) the use of "summation of classified ingredients" and /or an "additivity formula".

Figure 2.9.2: Tiered approach to classification of mixtures for acute and long-term aquatic environmental hazards



[1] *Special guidance is provided in Chapter 4.1, paragraph 4.1.2.13 and Annex 9, Section A9.6 of the GHS.*

Sufficient data available on similar mixtures to estimate hazards	Yes →	Apply bridging principles (2.9.3.4.4)	→	**CLASSIFY** For acute/ long-term toxicity hazard
↓ No		Apply Summation Method (2.9.3.4.6.1 to 2.9.3.4.6.4) using:		
Either aquatic toxicity or classification data available for all relevant ingredients	Yes →	(a) Percentage of all ingredients classified as "Chronic" (b) Percentage of components classified as "Acute" (c) Percentage of ingredients with acute toxicity data: apply additivity formulas (2.9.3.4.5.2) and convert the derived $L(E)C_{50}$ or $EqNOEC_m$ to the appropriate "Acute" or "Chronic" Category	→	**CLASSIFY** For acute/ long-term toxicity hazard
↓ No				
Use available hazard data of known ingredients	→	Apply Summation Method and additivity formula (2.9.3.4.6.1 to 2.9.3.4.6.4) and apply 2.9.3.4.6.5	→	**CLASSIFY** For acute / long-term toxicity hazard

2.9.3.4.3 Classification of mixtures when toxicity data are available for the complete mixture

2.9.3.4.3.1 When the mixture as a whole has been tested to determine its aquatic toxicity, this information must be used for classifying the mixture according to the criteria that have been agreed for substances. The classification is normally based on the data for fish, crustacea and algae/plants (see 2.9.3.2.3 and 2.9.3.2.4). When adequate acute or chronic data for the mixture as a whole are lacking, "bridging principles" or "summation method" must be applied (see 2.9.3.4.4 and 2.9.3.4.5).

2.9.3.4.3.2 The long-term hazard classification of mixtures requires additional information on degradability and in certain cases bioaccumulation. There are no degradability and bioaccumulation data for mixtures as a whole. Degradability and bioaccumulation tests for mixtures are not used as they are usually difficult to interpret, and such tests may be meaningful only for single substances.

2.9.3.4.3.3 Classification for category Acute 1

(a) When there are adequate acute toxicity test data (LC_{50} or EC_{50}) available for the mixture as a whole showing $L(E)C_{50} \leq 1$ mg/l:
- classify the mixture as Acute 1 in accordance with Table 2.9.1 (a);

(b) When there are acute toxicity test data LC_{50}(s) or EC_{50}(s) available for the mixture as a whole showing $L(E)C_{50}$(s) $>$ 1 mg/l, or above the water solubility:
- no need to classify for acute hazard under this Code.

2.9.3.4.3.4 Classification for categories Chronic 1 and 2

(a) When there are adequate chronic toxicity data (ECx or NOEC) available for the mixture as a whole showing ECx or NOEC of the tested mixture ≤ 1mg/l:

(i) classify the mixture as Chronic 1 or 2 in accordance with Table 2.9.1 (b) (ii) (rapidly degradable) if the available information allows the conclusion that all relevant ingredients of the mixture are rapidly degradable;

(ii) classify the mixture as Chronic 1 or 2 in all other cases in accordance with Table 2.9.1 (b) (i) (non-rapidly degradable);

(b) When there are adequate chronic toxicity data (ECx or NOEC) available for the mixture as a whole showing ECx(s) or NOEC(s) of the tested mixture > 1mg/l or above the water solubility:

– no need to classify for long-term hazard under this Code.

2.9.3.4.4 Classification of mixtures when toxicity data are not available for the complete mixture: bridging principles

2.9.3.4.4.1 Where the mixture itself has not been tested to determine its aquatic environmental hazard, but there are sufficient data on the individual ingredients and similar tested mixtures to adequately characterise the hazards of the mixture, this data must be used in accordance with the following agreed bridging rules. This ensures that the classification process uses the available data to the greatest extent possible in characterising the hazards of the mixture without the necessity for additional testing in animals.

2.9.3.4.4.2 Dilution

2.9.3.4.4.2.1 Where a new mixture is formed by diluting a tested mixture or a substance with a diluent which has an equivalent or lower aquatic hazard classification than the least toxic original ingredient and which is not expected to affect the aquatic hazards of other ingredients, then the resulting mixture must be classified as equivalent to the original tested mixture or substance. Alternatively, the method explained in 2.9.3.4.5 may be applied.

2.9.3.4.4.2.2 If a mixture is formed by diluting another classified mixture or a substance with water or other totally non-toxic material, the toxicity of the mixture must be calculated from the original mixture or substance.

2.9.3.4.4.3 Batching

2.9.3.4.4.3.1 The aquatic hazard classification of a tested production batch of a mixture must be assumed to be substantially equivalent to that of another untested production batch of the same commercial product when produced by or under the control of the same manufacturer, unless there is reason to believe there is significant variation such that the aquatic hazard classification of the untested batch has changed. If the latter occurs, new classification is necessary.

2.9.3.4.4.4 Concentration of mixtures which are classified with the most severe classification categories (Chronic 1 and Acute 1)

2.9.3.4.4.4.1 If a tested mixture is classified as Chronic 1 and/or Acute 1, and the ingredients of the mixture which are classified as Chronic 1 and/or Acute 1 are further concentrated, the more concentrated untested mixture must be classified with the same classification category as the original tested mixture without additional testing.

2.9.3.4.4.5 Interpolation within one toxicity category

2.9.3.4.4.5.1 For three mixtures (A, B and C) with identical ingredients, where mixtures A and B have been tested and are in the same toxicity category, and where untested mixture C has the same toxicologically active ingredients as mixtures A and B but has concentrations of toxicologically active ingredients intermediate to the concentrations in mixtures A and B, then mixture C is assumed to be in the same category as A and B.

2.9.3.4.4.6 Substantially similar mixtures

2.9.3.4.4.6.1 Given the following:

(a) Two mixtures:
   (i) A + B
   (ii) C + B

(b) The concentration of ingredient B is essentially the same in both mixtures;

(c) The concentration of ingredient A in mixture (i) equals that of ingredient C in mixture (ii);

(d) Data on aquatic hazards for A and C are available and are substantially equivalent, i.e. they are in the same hazard category and are not expected to affect the aquatic toxicity of B.

If mixture (i) or (ii) is already classified based on test data, then the other mixture can be assigned the same hazard category.

2.9.3.4.5 Classification of mixtures when toxicity data are available for all ingredients or only for some ingredients of the mixture.

2.9.3.4.5.1 The classification of a mixture must be based on summation of the classification of its ingredients. The percentage of ingredients classified as “Acute” or “Chronic” will feed straight into the summation method. Details of the summation method are described in 2.9.3.4.6.1 to 2.9.3.4.6.4.1.

2.9.3.4.5.2 Mixtures may be made of a combination of both ingredients that are classified (as Acute 1 and/or Chronic 1, 2) and those for which adequate toxicity test data are available. When adequate toxicity data are available for more than one ingredient in the mixture, the combined toxicity of those ingredients must be calculated using the following additivity formulas (a) or (b), depending on the nature of the toxicity data:

(a) Based on acute aquatic toxicity:

$$\frac{\sum C_i}{L(E)C_{50m}} = \sum_n \frac{C_i}{L(E)C_{50i}}$$

where:

C_i	=	concentration of ingredient i (mass percentage);
$L(E)C_{50i}$	=	LC_{50} or EC_{50} for ingredient i (mg/l);
n	=	number of ingredients, and i is running from 1 to n;

$L(E)C_{50}m$ = $L(E)C_{50}$ of the part of the mixture with test data

The calculated toxicity must be used to assign that portion of the mixture an acute hazard category which is then subsequently used in applying the summation method;

(b) Based on chronic aquatic toxicity:

$$\frac{\sum Ci + \sum Cj}{EqNOEC_m} = \sum_n \frac{Ci}{NOECi} + \sum_n \frac{Cj}{0.1 \times NOECj}$$

where:

C_i	=	concentration of ingredient i (mass percentage) covering the rapidly degradable ingredients;
Cj	=	concentration of ingredient j (mass percentage) covering the non-rapidly degradable ingredients;
$NOEC_i$	=	NOEC (or other recognised measures for chronic toxicity) for ingredient i covering the rapidly degradable ingredients, in mg/l;
$NOEC_j$	=	NOEC (or other recognised measures for chronic toxicity) for ingredient j covering the non-rapidly degradable ingredients, in mg/l;
n	=	number of ingredients, and i and j are running from 1 to n;
$EqNOEC_m$	=	equivalent NOEC of the part of the mixture with test data;

The equivalent toxicity thus reflects the fact that non-rapidly degrading substances are classified one hazard category level more “severe” than rapidly degrading substances.

The calculated equivalent toxicity must be used to assign that portion of the mixture a long-term hazard category, in accordance with the criteria for rapidly degradable substances (Table 2.9.1 (b) (ii)), which is then subsequently used in applying the summation method.

2.9.3.4.5.3 When applying the additivity formula for part of the mixture, it is preferable to calculate the toxicity of this part of the mixture using for each ingredient toxicity values that relate to the same taxonomic group (i.e. fish, crustacea or algae) and then to use the highest toxicity (lowest value) obtained (i.e. use the most sensitive of the three groups). However, when toxicity data for each ingredient are not available in the same taxonomic group, the toxicity value of each ingredient must be selected in the same manner that toxicity values are selected for the classification of substances, i.e. the higher toxicity (from the most sensitive test organism) is used. The calculated acute chronic toxicity must then be used to classify this part of the mixture as Acute 1 and/or Chronic 1 or 2 using the same criteria described for substances.

2.9.3.4.5.4 If a mixture is classified in more than one way, the method yielding the more conservative result must be used.

2.9.3.4.6 Summation method

2.9.3.4.6.1 Classification procedure

2.9.3.4.6.1.1 In general a more severe classification for mixtures overrides a less severe classification, e.g. a classification with Chronic 1 overrides a classification with Chronic 2. As a consequence the classification procedure is already completed if the results of the classification is Chronic 1. A more severe classification than Chronic 1 is not possible and it is not necessary therefore to undergo the further classification procedure.

2.9.3.4.6.2 Classification for category Acute 1

2.9.3.4.6.2.1 First, all ingredients classified as Acute 1 are considered. If the sum of the concentrations (in %) of these ingredients is greater than or equal to 25% the whole mixture must be classified as Acute 1. If the result of the calculation is a classification of the mixture as Acute 1, the classification process is completed.

2.9.3.4.6.2.2 The classification of mixtures for acute hazards based on this summation of the concentrations of classified ingredients is summarised in Table 2.9.3 below.

Table 2.9.3: Classification of a mixture for acute hazards, based on summation of the concentrations of classified ingredients

Sum of the concentrations (in %) of ingredients classified as:	**Mixture is classified as:**
Acute 1 $\times$ M $\geq$ 25% [a]	Acute 1
Table note: **a** For explanation of the M factor, see 2.9.3.4.6.4.	

2.9.3.4.6.3 Classification for categories Chronic 1 and 2

2.9.3.4.6.3.1 First, all ingredients classified as Chronic 1 are considered. If the sum of the concentration (in %) of these ingredients is greater than or equal to 25% the mixture must be classified as Chronic 1. If the result of the calculation is a classification of the mixture as Chronic 1 the classification procedure is completed.

2.9.3.4.6.3.2 In cases where the mixture is not classified as Chronic 1, classification of the mixture as Chronic 2 is considered. A mixture must be classified as Chronic 2 if 10 times the sum of the concentrations (in %) of all ingredients classified as Chronic 1 plus the sum of the concentrations (in %) of all ingredients classified as Chronic 2 is greater than 25%. If the result of the calculation is classification of the mixture as Chronic 2, the classification process is completed.

2.9.3.4.6.3.3 The classification of mixtures for long-term hazards based on this summation of the concentrations of classified ingredients is summarised in Table 2.9.4 below.

Table 2.9.4: Classification of a mixture for long-term hazards based on summation of the concentrations of classified ingredients

Sum of the concentrations (in %) of ingredients classified as:		**Mixture is classified as:**
Chronic 1 × M[a]	≥25%	Chronic 1
(M × 10 × Chronic 1)+Chronic 2	≥25%	Chronic 2
Table note: **a** For explanation of the M factor, see 2.9.3.4.6.4.		

2.9.3.4.6.4 Mixtures with highly toxic ingredients

2.9.3.4.6.4.1 Acute 1 or Chronic 1 ingredients with acute toxicities well below 1 mg/L and/or chronic toxicities well below 0.1 mg/L (if non-rapidly degradable) and 0.01 mg/L (if rapidly degradable) may influence the toxicity of the mixture and are given increased weight in applying the summation of classification approach. When a mixture contains ingredients classified as Acute 1 or Chronic 1, the tiered approach described in 2.9.3.4.6.2 and 2.9.3.4.6.3 must be applied using a weighted sum by multiplying the concentrations of Acute 1 and Chronic 1 ingredients by a factor, instead of merely adding up the percentages.

This means that the concentration of “Acute 1” in the left column of Table 2.9.3 and the concentration of “Chronic 1” in the left column of Table 2.9.4 are multiplied by the appropriate multiplying factor. The multiplying factors to be applied to these ingredients are defined using the toxicity value, as summarised in Table 2.9.5 below. Therefore, in order to classify a mixture containing Acute 1 and/or Chronic 1 ingredients, the classifier needs to be informed of the value of the M factor in order to apply the summation method.

Alternatively, the additivity formula (2.9.3.4.5.2) may be used when toxicity data are available for all highly toxic ingredients in the mixture and there is convincing evidence that all other ingredients, including those for which specific acute and/or chronic toxicity data are not available, are of low or no toxicity and do not significantly contribute to the environmental hazard of the mixture.

Table 2.9.5: Multiplying factors for highly toxic ingredients of mixtures

Acute toxicity	M factor	Chronic toxicity	M factor	
$L(E)C_{50}$ value		**NOEC value**	**NRD [a] ingredients**	**RD [b] ingredients**
$0.1 < L(E)C_{50} \leq 1$	1	$0.01 < NOEC \leq 0.1$	1	-
$0.01 < L(E)C_{50} \leq 0.1$	10	$0.001 < NOEC \leq 0.01$	10	1
$0.001 < L(E)C_{50} \leq 0.01$	100	$0.0001 < NOEC \leq 0.001$	100	10
$0.0001 < L(E)C_{50} \leq 0.001$	1 000	$0.00001 < NOEC \leq 0.0001$	1 000	100
$0.00001 < L(E)C_{50} \leq 0.0001$	10 000	$0.000001 < NOEC \leq 0.00001$	10 000	1 000
(continue in factor 10 intervals)		(continue in factor 10 intervals)		

[a] *Non-rapidly degradable.*

[b] *Rapidly degradable.*

2.9.3.4.6.5 Classification of mixtures with ingredients without any useable information

2.9.3.4.6.5.1 In the event that no useable information on acute and/or chronic aquatic toxicity is available for one or more relevant ingredients, it is concluded that the mixture cannot be attributed (a) definitive hazard category(ies). In this situation the mixture must be classified based on the known ingredients only.

2.9.4 LITHIUM BATTERIES

Cells and batteries, cells and batteries contained in equipment, or cells and batteries packed with equipment, containing lithium in any form must be assigned to UN Nos. 3090, 3091, 3480 or 3481 as appropriate. They may be transported under these entries if they meet the following provisions:

(a) Each cell or battery is of the type proved to meet the requirements of each test of the Manual of Tests and Criteria, Part III, sub-section 38.3; Cells and batteries manufactured according to a type meeting the requirements of sub-section 38.3 of the Manual of Tests and Criteria, Revision 3, Amendment 1 or any subsequent revision and amendment applicable at the date of the type testing may continue to be transported, unless otherwise provided in this Code. Cell and battery types only meeting the requirements of the Manual of Tests and Criteria, Revision 3, are no longer valid. However, cells and batteries manufactured in conformity with such types before 1 July 2003 may continue to be transported if all other applicable requirements are fulfilled.

NOTE: *Batteries are to be of a type proved to meet the testing requirements of the Manual of Tests and Criteria, part III, sub-section 38.3, irrespective of whether the cells of which they are composed are of a tested type.*

(b) Each cell and battery incorporates a safety venting device or is designed to preclude a violent rupture under conditions normally incident to transport;

(c) Each cell and battery is equipped with an effective means of preventing external short circuits;

(d) Each battery containing cells or series of cells connected in parallel is equipped with effective means as necessary to prevent dangerous reverse current flow (e.g., diodes, fuses, etc.);

(e) Cells and batteries must be manufactured under a quality management programme that includes:

(i) A description of the organisational structure and responsibilities of personnel with regard to design and product quality;

(ii) The relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;

(iii) Process controls that should include relevant activities to prevent and detect internal short circuit failure during manufacture of cells;

(iv) Quality records, such as inspection reports, test data, calibration data and certificates. Test data must be kept and made available to the competent authority upon request;

(v) Management reviews to ensure the effective operation of the quality management programme;

(vi) A process for control of documents and their revision;

(vii) A means for control of cells or batteries that are not conforming to the type tested as mentioned in (a) above;

(viii) Training programmes and qualification procedures for relevant personnel; and

(ix) Procedures to ensure that there is no damage to the final product.

NOTE: *In house quality management programmes may be accepted. Third party certification is not required, but the procedures listed in (i) to (ix) above must be properly recorded and traceable. A copy of the quality management programme must be made available to the competent authority upon request.*

(f) Lithium batteries, containing both primary lithium metal cells and rechargeable lithium ion cells, that are not designed to be externally charged (see special provision 387 of Chapter 3.3) shall meet the following conditions:

(i) The rechargeable lithium ion cells can only be charged from the primary lithium metal cells;

(ii) Overcharge of the rechargeable lithium ion cells is precluded by design;

(iii) The battery has been tested as a lithium primary battery;

(iv) Component cells of the battery shall be of a type proved to meet the respective testing requirements of the Manual of Tests and Criteria, part III, sub-section 38.3.

(g) Manufacturers and subsequent distributors of cells or batteries manufactured after 30 June 2003 shall make available the test summary as specified in the Manual of Tests and Criteria, Part III, sub-section 38.3, paragraph 38.3.5.

PART 3: DANGEROUS GOODS LISTS, SPECIAL PROVISIONS AND EXCEPTIONS

CHAPTER 3.1 - GENERAL

3.1.1 SCOPE AND GENERAL PROVISIONS

3.1.1.1 The Dangerous Goods List in Chapter 3.2 lists the dangerous goods most commonly carried but is not exhaustive[1]. It is intended that the list cover, as far as practicable, all dangerous substances of commercial importance.

3.1.1.2 Where a substance or article is specifically listed by name in the Dangerous Goods List, it must be transported in accordance with the provisions in the List which are appropriate for that substance or article. A "generic" or "not otherwise specified" entry may be used to permit the transport of substances or articles which do not appear specifically by name in the Dangerous Goods List. Such a substance or article may be transported only after its dangerous properties have been determined. The substance or article must then be classified according to the Class definitions and test criteria and the name in the Dangerous Goods List which most appropriately describes the substance or article must be used. The classification may be made by the appropriate competent authority when so required or may otherwise be made by the consignor. Once the Class of the substance or article has been so established, all conditions for dispatch and transport, as provided in this Code must be met. Any substance or article having or suspected of having explosive characteristics must first be considered for inclusion in Class 1. Some collective entries may be of the "generic" or "not otherwise specified" type provided that this Code contains provisions ensuring safety, both by excluding extremely dangerous goods from normal transport and by covering all subsidiary hazards inherent in some goods.

3.1.1.3 The Dangerous Goods List does not include goods which are so dangerous that their transport, except with special authorisation, is prohibited. Appendix A lists some goods the transport of which by road and rail in Australia is prohibited without a specific exemption or determination from the Competent Authority. It must be recognised that the list in Appendix A is not exhaustive, as it would be impossible to draw up an exhaustive list. Moreover, the list in Appendix A will, over time, become less exhaustive because of the frequent introduction of new substances. Therefore the absence of a substance from Appendix A must not be interpreted that that substance may be carried without special restrictions. Inherent instability in goods may take different dangerous forms, for example, explosion, polymerisation, with intense evolution of heat, or emission of toxic gases. In respect of most substances, such tendencies can be controlled by correct packing, dilution, stabilisation, addition of an inhibitor, refrigeration or other precautions.

3.1.1.4 Where precautionary measures are laid down in the Dangerous Goods List in respect of a given substance or article (e.g. that it must be "stabilised" or "with x% water or phlegmatiser") such substance or article may not normally be carried when these measures have not been taken,

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[1] The Dangerous Goods List is non-exhaustive to the extent that not all substances that meet the criteria of Part 2 for classification as dangerous goods are individually listed by chemical name. However, all such substances that are not listed individually are included in the list under "generic" or "not otherwise specified" names covering the full spectrum of hazardous properties for which criteria have been specified. (For further details, see Sections 2.0.2, 3.1.2 and 3.1.3).

unless the item in question is listed elsewhere (e.g. Class 1) without any indication of, or with different, precautionary measures.

3.1.2 PROPER SHIPPING NAME

NOTE 1: *For proper shipping names to be used for dangerous goods transported as limited quantities, see 3.4.8.*

***NOTE 2**:* *For proper shipping names used for the transport of samples, see 2.0.4.*

***NOTE 3**:* *For proper shipping names of dangerous goods of Class 1, 6.2 or 7, reference must also be made to the legislation applying in the State or Territory in which the goods are transported.*

3.1.2.1 The proper shipping name is that portion of the entry most accurately describing the goods in the Dangerous Goods List in 3.2.3, or the Australian Specific Entries in 3.2.5, which is shown in upper case characters (plus any numbers, Greek letters, “sec”, “tert”, and the letters m, n, o, p, which form an integral part of the name). An alternative proper shipping name may be shown in brackets following the main proper shipping name [e.g., ETHANOL (ETHYL ALCOHOL)]. Portions of an entry appearing in lower case need not be considered as part of the proper shipping name but may be used.

3.1.2.2 When a combination of several distinct proper shipping names are listed under a single UN number, and these are separated by “and” or ”or” in lower case or are punctuated by commas, only the most appropriate shall be shown in the transport document and package marks.Examples illustrating the selection of the proper shipping name for such entries are:

(a) UN 1057 LIGHTERS or LIGHTER REFILLS

–The proper shipping name is the most appropriate of the following possible combinations:

LIGHTERS; or

LIGHTER REFILLS;

(b) UN 1481 PHOSPHORUS, WHITE or YELLOW, DRY or UNDER WATER or IN SOLUTION

–The proper shipping name is the most appropriate of the following possible combinations:

PHOSPHORUS, WHITE, DRY; or

PHOSPHORUS, WHITE, UNDER WATER; or

PHOSPHORUS, WHITE, IN SOLUTION; or

PHOSPHORUS, YELLOW, DRY; or

PHOSPHORUS, YELLOW, UNDER WATER; or

PHOSPHORUS, YELLOW, IN SOLUTION;

(c) UN 2478 ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.

–The proper shipping name is the most appropriate of the following possible combinations:

ISOCYANATES, FLAMMABLE, TOXIC, N.O.S; or

ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S,

each supplemented with the technical name of the goods (see 3.1.2.8).

3.1.2.3 Proper shipping names may be used in the singular or plural as appropriate. In addition, when qualifying words are used as part of the proper shipping name, their sequence on documentation or package marks is optional.

For instance, "DIMETHYLAMINE AQUEOUS SOLUTION" may alternatively be shown "AQUEOUS SOLUTION OF DIMETHYLAMINE". Commercial or military names for goods of Class 1 which contain the proper shipping name supplemented by additional descriptive text may be used.

3.1.2.4 Many substances have an entry for both the liquid and solid state (see definitions for liquid and solid in 1.2.1), or for the solid and solution. These are allocated separate UN numbers which are not necessarily adjacent to each other. Details are provided in the alphabetical index, e.g.:

NITROXYLENES, LIQUID	6.1	1665
NITROXYLENES, SOLID	6.1	3447

3.1.2.5 Unless it is already included in capital letters in the name indicated in the Dangerous Goods List, the qualifying word "MOLTEN" must be added as part of the proper shipping name when a substance, which is a solid in accordance with the definition in 1.2.1, is offered for transport in the molten state (e.g. ALKYLPHENOL, SOLID, N.O.S., MOLTEN).

3.1.2.6 Except for self-reactive substances and organic peroxides and unless it is already included in capital letters in the name indicated in the Dangerous Goods List, the word STABILISED must be added as part of the proper shipping name of a substance which, without stabilisation, would be forbidden from transport in accordance with 1.1.2 due to it being liable to dangerously react under conditions normally encountered in transport (e.g.: "TOXIC LIQUID, ORGANIC, N.O.S., STABILISED").

When temperature control is used to stabilise such substances to prevent the development of any dangerous excess pressure, or the evolution of excessive heat, or when chemical stabilization is used in combination with temperature control then:

(a) for liquids and solids: where the SAPT (measured without or with inhibitor, when chemical stabilization is applied) is less than or equal to that prescribed in 2.4.2.5.2, special provision 386 of Chapter 3.3 and the provisions of 7.1.6 apply

(b) Unless it is already included in capital letters in the name indicated in the Dangerous Goods List, the words "TEMPERATURE CONTROLLED" shall be added as part of the proper shipping name.

(c) for gases: transport is not permitted except in accordance with a competent authority exemption.

3.1.2.7 Hydrates may be transported under the proper shipping name for the anhydrous substance.

3.1.2.8 Generic or "not otherwise specified" (N.O.S.) names

3.1.2.8.1 Generic and "not otherwise specified" proper shipping names that are assigned to special provision 274 or 318 in Column 6 of the Dangerous Goods List must be supplemented with the technical or chemical group names unless a national law or international convention prohibits its disclosure if it is a controlled substance. For explosives of Class 1, the dangerous goods description may be supplemented by additional descriptive text to indicate commercial or military names. Technical and chemical group names must be entered in brackets immediately following the proper shipping name. An appropriate modifier, such as “contains” or “containing” or other qualifying words such as “mixture”, “solution”, etc. and the percentage of the technical constituent may also be used. For example: “UN 1993 FLAMMABLE LIQUID, N.O.S. (contains xylene and benzene), 3, PG II”.

3.1.2.8.1.1 The technical name must be a recognised chemical or biological name, or other name currently used in scientific and technical handbooks, journals and texts. Trade names must not be used for this purpose. In the case of pesticides, only ISO common name(s), other name(s) in the World Health Organisation (WHO) Recommended Classification of Pesticides by Hazard and Guidelines to Classification, or the name(s) of the active substance(s) may be used.

3.1.2.8.1.2 When a mixture of dangerous goods or articles containing dangerous goods are described by one of the “N.O.S.” or “generic” entries to which special provision 274 has been allocated in the Dangerous Goods List, not more than the two constituents which most predominantly contribute to the hazard or hazards of the mixture or of the articles need to be shown, excluding controlled substances when their disclosure is prohibited by national law or international convention. If a package containing a mixture is labelled with any subsidiary hazard label, one of the two technical names shown in brackets must be the name of the constituent which compels the use of the subsidiary hazard label.

3.1.2.8.1.3 Examples illustrating the selection of the proper shipping name supplemented with the technical name of goods for such N.O.S. entries are:

UN 2902	PESTICIDE, LIQUID, TOXIC, N.O.S. (drazoxolon).
UN 3394	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE (trimethylgallium)
UN 3540	ARTICLES CONTAINING FLAMMABLE LIQUIDS N.O.S. (pyrrolidine)

3.1.2.9 Spelling of Sulfur (Sulphur)

In this Code, in line with the usage in UN20, Sulfur compounds are spelt with “ph” in lieu of “f” used in earlier editions. Either spelling is acceptable in the proper shipping name on transport documentation, package marking and placards required by this Code.

3.1.3 MIXTURES OR SOLUTIONS

NOTE: *Where a substance is specifically listed by name in the Dangerous Goods List, it must be identified in transport by the proper shipping name in the Dangerous Goods List. Such substances may contain technical impurities (for example those deriving from the production process) or additives for stability or other purposes that do not affect its classification. However, a substance listed by name containing technical impurities or additives for stability or other purposes affecting its classification must be considered a mixture or solution (see 2.0.2.2 and 2.0.2.5).*

3.1.3.1 A mixture or solution is not subject to this Code if the characteristics, properties, form or physical state of the mixture or solution are such that it does not meet the criteria, including human experience criteria, for inclusion in any class.

3.1.3.2 A mixture or solution meeting the classification criteria of this Code composed of a single predominant substance identified by name in the Dangerous Goods List and one or more substances not subject to this Code and/or traces of one or more substances identified by name in the Dangerous Goods List, must be assigned the UN number and proper shipping name of the predominant substance named in the Dangerous Goods List unless:

(a) The mixture or solution is identified by name in the Dangerous Goods List;

(b) The name and description of the substance named in the Dangerous Goods List specifically indicate that they apply only to the pure substance;

(c) The hazard class or division, subsidiary hazard(s), packing group, or physical state of the mixture or solution is different from that of the substance named in the Dangerous Goods List; or

(d) The hazard characteristics and properties of the mixture or solution necessitate emergency response measures that are different from those required for the substance identified by name in the Dangerous Goods List.

3.1.3.2.1 Qualifying words such as "MIXTURE" or "SOLUTION", as appropriate, must be added as part of the proper shipping name, for example, "ACETONE SOLUTION". In addition, the concentration of the mixture or solution may also be indicated after the basic description of the mixture or solution, for example, "ACETONE 75% SOLUTION".

3.1.3.3 A mixture or solution meeting the classification criteria of this Code that is not identified by name in the Dangerous Goods List and that is composed of two or more dangerous goods must be assigned to an entry that has the proper shipping name, description, hazard class or division, subsidiary hazard(s) and packing group that most precisely describe the mixture or solution.

CHAPTER 3.2 - DANGEROUS GOODS LIST

3.2.0 INTRODUCTION

NOTE 1: *Unlike earlier editions of this Code, the principal listing of dangerous goods in Section 3.2.3 is in UN Number rather than alphabetical sequence.*

NOTE 2: *The List includes dangerous goods of Class 1 (Explosive substances or articles) and Class 7 (Radioactive material), even though this Code does not contain substantive provisions in relation to either of those Classes, other than in an incidental way. These items have been included in the List for information purposes only.*

NOTE 3: *The List also includes goods that are only dangerous goods when transported by sea or air.*

3.2.0.1 The Dangerous Goods List

Section 3.2.3 embodies the definitive Dangerous Goods List from UN20. This list includes all classification details and provides references to special provisions, packing and tank requirements as explained in 3.2.1.

3.2.0.2 Other Listings of Dangerous Goods

This Chapter also incorporates the following additional lists of dangerous goods:

(a) Section 3.2.4 which is an alphabetical listing incorporating the Alphabetical Index of Substances and Articles from UN20. This Index lists the Class or Division and the UN Number for each proper shipping name that is included in the Dangerous Goods List. Some commonly used synonyms are also included in lower case, providing a reference to the proper shipping name that must be used;

(b) Section 3.2.5 which lists some alternative proper shipping names that are valid for land transport within Australia only; and

(c) Section 3.2.6, which reproduces the List of Generic and N.O.S. Proper Shipping Names from Appendix A of UN14/15 as updated by later editions up to UN 19.

3.2.1 STRUCTURE OF THE DANGEROUS GOODS LIST

The Dangerous Goods List in 3.2.3 is divided into 11 columns as follows:

Column 1 "**UN No.**" - this column contains the serial number assigned to the article or substance under the United Nations system.

Column 2 "**Name and Description**" - this column contains the proper shipping names in uppercase characters, which may be followed by additional descriptive text presented in lowercase characters (see 3.1.2). In relation to Explosives, an explanation of some of the terms used appears in the Australian Explosives Code. Proper shipping names may be shown in the plural where isomers of similar classification exist. Hydrates may be included under the proper shipping name for the anhydrous substance, as appropriate.

Unless otherwise indicated for an entry in the Dangerous Goods List, the word "solution" in a proper shipping name means one or more named dangerous goods dissolved in a liquid that is not otherwise subject to this Code.

Column 3 "**Class or Division**" - this column contains the Class or Division and in the case of Class 1, the compatibility group assigned to the article or substance according to the classification system described in Chapter 2.1.

Column 4 "**Subsidiary Hazard**" - this column contains the Class or Division number of any important subsidiary hazards which have been identified by applying the classification system described in Part 2.

Column 5 "**Packing Group**" - this column contains the UN packing group number (i.e. I, II or III) assigned to the article or substance. If more than one packing group is indicated for the entry, the packing group of the substance or formulation to be transported must be determined, based on its properties, through application of the hazard grouping criteria as provided in Part 2.

Column 6 "**Special Provisions**" - this column contains a number referring to any special provision(s) indicated in 3.3.1 that is relevant to the article or substance. Special provisions apply to all the packing groups permitted for a particular substance or article unless the wording makes it otherwise apparent.

Column 7a "**Limited Quantities**" - this column provides the maximum quantity per inner packaging or article for transporting dangerous goods as limited quantities in accordance with Chapter 3.4.

Column 7b **"Excepted Quantities**" - this column provides an alphanumeric code described in sub-section 3.5.1.2 which indicates the maximum quantity per inner and outer packaging for transporting dangerous goods as excepted quantities in accordance with Chapter 3.5.

Column 8 "**Packing Instruction**" - This column contains alpha numeric codes which refer to the relevant packing instructions specified in section 4.1.4. The packing instructions indicate the packaging (including IBCs and large packaging's), which may be used for the transport of substances and articles.

A code including the letter "P" refers to packing instructions for the use of packaging's described in Chapters 6.1, 6.2 or 6.3.

A code including the letters "IBC" refers to packing instructions for the use of IBCs described in Chapter 6.5.

A code including the letters "LP" refers to packing instructions for the use of large packaging's described in Chapter 6.6.

When a particular code is not provided, it means the substance is not authorised in the type of packaging that may be used according to the packing instructions bearing that code.

When N/A is included in the column it means that the substance or article need not be packaged.

The packing instructions are listed in numerical order in section 4.1.4 as follows:

Sub-section 4.1.4.1: Packing instructions concerning the use of packaging's (except IBCs and large packaging's) (Pxxx);

Sub-section 4.1.4.2: Packing instructions concerning the use of IBCs (IBCxxx);

Sub-section 4.1.4.3: Packing instructions concerning the use of large packaging's (LPxxx).

Column 9 "**Special Packing Provisions**" - this column contains alpha numeric codes which refer to the relevant special packing provisions specified in section 4.1.4. The special packing provisions indicate the special provisions for packaging (including IBCs and large packagings).

A special packing provision including the letters "PP" refers to special packing provision applicable to the use of packing instructions bearing the code "P" in 4.1.4.1.

A special packing provision including the letter "B" refers to special packing provision applicable to the use of packing instructions bearing the code "IBC" in 4.1.4.2.

A special provision including the letter "L" refers to special packing provision applicable to packing instructions bearing the code "LP" in 4.1.4.3.

Column 10 "**Portable Tank and Bulk Containers / Instructions**" - this column contains a number preceded by the letter "T" which refers to the relevant instruction in 4.2.5 specifying the tank type(s) required for the transport of the substance in portable tanks. A "T" entry in Column 10 is also an indication that the substance may be transported in a suitable tank vehicle in accordance with Section 4.4.2.

A code including the letters "BK" refers to types of bulk containers used for the transport of bulk goods described in Chapter 6.8.

The gases authorised for transport in MEGCs are indicated in the column "MEGC" in Tables 1 and 2 of packing instruction P200 in 4.1.4.1.

Column 11 "**Portable Tank and Bulk Containers / Special Provisions**" - this column contains a number preceded by the letters "TP" referring to any special provisions indicated in 4.2.5.3 that apply to the transport of the substance in portable tanks.

3.2.2 ABBREVIATIONS AND SYMBOLS

The following abbreviations or symbols are used in the Dangerous Goods List and have the meanings shown:

Abbreviation	Column	Meaning
N.O.S.	2	Not otherwise specified.
†	2	Entry for which there is an explanation in Appendix B of UN20 or Appendix 5 of the Australian Explosives Code.

3.2.3 DANGEROUS GOODS LIST

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0004	AMMONIUM PICRATE dry or wetted with less than 10% water, by mass †	1.1D				0	E0	P112 (a), (b) or (c)	PP26		
0005	CARTRIDGES FOR WEAPONS with bursting charge †	1.1F				0	E0	P130 LP101			
0006	CARTRIDGES FOR WEAPONS with bursting charge †	1.1E				0	E0	P130 LP101	PP67 L1		
0007	CARTRIDGES FOR WEAPONS with bursting charge †	1.2F				0	E0	P130 LP101			
0009	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge †	1.2G				0	E0	P130 LP101	PP67 L1		
0010	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge †	1.3G				0	E0	P130 LP101	PP67 L1		
0012	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS †	1.4S			364	5 kg	E0	P130 LP101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0014	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK or CARTRIDGES FOR TOOLS, BLANK †	1.4S			364	5 kg	E0	P130 LP101			
0015	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge †	1.2G			204	0	E0	P130 LP101	PP67 L1		
0016	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge †	1.3G			204	0	E0	P130 LP101	PP67 L1		
0018	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge †	1.2G	6.1 8			0	E0	P130 LP101	PP67 L1		
0019	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge †	1.3G	6.1 8			0	E0	P130 LP101	PP67 L1		
0020	AMMUNITION, TOXIC with burster, expelling charge or propelling charge †	1.2K	6.1		274	0	E0	P101			
0021	AMMUNITION, TOXIC with burster, expelling charge or propelling charge †	1.3K	6.1		274	0	E0	P101			
0027	BLACK POWDER (GUNPOWDER), granular or as a meal †	1.1D				0	E0	P113	PP50		
0028	BLACK POWDER (GUNPOWDER), COMPRESSED or BLACK POWDER (GUNPOWDER), IN PELLETS †	1.1D				0	E0	P113	PP51		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0029	DETONATORS, NON-ELECTRIC for blasting †	1.1B				0	E0	P131	PP68		
0030	DETONATORS, ELECTRIC for blasting †	1.1B				0	E0	P131			
0033	BOMBS with bursting charge †	1.1F				0	E0	P130 LP101			
0034	BOMBS with bursting charge †	1.1D				0	E0	P130 LP101	PP67 L1		
0035	BOMBS with bursting charge †	1.2D				0	E0	P130 LP101	PP67 L1		
0037	BOMBS, PHOTO-FLASH †	1.1F				0	E0	P130 LP101			
0038	BOMBS, PHOTO-FLASH †	1.1D				0	E0	P130 LP101	PP67 L1		
0039	BOMBS, PHOTO-FLASH †	1.2G				0	E0	P130 LP101	PP67 L1		
0042	BOOSTERS without detonator †	1.1D				0	E0	P132 (a) or (b)			
0043	BURSTERS, explosive †	1.1D				0	E0	P133	PP69		
0044	PRIMERS, CAP TYPE †	1.4S				0	E0	P133			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0048	CHARGES, DEMOLITION †	1.1D				0	E0	P130 LP101	PP67 L1		
0049	CARTRIDGES, FLASH †	1.1G				0	E0	P135			
0050	CARTRIDGES, FLASH †	1.3G				0	E0	P135			
0054	CARTRIDGES, SIGNAL †	1.3G				0	E0	P135			
0055	CASES, CARTRIDGE, EMPTY, WITH PRIMER †	1.4S			364	5 kg	E0	P136			
0056	CHARGES, DEPTH †	1.1D				0	E0	P130 LP101	PP67 L1		
0059	CHARGES, SHAPED without detonator †	1.1D				0	E0	P137	PP70		
0060	CHARGES, SUPPLEMENTARY, EXPLOSIVE †	1.1D				0	E0	P132 (a) or (b)			
0065	CORD, DETONATING, flexible †	1.1D				0	E0	P139	PP71 PP72		
0066	CORD, IGNITER †	1.4G				0	E0	P140			
0070	CUTTERS, CABLE, EXPLOSIVE †	1.4S				0	E0	P134 LP102			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0072	CYCLOTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX), WETTED with not less than 15% water, by mass †	1.1D			266	0	E0	P112 (a)	PP45		
0073	DETONATORS FOR AMMUNITION †	1.1B				0	E0	P133			
0074	DIAZODINITROPHENOL, WETTED with not less than 40% water, or mixture of alcohol and water, by mass †	1.1A			266	0	E0	P110 (a) or (b)	PP42		
0075	DIETHYLENEGLYCOL DINITRATE, DESENSITISED with not less than 25% non-volatile, water-insoluble phlegmatiser, by mass †	1.1D			266	0	E0	P115	PP53 PP54 PP57 PP58		
0076	DINITROPHENOL, dry or wetted with less than 15% water, by mass †	1.1D	6.1			0	E0	P112 (a), (b) or (c)	PP26		
0077	DINITROPHENOLATES, alkali metals, dry or wetted with less than 15% water, by mass †	1.3C	6.1			0	E0	P114 (a) or (b)	PP26		
0078	DINITRORESORCINOL, dry or wetted with less than 15% water, by mass †	1.1D				0	E0	P112 (a), (b) or (c)	PP26		
0079	HEXANITRODIPHENYLAMINE (DIPICRYLAMINE; HEXYL) †	1.1D				0	E0	P112 (b) or (c)			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0081	EXPLOSIVE, BLASTING, TYPE A †	1.1D				0	E0	P116	PP63 PP66		
0082	EXPLOSIVE, BLASTING, TYPE B †	1.1D				0	E0	P116 IBC100	PP61 PP62 B9		
0083	EXPLOSIVE, BLASTING, TYPE C †	1.1D			267	0	E0	P116			
0084	EXPLOSIVE, BLASTING, TYPE D †	1.1D				0	E0	P116			
0092	FLARES, SURFACE †	1.3G				0	E0	P135			
0093	FLARES, AERIAL †	1.3G				0	E0	P135			
0094	FLASH POWDER †	1.1G				0	E0	P113	PP49		
0099	FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells	1.1D				0	E0	P134 LP102			
0101	FUSE, NON-DETONATING †	1.3G				0	E0	P140	PP74 PP75		
0102	CORD (FUSE), DETONATING, metal clad †	1.2D				0	E0	P139	PP71		
0103	FUSE, IGNITER, tubular, metal clad †	1.4G				0	E0	P140			
0104	CORD (FUSE), DETONATING, MILD EFFECT, metal clad †	1.4D				0	E0	P139	PP71		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0105	FUSE, SAFETY †	1.4S				0	E0	P140	PP73		
0106	FUSES, DETONATING †	1.1B				0	E0	P141			
0107	FUSES, DETONATING †	1.2B				0	E0	P141			
0110	GRENADES, PRACTICE, hand or rifle †	1.4S				0	E0	P141			
0113	GUANYL NITROSAMINOGUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass †	1.1A			266	0	E0	P110 (a) or (b)	PP42		
0114	GUANYL NITROSAMINOGUANYLTETRAZENE (TETRAZENE), WETTED with not less than 30% water, or mixture of alcohol and water, by mass †	1.1A			266	0	E0	P110 (a) or (b)	PP42		
0118	HEXOLITE (HEXOTOL), dry or wetted with less than 15% water, by mass †	1.1D				0	E0	P112			
0121	IGNITERS †	1.1G				0	E0	P142			
0124	JET PERFORATING GUNS, CHARGED, oil well, without detonator †	1.1D				0	E0	P101			
0129	LEAD AZIDE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass †	1.1A			266	0	E0	P110 (a) or (b)	PP42		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0130	LEAD STYPHNATE (LEAD TRINITRORESORCINATE), WETTED with not less than 20% water, or mixture of alcohol and water, by mass †	1.1A			266	0	E0	P110 (a) or (b)	PP42		
0131	LIGHTERS, FUSE †	1.4S				0	E0	P142			
0132	DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S. †	1.3C				0	E0	P114 (a) or (b)	PP26		
0133	MANNITOL HEXANITRATE (NITROMANNITE), WETTED with not less than 40% water, or mixture of alcohol and water, by mass †	1.1D			266	0	E0	P112 (a)			
0135	MERCURY FULMINATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass †	1.1A			266	0	E0	P110 (a) or (b)	PP42		
0136	MINES with bursting charge †	1.1F				0	E0	P130 LP101			
0137	MINES with bursting charge †	1.1D				0	E0	P130 LP101	PP67 L1		
0138	MINES with bursting charge †	1.2D				0	E0	P130 LP101	PP67 L1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0143	NITROGLYCERIN, DESENSITISED with not less than 40% non-volatile water-insoluble phlegmatiser, by mass †	1.1D	6.1		266 271	0	E0	P115	PP53 PP54 PP57 PP58		
0144	NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 10% nitroglycerin †	1.1D			358	0	E0	P115	PP45 PP55 PP56 PP59 PP60		
0146	NITROSTARCH, dry or wetted with less than 20% water, by mass †	1.1D				0	E0	P112			
0147	NITRO UREA †	1.1D				0	E0	P112 (b)			
0150	PENTAERYTHRITE TETRA-NITRATE (PENTAERYTHRITOL TETRANITRATE; PETN), WETTED with not less than 25% water, by mass, or PENTAERYTHRITE TETRA-NITRATE (PENTAERYTHRITOL TETRANITRATE; PETN), DESENSITISED with not less than 15% phlegmatiser, by mass †	1.1D			266	0	E0	P112 (a) or (b)			
0151	PENTOLITE, dry or wetted with less than 15% water, by mass †	1.1D				0	E0	P112			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0153	TRINITROANILINE (PICRAMIDE) †	1.1D				0	E0	P112 (b) or (c)			
0154	TRINITROPHENOL (PICRIC ACID), dry or wetted with less than 30% water, by mass †	1.1D				0	E0	P112 (a), (b) or (c)	PP26		
0155	TRINITROCHLORO-BENZENE (PICRYL CHLORIDE) †	1.1D				0	E0	P112 (b) or (c)			
0159	POWDER CAKE (POWDER PASTE), WETTED with not less than 25% water, by mass †	1.3C			266	0	E0	P111	PP43		
0160	POWDER, SMOKELESS †	1.1C				0	E0	P114 (b)	PP50 PP52		
0161	POWDER, SMOKELESS †	1.3C				0	E0	P114 (b)	PP50 PP52		
0167	PROJECTILES with bursting charge †	1.1F				0	E0	P130 LP101			
0168	PROJECTILES with bursting charge †	1.1D				0	E0	P130 LP101	PP67 L1		
0169	PROJECTILES with bursting charge †	1.2D				0	E0	P130 LP101	PP67 L1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
0171	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge †	1.2G				0	E0	P130 LP101	PP67 L1		
0173	RELEASE DEVICES, EXPLOSIVE †	1.4S				0	E0	P134 LP102			
0174	RIVETS, EXPLOSIVE	1.4S				0	E0	P134 LP102			
0180	ROCKETS with bursting charge †	1.1F				0	E0	P130 LP101			
0181	ROCKETS with bursting charge †	1.1E				0	E0	P130 LP101	PP67 L1		
0182	ROCKETS with bursting charge †	1.2E				0	E0	P130 LP101	PP67 L1		
0183	ROCKETS with inert head †	1.3C				0	E0	P130 LP101	PP67 L1		
0186	ROCKET MOTORS †	1.3C				0	E0	P130 LP101	PP67 L1		
0190	SAMPLES, EXPLOSIVE, other than initiating explosive †				16 274		E0	P101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0191	SIGNAL DEVICES, HAND †	1.4G				0	E0	P135			
0192	SIGNALS, RAILWAY TRACK, EXPLOSIVE †	1.1G				0	E0	P135			
0193	SIGNALS, RAILWAY TRACK, EXPLOSIVE †	1.4S				0	E0	P135			
0194	SIGNALS, DISTRESS, ship †	1.1G				0	E0	P135			
0195	SIGNALS, DISTRESS, ship †	1.3G				0	E0	P135			
0196	SIGNALS, SMOKE †	1.1G				0	E0	P135			
0197	SIGNALS, SMOKE †	1.4G				0	E0	P135			
0204	SOUNDING DEVICES, EXPLOSIVE †	1.2F				0	E0	P134 LP102			
0207	TETRANITROANILINE †	1.1D				0	E0	P112 (b) or (c)			
0208	TRINITROPHENYLMETHYLNITRAMINE (TETRYL) †	1.1D				0	E0	P112 (b) or (c)			
0209	TRINITROTOLUENE (TNT), dry or wetted with less than 30% water, by mass †	1.1D				0	E0	P112 (b) or (c)	PP46		
0212	TRACERS FOR AMMUNITION †	1.3G				0	E0	P133	PP69		
0213	TRINITROANISOLE †	1.1D				0	E0	P112 (b) or (c)			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0214	TRINITROBENZENE, dry or wetted with less than 30% water, by mass †	1.1D				0	E0	P112			
0215	TRINITROBENZOIC ACID, dry or wetted with less than 30% water, by mass †	1.1D				0	E0	P112			
0216	TRINITRO-m-CRESOL †	1.1D				0	E0	P112 (b) or (c)	PP26		
0217	TRINITRONAPHTHALENE †	1.1D				0	E0	P112 (b) or (c)			
0218	TRINITROPHENETOLE †	1.1D				0	E0	P112 (b) or (c)			
0219	TRINITRORESORCINOL (STYPHNIC ACID), dry or wetted with less than 20% water, or mixture of alcohol and water, by mass †	1.1D				0	E0	P112 (a), (b) or (c)	PP26		
0220	UREA NITRATE, dry or wetted with less than 20% water, by mass †	1.1D				0	E0	P112			
0221	WARHEADS, TORPEDO with bursting charge †	1.1D				0	E0	P130 LP101	PP67 L1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0222	AMMONIUM NITRATE	1.1D			370	0	E0	P112 (b) P112 (c) IBC100	PP47 B2, B3, B17		
0224	BARIUM AZIDE, dry or wetted with less than 50% water, by mass †	1.1A	6.1			0	E0	P110 (a) or (b)	PP42		
0225	BOOSTERS WITH DETONATOR †	1.1B				0	E0	P133	PP69		
0226	CYCLOTETRAMETHYLENETETRANITRAMINE (HMX; OCTOGEN), WETTED with not less than 15% water, by mass †	1.1D			266	0	E0	P112 (a)	PP45		
0234	SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass †	1.3C				0	E0	P114 (a) or (b)	PP26		
0235	SODIUM PICRAMATE, dry or wetted with less than 20% water, by mass †	1.3C				0	E0	P114 (a) or (b)	PP26		
0236	ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass †	1.3C				0	E0	P114 (a) or (b)	PP26		
0237	CHARGES, SHAPED, FLEXIBLE, LINEAR †	1.4D				0	E0	P138			
0238	ROCKETS, LINE-THROWING †	1.2G				0	E0	P130 LP101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0240	ROCKETS, LINE-THROWING †	1.3G				0	E0	P130 LP101			
0241	EXPLOSIVE, BLASTING, TYPE E †	1.1D				0	E0	P116 IBC100	PP61 PP62 B10		
0242	CHARGES, PROPELLING, FOR CANNON †	1.3C				0	E0	P130 LP101			
0243	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge †	1.2H				0	E0	P130 LP101	PP67 L1		
0244	AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge †	1.3H				0	E0	P130 LP101	PP67 L1		
0245	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge †	1.2H				0	E0	P130 LP101	PP67 L1		
0246	AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge †	1.3H				0	E0	P130 LP101	PP67 L1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0247	AMMUNITION, INCENDIARY, liquid or gel, with burster, expelling charge or propelling charge †	1.3J				0	E0	P101			
0248	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge †	1.2L			274	0	E0	P144	PP77		
0249	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge †	1.3L			274	0	E0	P144	PP77		
0250	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge †	1.3L				0	E0	P101			
0254	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge †	1.3G				0	E0	P130 LP101	PP67 L1		
0255	DETONATORS, ELECTRIC for blasting †	1.4B				0	E0	P131			
0257	FUSES, DETONATING †	1.4B				0	E0	P141			
0266	OCTOLITE (OCTOL), dry or wetted with less than 15% water, by mass †	1.1D				0	E0	P112			
0267	DETONATORS, NON-ELECTRIC for blasting †	1.4B				0	E0	P131	PP68		
0268	BOOSTERS WITH DETONATOR †	1.2B				0	E0	P133	PP69		
0271	CHARGES, PROPELLING †	1.1C				0	E0	P143	PP76		
0272	CHARGES, PROPELLING †	1.3C				0	E0	P143	PP76		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0275	CARTRIDGES, POWER DEVICE †	1.3C				0	E0	P134 LP102			
0276	CARTRIDGES, POWER DEVICE †	1.4C				0	E0	P134 LP102			
0277	CARTRIDGES, OIL WELL †	1.3C				0	E0	P134 LP102			
0278	CARTRIDGES, OIL WELL †	1.4C				0	E0	P134 LP102			
0279	CHARGES, PROPELLING, FOR CANNON †	1.1C				0	E0	P130 LP101			
0280	ROCKET MOTORS †	1.1C				0	E0	P130 LP101	PP67 L1		
0281	ROCKET MOTORS †	1.2C				0	E0	P130 LP101	PP67 L1		
0282	NITROGUANIDINE (PICRITE), dry or wetted with less than 20% water, by mass †	1.1D				0	E0	P112			
0283	BOOSTERS without detonator †	1.2D				0	E0	P132 (a) or (b)			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
0284	GRENADES, hand or rifle, with bursting charge †	1.1D				0	E0	P141			
0285	GRENADES, hand or rifle, with bursting charge †	1.2D				0	E0	P141			
0286	WARHEADS, ROCKET with bursting charge †	1.1D				0	E0	P130 LP101	PP67 L1		
0287	WARHEADS, ROCKET with bursting charge †	1.2D				0	E0	P130 LP101	PP67 L1		
0288	CHARGES, SHAPED, FLEXIBLE, LINEAR †	1.1D				0	E0	P138			
0289	CORD, DETONATING, flexible †	1.4D				0	E0	P139	PP71 PP72		
0290	CORD (FUSE), DETONATING, metal clad †	1.1D				0	E0	P139	PP71		
0291	BOMBS with bursting charge †	1.2F				0	E0	P130 LP101			
0292	GRENADES, hand or rifle, with bursting charge †	1.1F				0	E0	P141			
0293	GRENADES, hand or rifle, with bursting charge †	1.2F				0	E0	P141			
0294	MINES with bursting charge †	1.2F				0	E0	P130 LP101			
0295	ROCKETS with bursting charge †	1.2F				0	E0	P130 LP101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0296	SOUNDING DEVICES, EXPLOSIVE †	1.1F				0	E0	P134 LP102			
0297	AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge †	1.4G				0	E0	P130 LP101	PP67 L1		
0299	BOMBS, PHOTO-FLASH †	1.3G				0	E0	P130 LP101	PP67 L1		
0300	AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge †	1.4G				0	E0	P130 LP101	PP67 L1		
0301	AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge †	1.4G	6.1 8			0	E0	P130 LP101	PP67 L1		
0303	AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge †	1.4G			204	0	E0	P130 LP101	PP67 L1		
0305	FLASH POWDER †	1.3G				0	E0	P113	PP49		
0306	TRACERS FOR AMMUNITION †	1.4G				0	E0	P133	PP69		
0312	CARTRIDGES, SIGNAL †	1.4G				0	E0	P135			
0313	SIGNALS, SMOKE †	1.2G				0	E0	P135			
0314	IGNITERS †	1.2G				0	E0	P142			
0315	IGNITERS †	1.3G				0	E0	P142			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
0316	FUSES, IGNITING †	1.3G				0	E0	P141			
0317	FUSES, IGNITING †	1.4G				0	E0	P141			
0318	GRENADES, PRACTICE, hand or rifle †	1.3G				0	E0	P141			
0319	PRIMERS, TUBULAR †	1.3G				0	E0	P133			
0320	PRIMERS, TUBULAR †	1.4G				0	E0	P133			
0321	CARTRIDGES FOR WEAPONS with bursting charge †	1.2E				0	E0	P130 LP101	PP67 L1		
0322	ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge †	1.2L				0	E0	P101			
0323	CARTRIDGES, POWER DEVICE †	1.4S			347	0	E0	P134 LP102			
0324	PROJECTILES with bursting charge †	1.2F				0	E0	P130 LP101			
0325	IGNITERS †	1.4G				0	E0	P142			
0326	CARTRIDGES FOR WEAPONS, BLANK †	1.1C				0	E0	P130 LP101			
0327	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK †	1.3C				0	E0	P130 LP101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
0328	CARTRIDGES FOR WEAPONS, INERT PROJECTILE †	1.2C				0	E0	P130 LP101	PP67 L1		
0329	TORPEDOES with bursting charge †	1.1E				0	E0	P130 LP101	PP67 L1		
0330	TORPEDOES with bursting charge †	1.1F				0	E0	P130 LP101			
0331	EXPLOSIVE, BLASTING, TYPE B † (AGENT, BLASTING, TYPE B)	1.5D				0	E0	P116 IBC100	PP61 PP62 PP64	T1	TP1 TP17 TP32
0332	EXPLOSIVE, BLASTING, TYPE E † (AGENT, BLASTING, TYPE E)	1.5D				0	E0	P116 IBC100	PP61 PP62	T1	TP1 TP17 TP32
0333	FIREWORKS †	1.1G				0	E0	P135			
0334	FIREWORKS †	1.2G				0	E0	P135			
0335	FIREWORKS †	1.3G				0	E0	P135			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0336	FIREWORKS †	1.4G				0	E0	P135			
0337	FIREWORKS †	1.4S				0	E0	P135			
0338	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK †	1.4C				0	E0	P130 LP101			
0339	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS †	1.4C				0	E0	P130 LP101			
0340	NITROCELLULOSE, dry or wetted with less than 25% water (or alcohol), by mass †	1.1D			393	0	E0	P112 (a) or (b)			
0341	NITROCELLULOSE, unmodified or plasticised with less than 18% plasticising substance, by mass †	1.1D			393	0	E0	P112 (b)			
0342	NITROCELLULOSE, WETTED with not less than 25% alcohol, by mass †	1.3C			105 393	0	E0	P114 (a)	PP43		
0343	NITROCELLULOSE, PLASTICISED with not less than 18% plasticising substance, by mass †	1.3C			105 393	0	E0	P111			
0344	PROJECTILES with bursting charge †	1.4D				0	E0	P130 LP101	PP67 L1		
0345	PROJECTILES, inert with tracer †	1.4S				0	E0	P130 LP101	PP67 L1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0346	PROJECTILES with burster or expelling charge †	1.2D				0	E0	P130 LP101	PP67 L1		
0347	PROJECTILES with burster or expelling charge †	1.4D				0	E0	P130 LP101	PP67 L1		
0348	CARTRIDGES FOR WEAPONS with bursting charge †	1.4F				0	E0	P130 LP101			
0349	ARTICLES, EXPLOSIVE, N.O.S.	1.4S			178 274 347	0	E0	P101			
0350	ARTICLES, EXPLOSIVE, N.O.S.	1.4B			178 274	0	E0	P101			
0351	ARTICLES, EXPLOSIVE, N.O.S.	1.4C			178 274	0	E0	P101			
0352	ARTICLES, EXPLOSIVE, N.O.S.	1.4D			178 274	0	E0	P101			
0353	ARTICLES, EXPLOSIVE, N.O.S.	1.4G			178 274	0	E0	P101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0354	ARTICLES, EXPLOSIVE, N.O.S.	1.1L			178 274	0	E0	P101			
0355	ARTICLES, EXPLOSIVE, N.O.S.	1.2L			178 274	0	E0	P101			
0356	ARTICLES, EXPLOSIVE, N.O.S.	1.3L			178 274	0	E0	P101			
0357	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1L			178 274	0	E0	P101			
0358	SUBSTANCES, EXPLOSIVE, N.O.S.	1.2L			178 274	0	E0	P101			
0359	SUBSTANCES, EXPLOSIVE, N.O.S.	1.3L			178 274	0	E0	P101			
0360	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting †	1.1B				0	E0	P131			
0361	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting †	1.4B				0	E0	P131			
0362	AMMUNITION, PRACTICE †	1.4G				0	E0	P130 LP101	PP67 L1		
0363	AMMUNITION, PROOF †	1.4G				0	E0	P130 LP101	PP67 L1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0364	DETONATORS FOR AMMUNITION †	1.2B				0	E0	P133			
0365	DETONATORS FOR AMMUNITION †	1.4B				0	E0	P133			
0366	DETONATORS FOR AMMUNITION †	1.4S			347	0	E0	P133			
0367	FUSES, DETONATING †	1.4S			347	0	E0	P141			
0368	FUSES, IGNITING †	1.4S				0	E0	P141			
0369	WARHEADS, ROCKET with bursting charge †	1.1F				0	E0	P130 LP101			
0370	WARHEADS, ROCKET with burster or expelling charge †	1.4D				0	E0	P130 LP101	PP67 L1		
0371	WARHEADS, ROCKET with burster or expelling charge †	1.4F				0	E0	P130 LP101			
0372	GRENADES, PRACTICE, hand or rifle †	1.2G				0	E0	P141			
0373	SIGNAL DEVICES, HAND †	1.4S				0	E0	P135			
0374	SOUNDING DEVICES, EXPLOSIVE †	1.1D				0	E0	P134 LP102			
0375	SOUNDING DEVICES, EXPLOSIVE †	1.2D				0	E0	P134 LP102			
0376	PRIMERS, TUBULAR †	1.4S				0	E0	P133			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0377	PRIMERS, CAP TYPE †	1.1B				0	E0	P133			
0378	PRIMERS, CAP TYPE †	1.4B				0	E0	P133			
0379	CASES, CARTRIDGE, EMPTY, WITH PRIMER †	1.4C				0	E0	P136			
0380	ARTICLES, PYROPHORIC †	1.2L				0	E0	P101			
0381	CARTRIDGES, POWER DEVICE †	1.2C				0	E0	P134 LP102			
0382	COMPONENTS, EXPLOSIVE TRAIN, N.O.S. †	1.2B			178 274	0	E0	P101			
0383	COMPONENTS, EXPLOSIVE TRAIN, N.O.S. †	1.4B			178 274	0	E0	P101			
0384	COMPONENTS, EXPLOSIVE TRAIN, N.O.S. †	1.4S			178 274 347	0	E0	P101			
0385	5-NITROBENZOTRIAZOL †	1.1D				0	E0	P112 (b) or (c)			
0386	TRINITROBENZENESULPHONIC ACID †	1.1D				0	E0	P112 (b) or (c)	PP26		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0387	TRINITROFLUORENONE †	1.1D				0	E0	P112 (b) or (c)			
0388	TRINITROTOLUENE (TNT) AND TRINITROBENZENE MIXTURE or TRINITROTOLUENE (TNT) AND HEXANITROSTILBENE MIXTURE †	1.1D				0	E0	P112 (b) or (c)			
0389	TRINITROTOLUENE (TNT) MIXTURE CONTAINING TRINITROBENZENE AND HEXANITROSTILBENE †	1.1D				0	E0	P112 (b) or (c)			
0390	TRITONAL †	1.1D				0	E0	P112 (b) or (c)			
0391	CYCLOTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX) AND CYCLOTETRAMETHYLENE-TETRANITRAMINE (HMX; OCTOGEN) MIXTURE, WETTED with not less than 15% water, by mass or CYCLOTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX) AND CYCLOTETRAMETHYLENE-TETRANITRAMINE (HMX; OCTOGEN) MIXTURE, DESENSITISED with not less than 10% phlegmatiser, by mass †	1.1D			266	0	E0	P112 (a) or (b)			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0392	HEXANITROSTILBENE †	1.1D				0	E0	P112 (b) or (c)			
0393	HEXOTONAL †	1.1D				0	E0	P112 (b)			
0394	TRINITRORESORCINOL (STYPHNIC ACID), WETTED with not less than 20% water, or mixture of alcohol and water, by mass †	1.1D				0	E0	P112 (a)	PP26		
0395	ROCKET MOTORS, LIQUID FUELLED †	1.2J				0	E0	P101			
0396	ROCKET MOTORS, LIQUID FUELLED †	1.3J				0	E0	P101			
0397	ROCKETS, LIQUID FUELLED with bursting charge †	1.1J				0	E0	P101			
0398	ROCKETS, LIQUID FUELLED with bursting charge †	1.2J				0	E0	P101			
0399	BOMBS WITH FLAMMABLE LIQUID with bursting charge †	1.1J				0	E0	P101			
0400	BOMBS WITH FLAMMABLE LIQUID with bursting charge †	1.2J				0	E0	P101			
0401	DIPICRYL SULPHIDE, dry or wetted with less than 10% water, by mass †	1.1D				0	E0	P112			
0402	AMMONIUM PERCHLORATE †	1.1D			152	0	E0	P112 (b) or (c)			
0403	FLARES, AERIAL †	1.4G				0	E0	P135			
0404	FLARES, AERIAL †	1.4S				0	E0	P135			
0405	CARTRIDGES, SIGNAL †	1.4S				0	E0	P135			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0406	DINITROSOBENZENE †	1.3C				0	E0	P114 (b)			
0407	TETRAZOL-1-ACETIC ACID †	1.4C				0	E0	P114 (b)			
0408	FUSES, DETONATING with protective features †	1.1D				0	E0	P141			
0409	FUSES, DETONATING with protective features †	1.2D				0	E0	P141			
0410	FUSES, DETONATING with protective features †	1.4D				0	E0	P141			
0411	PENTAERYTHRITE TETRA-NITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) with not less than 7% wax, by mass †	1.1D			131	0	E0	P112 (b) or (c)			
0412	CARTRIDGES FOR WEAPONS with bursting charge †	1.4E				0	E0	P130 LP101	PP67 L1		
0413	CARTRIDGES FOR WEAPONS, BLANK †	1.2C				0	E0	P130 LP101			
0414	CHARGES, PROPELLING, FOR CANNON †	1.2C				0	E0	P130 LP101			
0415	CHARGES, PROPELLING †	1.2C				0	E0	P143	PP76		
0417	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS †	1.3C				0	E0	P130 LP101			
0418	FLARES, SURFACE †	1.1G				0	E0	P135			
0419	FLARES, SURFACE †	1.2G				0	E0	P135			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0420	FLARES, AERIAL †	1.1G				0	E0	P135			
0421	FLARES, AERIAL †	1.2G				0	E0	P135			
0424	PROJECTILES, inert with tracer †	1.3G				0	E0	P130 LP101	PP67 L1		
0425	PROJECTILES, inert with tracer †	1.4G				0	E0	P130 LP101	PP67 L1		
0426	PROJECTILES with burster or expelling charge †	1.2F				0	E0	P130 LP101			
0427	PROJECTILES with burster or expelling charge †	1.4F				0	E0	P130 LP101			
0428	ARTICLES, PYROTECHNIC for technical purposes †	1.1G				0	E0	P135			
0429	ARTICLES, PYROTECHNIC for technical purposes †	1.2G				0	E0	P135			
0430	ARTICLES, PYROTECHNIC for technical purposes †	1.3G				0	E0	P135			
0431	ARTICLES, PYROTECHNIC for technical purposes †	1.4G				0	E0	P135			
0432	ARTICLES, PYROTECHNIC for technical purposes †	1.4S				0	E0	P135			
0433	POWDER CAKE (POWDER PASTE), WETTED with not less than 17% alcohol, by mass †	1.1C			266	0	E0	P111			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
0434	PROJECTILES with burster or expelling charge †	1.2G				0	E0	P130 LP101	PP67 L1		
0435	PROJECTILES with burster or expelling charge †	1.4G				0	E0	P130 LP101	PP67 L1		
0436	ROCKETS with expelling charge †	1.2C				0	E0	P130 LP101	PP67 L1		
0437	ROCKETS with expelling charge †	1.3C				0	E0	P130 LP101	PP67 L1		
0438	ROCKETS with expelling charge †	1.4C				0	E0	P130 LP101	PP67 L1		
0439	CHARGES, SHAPED, without detonator †	1.2D				0	E0	P137	PP70		
0440	CHARGES, SHAPED, without detonator †	1.4D				0	E0	P137	PP70		
0441	CHARGES, SHAPED, without detonator †	1.4S			347	0	E0	P137	PP70		
0442	CHARGES, EXPLOSIVE, COMMERCIAL without detonator †	1.1D				0	E0	P137			
0443	CHARGES, EXPLOSIVE, COMMERCIAL without detonator †	1.2D				0	E0	P137			
0444	CHARGES, EXPLOSIVE, COMMERCIAL without detonator †	1.4D				0	E0	P137			
0445	CHARGES, EXPLOSIVE, COMMERCIAL without detonator †	1.4S			347	0	E0	P137			
0446	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER †	1.4C				0	E0	P136			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0447	CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER †	1.3C				0	E0	P136			
0448	5-MERCAPTOTETRAZOL-1-ACETIC ACID †	1.4C				0	E0	P114 (b)			
0449	TORPEDOES, LIQUID FUELLED with or without bursting charge †	1.1J				0	E0	P101			
0450	TORPEDOES, LIQUID FUELLED with inert head †	1.3J				0	E0	P101			
0451	TORPEDOES with bursting charge †	1.1D				0	E0	P130 LP101	PP67 L1		
0452	GRENADES, PRACTICE, hand or rifle †	1.4G				0	E0	P141			
0453	ROCKETS, LINE-THROWING †	1.4G				0	E0	P130 LP101			
0454	IGNITERS †	1.4S				0	E0	P142			
0455	DETONATORS, NON-ELECTRIC for blasting †	1.4S			347	0	E0	P131	PP68		
0456	DETONATORS, ELECTRIC for blasting †	1.4S			347	0	E0	P131			
0457	CHARGES, BURSTING, PLASTICS BONDED	1.1D				0	E0	P130 LP101			
0458	CHARGES, BURSTING, PLASTICS BONDED	1.2D				0	E0	P130 LP101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
0459	CHARGES, BURSTING, PLASTICS BONDED	1.4D				0	E0	P130 LP101			
0460	CHARGES, BURSTING, PLASTICS BONDED	1.4S			347	0	E0	P130 LP101			
0461	COMPONENTS, EXPLOSIVE TRAIN, N.O.S. †	1.1B			178 274	0	E0	P101			
0462	ARTICLES, EXPLOSIVE, N.O.S.	1.1C			178 274	0	E0	P101			
0463	ARTICLES, EXPLOSIVE, N.O.S.	1.1D			178 274	0	E0	P101			
0464	ARTICLES, EXPLOSIVE, N.O.S.	1.1E			178 274	0	E0	P101			
0465	ARTICLES, EXPLOSIVE, N.O.S.	1.1F			178 274	0	E0	P101			
0466	ARTICLES, EXPLOSIVE, N.O.S.	1.2C			178 274	0	E0	P101			
0467	ARTICLES, EXPLOSIVE, N.O.S.	1.2D			178 274	0	E0	P101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0468	ARTICLES, EXPLOSIVE, N.O.S.	1.2E			178 274	0	E0	P101			
0469	ARTICLES, EXPLOSIVE, N.O.S.	1.2F			178 274	0	E0	P101			
0470	ARTICLES, EXPLOSIVE, N.O.S.	1.3C			178 274	0	E0	P101			
0471	ARTICLES, EXPLOSIVE, N.O.S.	1.4E			178 274	0	E0	P101			
0472	ARTICLES, EXPLOSIVE, N.O.S.	1.4F			178 274	0	E0	P101			
0473	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1A			178 274	0	E0	P101			
0474	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1C			178 274	0	E0	P101			
0475	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1D			178 274	0	E0	P101			
0476	SUBSTANCES, EXPLOSIVE, N.O.S.	1.1G			178 274	0	E0	P101			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
0477	SUBSTANCES, EXPLOSIVE, N.O.S.	1.3C			178 274	0	E0	P101			
0478	SUBSTANCES, EXPLOSIVE, N.O.S.	1.3G			178 274	0	E0	P101			
0479	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4C			178 274	0	E0	P101			
0480	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4D			178 274	0	E0	P101			
0481	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4S			178 274 347	0	E0	P101			
0482	SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (SUBSTANCES, EVI), N.O.S. †	1.5D			178 274	0	E0	P101			
0483	CYCLOTRIMETHYLENE-TRINITRAMINE (CYCLONITE; HEXOGEN; RDX), DESENSITISED	1.1D				0	E0	P112 (b) or (c)			
0484	CYCLOTETRAMETHYLENE-TETRANITRAMINE (HMX; OCTOGEN), DESENSITISED	1.1D				0	E0	P112 (b) or (c)			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0485	SUBSTANCES, EXPLOSIVE, N.O.S.	1.4G			178 274	0	E0	P101			
0486	ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI) †	1.6N				0	E0	P101			
0487	SIGNALS, SMOKE †	1.3G				0	E0	P135			
0488	AMMUNITION, PRACTICE †	1.3G				0	E0	P130 LP101	PP67 L1		
0489	DINITROGLYCOLURIL (DINGU) †	1.1D				0	E0	P112 (b) or (c)			
0490	NITROTRIAZOLONE (NTO) †	1.1D				0	E0	P112 (b) or (c)			
0491	CHARGES, PROPELLING †	1.4C				0	E0	P143	PP76		
0492	SIGNALS, RAILWAY TRACK, EXPLOSIVE †	1.3G				0	E0	P135			
0493	SIGNALS, RAILWAY TRACK, EXPLOSIVE †	1.4G				0	E0	P135			
0494	JET PERFORATING GUNS, CHARGED, oil well, without detonator †	1.4D				0	E0	P101			
0495	PROPELLANT, LIQUID †	1.3C			224	0	E0	P115	PP53		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
									PP54 PP57 PP58		
0496	OCTONAL	1.1D				0	E0	P112 (b) or (c)			
0497	PROPELLANT, LIQUID †	1.1C			224	0	E0	P115	PP53 PP54 PP57 PP58		
0498	PROPELLANT, SOLID †	1.1C				0	E0	P114 (b)			
0499	PROPELLANT, SOLID †	1.3C				0	E0	P114 (b)			
0500	DETONATOR ASSEMBLIES, NON-ELECTRIC for blasting †	1.4S			347	0	E0	P131			
0501	PROPELLANT, SOLID †	1.4C				0	E0	P114 (b)			
0502	ROCKETS with inert head †	1.2C				0	E0	P130 LP101	PP67 L1		
0503	SAFETY DEVICES, PYROTECHNIC †	1.4G			235 289	0	E0	P135			
0504	1H-TETRAZOLE	1.1D				0	E0	P112 (c)	PP48		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
0505	SIGNALS, DISTRESS, ship	1.4G				0	E0	P135			
0506	SIGNALS, DISTRESS, ship	1.4S				0	E0	P135			
0507	SIGNALS, SMOKE	1.4S				0	E0	P135			
0508	1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, dry or wetted with less than 20% water, by mass	1.3C				0	E0	P114(b)	PP48		
0509	POWDER, SMOKELESS †	1.4C				0	E0	P114(b)	PP48		
0510	ROCKET MOTORS†	1.4C				0	E0	P130 LP101	PP67 L1		
0511	DETONATORS, ELECTRONIC programmable for blasting†	1.1B				0	EO	P131			
0512	DETONATORS, ELECTRONIC programmable for blasting†	1.4B				0	EO	P131			
0513	DETONATORS, ELECTRONIC programmable for blasting†	1.4S			347	0	EO	P131			
1001	ACETYLENE, DISSOLVED	2.1				0	E0	P200	PP23		
1002	AIR, COMPRESSED	2.2			392	120 ml	E1	P200			
1003	AIR, REFRIGERATED LIQUID	2.2	5.1			0	E0	P203		T75	TP5 TP22
1005	AMMONIA, ANHYDROUS	2.3	8		23 379	0	E0	P200		T50	

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1006	ARGON, COMPRESSED	2.2			378 392	120 ml	E1	P200			
1008	BORON TRIFLUORIDE	2.3	8		373	0	E0	P200			
1009	BROMOTRIFLUOROMETHANE (REFRIGERANT GAS R 13B1)	2.2				120 ml	E1	P200		T50	
1010	BUTADIENES, STABILISED or BUTADIENES AND HYDROCARBON MIXTURE, STABILISED, containing more than 40% butadienes	2.1			386	0	E0	P200		T50	
1011	BUTANE	2.1			AU03	0	E0	P200		T50	
1012	BUTYLENE	2.1				0	E0	P200		T50	
1013	CARBON DIOXIDE	2.2			378 392	120 ml	E1	P200			
1016	CARBON MONOXIDE, COMPRESSED	2.3	2.1			0	E0	P200			
1017	CHLORINE	2.3	5.1 8		AU07	0	E0	P200		T50	TP19
1018	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)	2.2				120 ml	E1	P200		T50	
1020	CHLOROPENTAFLUORO-ETHANE (REFRIGERANT GAS R 115)	2.2				120 ml	E1	P200		T50	

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1021	1-CHLORO-1,2,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 124)	2.2				120 ml	E1	P200		T50	
1022	CHLOROTRIFLUOROMETHANE (REFRIGERANT GAS R 13)	2.2				120 ml	E1	P200			
1023	COAL GAS, COMPRESSED	2.3	2.1			0	E0	P200			
1026	CYANOGEN	2.3	2.1			0	E0	P200			
1027	CYCLOPROPANE	2.1				0	E0	P200		T50	
1028	DICHLORODIFLUORO-METHANE (REFRIGERANT GAS R12)	2.2				120 ml	E1	P200		T50	
1029	DICHLOROFLUOROMETHANE (REFRIGERANT GAS R 21)	2.2				120 ml	E1	P200		T50	
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2.1				0	E0	P200		T50	
1032	DIMETHYLAMINE, ANHYDROUS	2.1				0	E0	P200		T50	
1033	DIMETHYL ETHER	2.1				0	E0	P200		T50	
1035	ETHANE	2.1				0	E0	P200			
1036	ETHYLAMINE	2.1				0	E0	P200		T50	
1037	ETHYL CHLORIDE	2.1				0	E0	P200		T50	
1038	ETHYLENE, REFRIGERATED LIQUID	2.1				0	E0	P203		T75	TP5

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1039	ETHYL METHYL ETHER	2.1				0	E0	P200			
1040	ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50°C	2.3	2.1		342	0	E0	P200		T50	TP20
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% but not more than 87% ethylene oxide	2.1				0	E0	P200		T50	
1043	FERTILISER AMMONIATING SOLUTION with free ammonia	2.2				120 ml	E0	P200			
1044	FIRE EXTINGUISHERS with compressed or liquefied gas	2.2			225	120 ml	E0	P003	PP91		
1045	FLUORINE, COMPRESSED	2.3	5.1 8			0	E0	P200			
1046	HELIUM, COMPRESSED	2.2			378 392	120 ml	E1	P200			
1048	HYDROGEN BROMIDE, ANHYDROUS	2.3	8			0	E0	P200			
1049	HYDROGEN, COMPRESSED	2.1				0	E0	P200			
1050	HYDROGEN CHLORIDE, ANHYDROUS	2.3	8			0	E0	P200			
1051	HYDROGEN CYANIDE, STABILISED containing less than 3% water	6.1	3	I	386	0	E0	P200			
1052	HYDROGEN FLUORIDE, ANHYDROUS	8	6.1	I		0	E0	P200		T10	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1053	HYDROGEN SULPHIDE	2.3	2.1			0	E0	P200			
1055	ISOBUTYLENE	2.1				0	E0	P200		T50	
1056	KRYPTON, COMPRESSED	2.2			378 392	120 ml	E1	P200			
1057	LIGHTERS or LIGHTER REFILLS containing flammable gas	2.1			201	0	E0	P002	PP84		
1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2.2			392	120 ml	E1	P200			
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILISED	2.1			386	0	E0	P200		T50	
1061	METHYLAMINE, ANHYDROUS	2.1				0	E0	P200		T50	
1062	METHYL BROMIDE with not more than 2% chloropicrin	2.3			23	0	E0	P200		T50	
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2.1				0	E0	P200		T50	
1064	METHYL MERCAPTAN	2.3	2.1			0	E0	P200		T50	
1065	NEON, COMPRESSED	2.2			378 392	120 ml	E1	P200			
1066	NITROGEN, COMPRESSED	2.2			378 392	120 ml	E1	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)	2.3	5.1 8			0	E0	P200		T50	TP21
1069	NITROSYL CHLORIDE	2.3	8			0	E0	P200			
1070	NITROUS OXIDE	2.2	5.1			0	E0	P200			
1071	OIL GAS, COMPRESSED	2.3	2.1			0	E0	P200			
1072	OXYGEN, COMPRESSED	2.2	5.1		355	0	E0	P200			
1073	OXYGEN, REFRIGERATED LIQUID	2.2	5.1			0	E0	P203		T75	TP5 TP22
1075	PETROLEUM GASES, LIQUEFIED (see 3.2.5 for relevant [AUST.] entries)	2.1			AU03	0	E0	P200		T50	
1076	PHOSGENE	2.3	8			0	E0	P200			
1077	PROPYLENE	2.1				0	E0	P200		T50	
1078	REFRIGERANT GAS, N.O.S.	2.2			274	120 ml	E1	P200		T50	
1079	SULPHUR DIOXIDE	2.3	8			0	E0	P200		T50	TP19
1080	SULPHUR HEXAFLUORIDE	2.2			392	120 ml	E1	P200			
1081	TETRAFLUOROETHYLENE, STABILISED	2.1			386	0	E0	P200			
1082	TRIFLUOROCHLORO-ETHYLENE, STABILISED (REFRIGERANT GAS R 1113)	2.3	2.1		386	0	E0	P200		T50	

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1083	TRIMETHYLAMINE, ANHYDROUS	2.1				0	E0	P200		T50	
1085	VINYL BROMIDE, STABILISED	2.1			386	0	E0	P200		T50	
1086	VINYL CHLORIDE, STABILISED	2.1			386	0	E0	P200		T50	
1087	VINYL METHYL ETHER, STABILISED	2.1			386	0	E0	P200		T50	
1088	ACETAL	3		II		1 L	E2	P001 IBC02		T4	TP1
1089	ACETALDEHYDE	3		I		0	E0	P001		T11	TP2 TP7
1090	ACETONE	3		II		1 L	E2	P001 IBC02		T4	TP1
1091	ACETONE OILS	3		II		1 L	E2	P001 IBC02		T4	TP1 TP8
1092	ACROLEIN, STABILISED	6.1	3	I	354 386	0	E0	P601		T22	TP2 TP7 TP13
1093	ACRYLONITRILE, STABILISED	3	6.1	I	386	0	E0	P001		T14	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1098	ALLYL ALCOHOL	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
1099	ALLYL BROMIDE	3	6.1	I		0	E0	P001		T14	TP2 TP13
1100	ALLYL CHLORIDE	3	6.1	I		0	E0	P001		T14	TP2 TP13
1104	AMYL ACETATES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1105	PENTANOLS	3		II		1 L	E2	P001 IBC02		T4	TP1 TP29
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1106	AMYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3	8	III	223	5 L	E1	P001 IBC03		T4	TP1
1107	AMYL CHLORIDE	3		II		1 L	E2	P001 IBC02		T4	TP1
1108	1-PENTENE (n-AMYLENE)	3		I		0	E3	P001		T11	TP2
1109	AMYL FORMATES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1110	n-AMYL METHYL KETONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1111	AMYL MERCAPTAN	3		II		1 L	E2	P001 IBC02		T4	TP1
1112	AMYL NITRATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1113	AMYL NITRITE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1114	BENZENE	3		II		1 L	E2	P001 IBC02		T4	TP1
1120	BUTANOLS	3		II		1 L	E2	P001 IBC02		T4	TP1 TP29
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1123	BUTYL ACETATES	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1125	n-BUTYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1126	1-BROMOBUTANE	3		II		1 L	E2	P001 IBC02		T4	TP1
1127	CHLOROBUTANES	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1128	n-BUTYL FORMATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1129	BUTYRALDEHYDE	3		II		1 L	E2	P001 IBC02		T4	TP1
1130	CAMPHOR OIL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1131	CARBON DISULPHIDE	3	6.1	I		0	E0	P001	PP31	T14	TP2 TP7 TP13
1133	ADHESIVES containing flammable liquid	3		I		500 ml	E3	P001		T11	TP1 TP8 TP27
		3		II		5 L	E2	P001 IBC02	PP1	T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01	PP1	T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1134	CHLOROBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1135	ETHYLENE CHLOROHYDRIN	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
1136	COAL TAR DISTILLATES, FLAMMABLE	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
1139	COATING SOLUTION (includes surface treatments or coatings used for industrial or other purposes such as vehicle undercoating, drum or barrel lining)	3		I		500 ml	E3	P001		T11	TP1 TP8 TP27
		3		II		5 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1143	CROTONALDEHYDE, or CROTONALDEHYDE, STABILISED	6.1	3	I	324 354 386	0	E0	P602		T20	TP2 TP13
1144	CROTONYLENE	3		I		0	E3	P001		T11	TP2
1145	CYCLOHEXANE	3		II		1 L	E2	P001 IBC02		T4	TP1
1146	CYCLOPENTANE	3		II		1 L	E2	P001 IBC02		T7	TP1
1147	DECAHYDRONAPHTHALENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1148	DIACETONE ALCOHOL	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1149	DIBUTYL ETHERS	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1150	1,2-DICHLOROETHYLENE	3		II		1 L	E2	P001 IBC02		T7	TP2
1152	DICHLOROPENTANES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1153	ETHYLENE GLYCOL DIETHYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1154	DIETHYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1155	DIETHYL ETHER (ETHYL ETHER)	3		I		0	E3	P001		T11	TP2
1156	DIETHYL KETONE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1157	DIISOBUTYL KETONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1158	DIISOPROPYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1159	DIISOPROPYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1
1160	DIMETHYLAMINE AQUEOUS SOLUTION	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1161	DIMETHYL CARBONATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1162	DIMETHYLDICHLORO-SILANE	3	8	II		0	E0	P010		T10	TP2 TP7 TP13
1163	DIMETHYLHYDRAZINE, UNSYMMETRICAL	6.1	3 8	I	354	E0	E0	P602		T20	TP2 TP13
1164	DIMETHYL SULPHIDE	3		II		1 L	E2	P001 IBC02	B8	T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1165	DIOXANE	3		II		1 L	E2	P001 IBC02		T4	TP1
1166	DIOXOLANE	3		II		1 L	E2	P001 IBC02		T4	TP1
1167	DIVINYL ETHER, STABILISED	3		I	386	0	E3	P001		T11	TP2
1169	EXTRACTS, AROMATIC, LIQUID	3		II		5 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1170	ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)	3		II	144	1 L	E2	P001 IBC02		T4	TP1
		3		III	144 223	5 L	E1	P001 IBC03 LP01		T2	TP1
1171	ETHYLENE GLYCOL MONOETHYL ETHER	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1172	ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1173	ETHYL ACETATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1175	ETHYLBENZENE	3		II		1 L	E2	P001 IBC02		T4	TP1
1176	ETHYL BORATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1177	2-ETHYLBUTYL ACETATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1178	2-ETHYLBUTYRALDEHYDE	3		II		1 L	E2	P001 IBC02		T4	TP1
1179	ETHYL BUTYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1180	ETHYL BUTYRATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1181	ETHYL CHLOROACETATE	6.1	3	II		100 ml	E4	P001 IBC02		T7	TP2
1182	ETHYL CHLOROFORMATE	6.1	3 8	I	354	0	E0	P602		T20	TP2 TP13
1183	ETHYLDICHLOROSILANE	4.3	3 8	I		0	E0	P401		T14	TP2 TP7 TP13
1184	ETHYLENE DICHLORIDE	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1
1185	ETHYLENEIMINE, STABILISED	6.1	3	I	354 386	0	E0	P601		T22	TP2 TP13
1188	ETHYLENE GLYCOL MONOMETHYL ETHER	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1189	ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1190	ETHYL FORMATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1191	OCTYL ALDEHYDES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1192	ETHYL LACTATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1193	ETHYL METHYL KETONE (METHYL ETHYL KETONE)	3		II		1 L	E2	P001 IBC02		T4	TP1
1194	ETHYL NITRITE SOLUTION	3	6.1	I		0	E0	P001			
1195	ETHYL PROPIONATE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1196	ETHYLTRICHLOROSILANE	3	8	II		0	E0	P010		T10	TP2 TP7 TP13
1197	EXTRACTS, FLAVOURING, LIQUID	3		II		5 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1198	FORMALDEHYDE SOLUTION, FLAMMABLE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
1199	FURALDEHYDES	6.1	3	II		100 ml	E4	P001 IBC02		T7	TP2
1201	FUSEL OIL	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1202	GAS OIL or DIESEL FUEL or HEATING OIL, LIGHT	3		III	AU02	5 L	E1	P001 IBC03 LP01		T2	TP1
1203	MOTOR SPIRIT or GASOLINE or PETROL (see 3.2.5 for relevant [AUST.] entries)	3		II	243	1 L	E2	P001 IBC02		T4	TP1
1204	NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin	3		II		1 L	E0	P001 IBC02	PP5		
1206	HEPTANES	3		II		1 L	E2	P001 IBC02		T4	TP1
1207	HEXALDEHYDE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1208	HEXANES	3		II		1 L	E2	P001 IBC02		T4	TP1
1210	PRINTING INK, flammable or	3		I	163 367	500 ml	E3	P001		T11	TP1 TP8

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
	PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable	3		II	163 367	5 L	E2	P001 IBC02	PP1	T4	TP1 TP8
		3		III	163 223 367	5 L	E1	P001 IBC03 LP01	PP1	T2	TP1
1212	ISOBUTANOL (ISOBUTYL ALCOHOL)	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1213	ISOBUTYL ACETATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1214	ISOBUTYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1216	ISOOCTENES	3		II		1 L	E2	P001 IBC02		T4	TP1
1218	ISOPRENE, STABILISED	3		I	386	0	E3	P001		T11	TP2
1219	ISOPROPANOL (ISOPROPYL ALCOHOL)	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1220	ISOPROPYL ACETATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1221	ISOPROPYLAMINE	3	8	I		0	E0	P001		T11	TP2
1222	ISOPROPYL NITRATE	3		II	26	1 L	E2	P001 IBC02	B7		
1223	KEROSENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP2
1224	KETONES, LIQUID, N.O.S.	3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
1228	MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	6.1	II	274	1 L	E0	P001 IBC02		T11	TP2 TP27
		3	6.1	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1229	MESITYL OXIDE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1230	METHANOL	3	6.1	II	279	1 L	E2	P001 IBC02		T7	TP2
1231	METHYL ACETATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1233	METHYLAMYL ACETATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1234	METHYLAL	3		II		1 L	E2	P001 IBC02	B8	T7	TP2
1235	METHYLAMINE, AQUEOUS SOLUTION	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1237	METHYL BUTYRATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1238	METHYL CHLOROFORMATE	6.1	3 8	I	354	0	E0	P602		T22	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1239	METHYL CHLOROMETHYL ETHER	6.1	3	I	354	0	E0	P602		T22	TP2 TP13
1242	METHYLDICHLOROSILANE	4.3	3 8	I		0	E0	P401		T14	TP2 TP7 TP13
1243	METHYL FORMATE	3		I		0	E3	P001		T11	TP2
1244	METHYLHYDRAZINE	6.1	3 8	I	354	0	E0	P602		T22	TP2 TP13
1245	METHYL ISOBUTYL KETONE	3		II		1 L	E2	P001 IBC02		T4	TP1
1246	METHYL ISOPROPENYL KETONE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
1247	METHYL METHACRYLATE MONOMER, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
1248	METHYL PROPIONATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1249	METHYL PROPYL KETONE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1250	METHYLTRICHLOROSILANE	3	8	II		0	E0	P010		T10	TP2 TP7 TP13
1251	METHYL VINYL KETONE, STABILISED	6.1	3 8	I	354 386	0	E0	P601		T22	TP2 TP13
1259	NICKEL CARBONYL	6.1	3	I		0	E0	P601			
1261	NITROMETHANE	3		II	26	1 L	E0	P001			
1262	OCTANES	3		II		1 L	E2	P001 IBC02		T4	TP1
1263	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)	3		I	163 367	500 ml	E3	P001		T11	TP1 TP8 TP27
		3		II	163 367	5 L	E2	P001 IBC02	PP1	T4	TP1 TP8 TP28
		3		III	163 223 367	5 L	E1	P001 IBC03 LP01	PP1	T2	TP1 TP29

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1264	PARALDEHYDE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1265	PENTANES, liquid	3		I		0	E3	P001		T11	TP2
		3		II		1 L	E2	P001 IBC02	B8	T4	TP1
1266	PERFUMERY PRODUCTS with flammable solvents	3		II	163	5 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223 163	5 L	E1	P001 IBC03 LP01		T2	TP1
1267	PETROLEUM CRUDE OIL	3		I	357	500 ml	E3	P001		T11	TP1 TP8
		3		II	357	1 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223 357	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S. (see 3.2.5 for relevant [AUST.] entries)	3		I		500 ml	E3	P001		T11	TP1 TP8
		3		II		1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223 AU02	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
1270	PETROLEUM FUEL [AUST.]	3			Restricted usage –see 3.2.5					T4	TP1
1272	PINE OIL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1274	n-PROPANOL (PROPYL ALCOHOL, NORMAL)	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1275	PROPIONALDEHYDE	3		II		1 L	E2	P001 IBC02		T7	TP1
1276	n-PROPYL ACETATE	3		II		1 L	E2	P001 IBC02		T4	TP1
1277	PROPYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1278	1-CHLOROPROPANE	3		II		1 L	E0	P001 IBC02	B8	T7	TP2
1279	1,2-DICHLOROPROPANE	3		II		1 L	E2	P001 IBC02		T4	TP1
1280	PROPYLENE OXIDE	3		I		0	E3	P001		T11	TP2 TP7
1281	PROPYL FORMATES	3		II		1 L	E2	P001 IBC02		T4	TP1
1282	PYRIDINE	3		II		1 L	E2	P001 IBC02		T4	TP2
1286	ROSIN OIL	3		II		5 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1287	RUBBER SOLUTION	3		II		5 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1288	SHALE OIL	3		II		1 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1289	SODIUM METHYLATE SOLUTION in alcohol	3	8	II		1 L	E2	P001 IBC02		T7	TP1 TP8
		3	8	III	223	5 L	E1	P001 IBC03		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1292	TETRAETHYL SILICATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1293	TINCTURES, MEDICINAL	3		II		1 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1294	TOLUENE	3		II		1 L	E2	P001 IBC02		T4	TP1
1295	TRICHLOROSILANE	4.3	3 8	I		0	E0	P401		T14	TP2 TP7 TP13
1296	TRIETHYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1297	TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass	3	8	I		0	E0	P001		T11	TP1
		3	8	II		1 L	E2	P001 IBC02		T7	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3	8	III	223	5 L	E1	P001 IBC03		T7	TP1
1298	TRIMETHYLCHLOROSILANE	3	8	II		0	E0	P010		T10	TP2 TP7 TP13
1299	TURPENTINE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1300	TURPENTINE SUBSTITUTE (see 3.2.5 for relevant [AUST.] entries)	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1301	VINYL ACETATE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
1302	VINYL ETHYL ETHER, STABILISED	3		I	386	0	E3	P001		T11	TP2
1303	VINYLIDENE CHLORIDE, STABILISED	3		I	386	0	E3	P001		T12	TP2 TP7

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1304	VINYL ISOBUTYL ETHER, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
1305	VINYLTRICHLOROSILANE	3	8	II		0	E0	P010		T10	TP2 TP7 TP13
1306	WOOD PRESERVATIVES, LIQUID	3		II		5 L	E2	P001 IBC02		T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1307	XYLENES	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1308	ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID	3		I		0	E0	P001	PP33		
		3		II		1 L	E2	P001	PP33		
		3		III	223	5 L	E1	P001			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1309	ALUMINIUM POWDER, COATED	4.1		II		1 kg	E2	P002 IBC08	PP38 B2, B4	T3	TP33
		4.1		III	223	5 kg	E1	P002 IBC08 LP02	PP11 B3	T1	TP33
1310	AMMONIUM PICRATE, WETTED with not less than 10% water, by mass	4.1		I	28	0	E0	P406	PP26		
1312	BORNEOL	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1313	CALCIUM RESINATE	4.1		III		5 kg	E1	P002 IBC06		T1	TP33
1314	CALCIUM RESINATE, FUSED	4.1		III		5 kg	E1	P002 IBC04		T1	TP33
1318	COBALT RESINATE, PRECIPITATED	4.1		III		5 kg	E1	P002 IBC06		T1	TP33
1320	DINITROPHENOL, WETTED with not less than 15% water, by mass	4.1	6.1	I	28	0	E0	P406	PP26		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1321	DINITROPHENOLATES, WETTED with not less than 15% water, by mass	4.1	6.1	I	28	0	E0	P406	PP26		
1322	DINITRORESORCINOL, WETTED with not less than 15% water, by mass	4.1		I	28	0	E0	P406	PP26		
1323	FERROCERIUM	4.1		II	249	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1324	FILMS, NITROCELLULOSE BASE, gelatin coated, except scrap	4.1		III		5 kg	E1	P002	PP15		
1325	FLAMMABLE SOLID, ORGANIC, N.O.S.	4.1		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		4.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1326	HAFNIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns	4.1		II		1 kg	E2	P410 IBC06	PP40 B2	T3	TP33
1327	HAY, STRAW or BHUSA Usually not subject to this Code (see SP 281)	4.1			281	3 kg	E0	P003 IBC08	PP19 B6		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1328	HEXAMETHYLENETETRAMINE	4.1		III		5 kg	E1	P002 IBC08	B3	T1	TP33
1330	MANGANESE RESINATE	4.1		III		5 kg	E1	P002 IBC06		T1	TP33
1331	MATCHES, “STRIKE ANYWHERE”	4.1		III	293	5 kg	E0	P407	PP27		
1332	METALDEHYDE	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1333	CERIUM, slabs, ingots or rods	4.1		II		1 kg	E2	P002 IBC08	B2, B4		
1334	NAPHTHALENE, CRUDE or NAPHTHALENE, REFINED	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1336	NITROGUANIDINE (PICRITE), WETTED with not less than 20% water, by mass	4.1		I	28	0	E0	P406			
1337	NITROSTARCH, WETTED with not less than 20% water, by mass	4.1		I	28	0	E0	P406			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1338	PHOSPHORUS, AMORPHOUS	4.1		III		5 kg	E1	P410 IBC08	B3	T1	TP33
1339	PHOSPHORUS HEPTASULPHIDE, free from yellow and white phosphorus	4.1		II		1 kg	E2	P410 IBC04		T3	TP33
1340	PHOSPHORUS PENTASULPHIDE, free from yellow and white phosphorus	4.3	4.1	II		500 g	E2	P410 IBC04		T3	TP33
1341	PHOSPHORUS SESQUISULPHIDE, free from yellow and white phosphorus	4.1		II		1 kg	E2	P410 IBC04		T3	TP33
1343	PHOSPHORUS TRISULPHIDE, free from yellow and white phosphorus	4.1		II		1 kg	E2	P410 IBC04		T3	TP33
1344	TRINITROPHENOL (PICRIC ACID), WETTED with not less than 30% water, by mass	4.1		I	28	0	E0	P406	PP26		
1345	RUBBER SCRAP or RUBBER SHODDY, powdered or granulated, not exceeding 840 microns and rubber content exceeding 45%	4.1		II	223	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1346	SILICON POWDER, AMORPHOUS	4.1		III	32	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1347	SILVER PICRATE, WETTED with not less than 30% water, by mass	4.1		I	28	0	E0	P406	PP25 PP26		
1348	SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 15% water, by mass	4.1	6.1	I	28	0	E0	P406	PP26		
1349	SODIUM PICRAMATE, WETTED with not less than 20% water, by mass	4.1		I	28	0	E0	P406	PP26		
1350	SULPHUR	4.1		III	242	5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1352	TITANIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced particle size less than 840 microns	4.1		II		1 kg	E2	P410 IBC06	PP40 B2	T3	TP33
1353	FIBRES or FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.	4.1		III		5 kg	E1	P410 IBC08	B3		
1354	TRINITROBENZENE, WETTED with not less than 30% water, by mass	4.1		I	28	0	E0	P406			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1355	TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass	4.1		I	28	0	E0	P406			
1356	TRINITROTOLUENE (TNT), WETTED with not less than 30% water, by mass	4.1		I	28	0	E0	P406			
1357	UREA NITRATE, WETTED with not less than 20% water, by mass	4.1		I	28 227	0	E0	P406			
1358	ZIRCONIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced particle size less than 840 microns	4.1		II		1 kg	E2	P410 IBC06	PP40 B2	T3	TP33
1360	CALCIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
1361	CARBON, animal or vegetable origin	4.2		II		0	E0	P002 IBC06	PP12	T3	TP33
		4.2		III	223	0	E0	P002 IBC08 LP02	PP12 B3	T1	TP33
1362	CARBON, ACTIVATED	4.2		III	223	0	E1	P002 IBC08 LP02	PP11 B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1363	COPRA	4.2		III	29	0	E0	P003 IBC08 LP02	PP20 B3, B6	BK2	
1364	COTTON WASTE, OILY	4.2		III		0	E0	P003 IBC08 LP02	PP19 B3, B6		
1365	COTTON, WET	4.2		III	29	0	E0	P003 IBC08 LP02	PP19 B3, B6		
1369	p-NITROSODIMETHYLANILINE	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
1372	FIBRES, ANIMAL or FIBRES, VEGETABLE burnt, wet or damp Not subject to this Code (see SP 117)	4.2		III	123	0	E1	P410			
1373	FIBRES or FABRICS, ANIMAL or VEGETABLE or SYNTHETIC, N.O.S., with oil	4.2		III	AU04	0	E0	P410 IBC08	B3	T1	TP33
1374	FISH MEAL (FISH SCRAP), UNSTABILISED	4.2		II	300	0	E2	P410 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1376	IRON OXIDE, SPENT or IRON SPONGE, SPENT obtained from coal gas purification	4.2		III	223	0	E0	P002 IBC08 LP02	B3	T1 BK2	TP33
1378	METAL CATALYST, WETTED with a visible excess of liquid	4.2		II	274	0	E0	P410 IBC01	PP39	T3	TP33
1379	PAPER, UNSATURATED OIL TREATED, incompletely dried (including carbon paper)	4.2		III		0	E0	P410 IBC08	B3		
1380	PENTABORANE	4.2	6.1	I		0	E0	P601			
1381	PHOSPHORUS, WHITE or YELLOW, DRY or UNDER WATER or IN SOLUTION	4.2	6.1	I		0	E0	P405		T9	TP3 TP31
1382	POTASSIUM SULPHIDE, ANHYDROUS or POTASSIUM SULPHIDE with less than 30% water of crystallisation	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
1383	PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S.	4.2		I	274	0	E0	P404		T21	TP7 TP33
1384	SODIUM DITHIONITE (SODIUM HYDROSULPHITE)	4.2		II		0	E2	P410 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1385	SODIUM SULPHIDE, ANHYDROUS or SODIUM SULPHIDE with less than 30% water of crystallisation	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
1386	SEED CAKE with more than 1.5% oil and not more than 11% moisture	4.2		III	29	0	E0	P003 IBC08 LP02	PP20 B3, B6	BK2	
1387	WOOL WASTE, WET Not subject to this Code (see SP 117)	4.2		III	123	0	E1	P410			
1389	ALKALI METAL AMALGAM, LIQUID	4.3		I	182	0	E0	P402			
1390	ALKALI METAL AMIDES	4.3		II	182	500 g	E2	P410 IBC07	B2	T3	TP33
1391	ALKALI METAL DISPERSION or ALKALINE EARTH METAL DISPERSION	4.3		I	182 183	0	E0	P402			
1392	ALKALINE EARTH METAL AMALGAM, LIQUID	4.3		I	183	0	E0	P402			
1393	ALKALINE EARTH METAL ALLOY, N.O.S.	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
1394	ALUMINIUM CARBIDE	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1395	ALUMINIUM FERROSILICON POWDER	4.3	6.1	II		500 g	E2	P410 IBC05	B2	T3	TP33
1396	ALUMINIUM POWDER, UNCOATED	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
		4.3		III	223	1 kg	E1	P410 IBC08	B4	T1	TP33
1397	ALUMINIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
1398	ALUMINIUM SILICON POWDER, UNCOATED	4.3		III	37 223	1 kg	E1	P410 IBC08	B4	T1 BK2	TP33
1400	BARIUM	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
1401	CALCIUM	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
1402	CALCIUM CARBIDE	4.3		I		0	E0	P403 IBC04	B1	T9	TP7 TP33
		4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1403	CALCIUM CYANAMIDE with more than 0.1% calcium carbide	4.3		III	38	1 kg	E1	P410 IBC08	B4	T1	TP33
1404	CALCIUM HYDRIDE	4.3		I		0	E0	P403			
1405	CALCIUM SILICIDE	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
		4.3		III	223	1 kg	E1	P410 IBC08	B4	T1	TP33
1407	CAESIUM	4.3		I		0	E0	P403 IBC04	B1		
1408	FERROSILICON with 30% or more but less than 90% silicon	4.3	6.1	III	39 223	1 kg	E1	P003 IBC08	PP20 B4, B6	T1 BK2	TP33
1409	METAL HYDRIDES, WATER-REACTIVE, N.O.S.	4.3		I	274	0	E0	P403			
		4.3		II	274	500 g	E2	P410 IBC04		T3	TP33
1410	LITHIUM ALUMINIUM HYDRIDE	4.3		I		0	E0	P403			
1411	LITHIUM ALUMINIUM HYDRIDE, ETHEREAL	4.3	3	I		0	E0	P402			
1413	LITHIUM BOROHYDRIDE	4.3		I		0	E0	P403			
1414	LITHIUM HYDRIDE	4.3		I		0	E0	P403			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1415	LITHIUM	4.3		I		0	E0	P403 IBC04	B1	T9	TP7 TP33
1417	LITHIUM SILICON	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
1418	MAGNESIUM POWDER or MAGNESIUM ALLOYS POWDER	4.3	4.2	I		0	E0	P403			
		4.3	4.2	II		0	E2	P410 IBC05	B2	T3	TP33
		4.3	4.2	III	223	0	E1	P410 IBC08	B4	T1	TP33
1419	MAGNESIUM ALUMINIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
1420	POTASSIUM METAL ALLOYS, LIQUID	4.3		I		0	E0	P402			
1421	ALKALI METAL ALLOY, LIQUID, N.O.S.	4.3		I	182	0	E0	P402			
1422	POTASSIUM SODIUM ALLOYS, LIQUID	4.3		I		0	E0	P402		T9	TP3 TP7 TP31
1423	RUBIDIUM	4.3		I		0	E0	P403 IBC04	B1		
1426	SODIUM BOROHYDRIDE	4.3		I		0	E0	P403			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1427	SODIUM HYDRIDE	4.3		I		0	E0	P403			
1428	SODIUM	4.3		I		0	E0	P403 IBC04	B1	T9	TP7 TP33
1431	SODIUM METHYLATE	4.2	8	II		0	E2	P410 IBC05	B2	T3	TP33
1432	SODIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
1433	STANNIC PHOSPHIDES	4.3	6.1	I		0	E0	P403			
1435	ZINC ASHES	4.3		III	223	1 kg	E1	P002 IBC08	B4	T1 BK2	TP33
1436	ZINC POWDER or ZINC DUST	4.3	4.2	I		0	E0	P403			
		4.3	4.2	II		0	E2	P410 IBC07	B2	T3	TP33
		4.3	4.2	III	223	0	E1	P410 IBC08	B4	T1	TP33
1437	ZIRCONIUM HYDRIDE	4.1		II		1 kg	E2	P410 IBC04	PP40	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1438	ALUMINIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2	TP33
1439	AMMONIUM DICHROMATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1442	AMMONIUM PERCHLORATE	5.1		II	152	1 kg	E2	P002 IBC06	B2	T3	TP33
1444	AMMONIUM PERSULPHATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1445	BARIUM CHLORATE, SOLID	5.1	6.1	II		1 kg	E2	P002 IBC06	B2	T3	TP33
1446	BARIUM NITRATE	5.1	6.1	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1447	BARIUM PERCHLORATE, SOLID	5.1	6.1	II		1 kg	E2	P002 IBC06	B2	T3	TP33
1448	BARIUM PERMANGANATE	5.1	6.1	II		1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1449	BARIUM PEROXIDE	5.1	6.1	II		1 kg	E2	P002 IBC06	B2	T3	TP33
1450	BROMATES, INORGANIC, N.O.S.	5.1		II	274 350	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1451	CAESIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1452	CALCIUM CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1453	CALCIUM CHLORITE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1454	CALCIUM NITRATE	5.1		III	208	5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1455	CALCIUM PERCHLORATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1456	CALCIUM PERMANGANATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1457	CALCIUM PEROXIDE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
							E2				
1458	CHLORATE AND BORATE MIXTURE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1459	CHLORATE AND MAGNESIUM CHLORIDE MIXTURE, SOLID	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1461	CHLORATES, INORGANIC, N.O.S.	5.1		II	274 351	1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1462	CHLORITES, INORGANIC, N.O.S.	5.1		II	274 352	1 kg	E2	P002 IBC06	B2	T3	TP33
1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	6.1 8	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1465	DIDYMIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1466	FERRIC NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1467	GUANIDINE NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1469	LEAD NITRATE	5.1	6.1	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1470	LEAD PERCHLORATE, SOLID	5.1	6.1	II		1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1471	LITHIUM HYPOCHLORITE, DRY or LITHIUM HYPOCHLORITE MIXTURE	5.1		II		1 kg	E2	P002 IBC08	B2, B4		
1471	LITHIUM HYPOCHLORITE, DRY or LITHIUM HYPOCHLORITE MIXTURE	5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1472	LITHIUM PEROXIDE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1473	MAGNESIUM BROMATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1474	MAGNESIUM NITRATE	5.1		III	332	5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1475	MAGNESIUM PERCHLORATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1476	MAGNESIUM PEROXIDE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1477	NITRATES, INORGANIC, N.O.S.	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1479	OXIDISING SOLID, N.O.S.	5.1		I	274	0	E0	P503 IBC05	B1		
		5.1		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		5.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1481	PERCHLORATES, INORGANIC, N.O.S.	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
		5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1482	PERMANGANATES, INORGANIC, N.O.S.	5.1		II	206 274 353	1 kg	E2	P002 IBC06	B2	T3	TP33
		5.1		III	206 223 274 353	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1483	PEROXIDES, INORGANIC, N.O.S.	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
		5.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1484	POTASSIUM BROMATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1485	POTASSIUM CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1486	POTASSIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1487	POTASSIUM NITRATE AND SODIUM NITRITE MIXTURE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1488	POTASSIUM NITRITE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1489	POTASSIUM PERCHLORATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1490	POTASSIUM PERMANGANATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1491	POTASSIUM PEROXIDE	5.1		I		0	E0	P503 IBC06	B1		
1492	POTASSIUM PERSULPHATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1493	SILVER NITRATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1494	SODIUM BROMATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1495	SODIUM CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3 BK1 BK2	TP33
1496	SODIUM CHLORITE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1498	SODIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1499	SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1500	SODIUM NITRITE	5.1	6.1	III		5 kg	E1	P002 IBC08	B3	T1	TP33
1502	SODIUM PERCHLORATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1503	SODIUM PERMANGANATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1504	SODIUM PEROXIDE	5.1		I		0	E0	P503 IBC05	B1		
1505	SODIUM PERSULPHATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1506	STRONTIUM CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1507	STRONTIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1508	STRONTIUM PERCHLORATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1509	STRONTIUM PEROXIDE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1510	TETRANITROMETHANE	6.1	5.1	I	354	0	E0	P602			
1511	UREA HYDROGEN PEROXIDE	5.1	8	III		5 kg	E1	P002 IBC08	B3	T1	TP33
1512	ZINC AMMONIUM NITRITE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1513	ZINC CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1514	ZINC NITRATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1515	ZINC PERMANGANATE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1516	ZINC PEROXIDE	5.1		II		1 kg	E2	P002 IBC06	B2	T3	TP33
1517	ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass	4.1		I	28	0	E0	P406	PP26		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1541	ACETONE CYANOHYDRIN, STABILISED	6.1		I	354	0	E0	P602		T20	TP2 TP13
1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.	6.1		I	43 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	43 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1545	ALLYL ISOTHIOCYANATE, STABILISED	6.1	3	II	386	100 ml	E0	P001 IBC02		T7	TP2
1546	AMMONIUM ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1547	ANILINE	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2
1548	ANILINE HYDROCHLORIDE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1549	ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.	6.1		III	45 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1550	ANTIMONY LACTATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1551	ANTIMONY POTASSIUM TARTRATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1553	ARSENIC ACID, LIQUID	6.1		I		0	E5	P001		T20	TP2 TP7 TP13
1554	ARSENIC ACID, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1555	ARSENIC BROMIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1556	ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1		I	43 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	43 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	43 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28
1557	ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1		I	43 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	43 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1558	ARSENIC	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1559	ARSENIC PENTOXIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1560	ARSENIC TRICHLORIDE	6.1		I		0	E0	P602		T14	TP2 TP13
1561	ARSENIC TRIOXIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1562	ARSENICAL DUST	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1564	BARIUM COMPOUND, N.O.S.	6.1		II	177 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	177 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1565	BARIUM CYANIDE	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1566	BERYLLIUM COMPOUND, N.O.S.	6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1567	BERYLLIUM POWDER	6.1	4.1	II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1569	BROMOACETONE	6.1	3	II		0	E0	P602		T20	TP2 TP13
1570	BRUCINE	6.1		I	43	0	E5	P002 IBC07	B1	T6	TP33
1571	BARIUM AZIDE, WETTED with not less than 50% water, by mass	4.1	6.1	I	28	0	E0	P406			
1572	CACODYLIC ACID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1573	CALCIUM ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1574	CALCIUM ARSENATE AND CALCIUM ARSENITE MIXTURE, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1575	CALCIUM CYANIDE	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1577	CHLORODINITROBENZENES, LIQUID	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2
1578	CHLORONITROBENZENES, SOLID	6.1		II	279	500 g	E4	P002 IBC08	B2, B4	T3	TP33
1579	4-CHLORO-o-TOLUIDINE HYDROCHLORIDE, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1580	CHLOROPICRIN	6.1		I	354	0	E0	P601		T22	TP2 TP13
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE with more than 2% chloropicrin	2.3				0	E0	P200		T50	
1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2.3				0	E0	P200		T50	
1583	CHLOROPICRIN MIXTURE, N.O.S.	6.1		I	315 274	0	E0	P602			
		6.1		II	274	100 ml	E0	P001 IBC02			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1		III	223 274	5 L	E0	P001 IBC03 LP01			
1585	COPPER ACETOARSENITE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1586	COPPER ARSENITE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1587	COPPER CYANIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1588	CYANIDES, INORGANIC, SOLID, N.O.S.	6.1		I	47 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	47 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	47 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1589	CYANOGEN CHLORIDE, STABILISED	2.3	8		386	0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1590	DICHLOROANILINES, LIQUID	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2
1591	o-DICHLOROBENZENE	6.1		III	279	5 L	E1	P001 IBC03 LP01		T4	TP1
1593	DICHLOROMETHANE	6.1		III		5 L	E1	P001 IBC03 LP01	B8	T7	TP2
1594	DIETHYL SULPHATE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1595	DIMETHYL SULPHATE	6.1	8	I	354	0	E0	P602		T20	TP2 TP13
1596	DINITROANILINES	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1597	DINITROBENZENES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1598	DINITRO-o-CRESOL	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33
1599	DINITROPHENOL SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1600	DINITROTOLUENES, MOLTEN	6.1		II		0	E0	None		T7	TP3
1601	DISINFECTANT, SOLID, TOXIC, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.	6.1		I	274	0	E5	P001			
		6.1		II	274	100 ml	E4	P001 IBC02			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01			
1603	ETHYL BROMOACETATE	6.1	3	II		100 ml	E0	P001 IBC02	T7		TP2
1604	ETHYLENEDIAMINE	8	3	II		1 L	E2	P001 IBC02	T7		TP2
1605	ETHYLENE DIBROMIDE	6.1		I	354	0	E0	P602		T20	TP2 TP13
1606	FERRIC ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1607	FERRIC ARSENITE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1608	FERROUS ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1611	HEXAETHYL TETRAPHOSPHATE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	2.3				0	E0	P200			
1613	HYDROCYANIC ACID, AQUEOUS SOLUTION (HYDROGEN CYANIDE, AQUEOUS SOLUTION) with not more than 20% hydrogen cyanide	6.1		I	48	0	E0	P601		T14	TP2 TP13
1614	HYDROGEN CYANIDE, STABILISED, containing less than 3% water and absorbed in a porous inert material	6.1		I	386	0	E0	P099			
1616	LEAD ACETATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1617	LEAD ARSENATES	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1618	LEAD ARSENITES	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1620	LEAD CYANIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1621	LONDON PURPLE	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1622	MAGNESIUM ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1623	MERCURIC ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1624	MERCURIC CHLORIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1625	MERCURIC NITRATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1626	MERCURIC POTASSIUM CYANIDE	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1627	MERCUROUS NITRATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1629	MERCURY ACETATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1630	MERCURY AMMONIUM CHLORIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1631	MERCURY BENZOATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1634	MERCURY BROMIDES	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1636	MERCURY CYANIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1637	MERCURY GLUCONATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1638	MERCURY IODIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1639	MERCURY NUCLEATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1640	MERCURY OLEATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1641	MERCURY OXIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1642	MERCURY OXYCYANIDE, DESENSITISED	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1643	MERCURY POTASSIUM IODIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1644	MERCURY SALICYLATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1645	MERCURY SULPHATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1646	MERCURY THIOCYANATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1647	METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURE, LIQUID	6.1		I	354	0	E0	P602		T20	TP2 TP13
1648	ACETONITRILE	3		II		1 L	E2	P001 IBC02		T7	TP2
1649	MOTOR FUEL ANTI-KNOCK MIXTURE	6.1		I		0	E0	P602		T14	TP2 TP13
1650	beta-NAPHTHYLAMINE, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1651	NAPHTHYLTHIOUREA	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33
1652	NAPHTHYLUREA	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1653	NICKEL CYANIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1654	NICOTINE	6.1		II		100 ml	E4	P001 IBC02			
1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.	6.1		I	43 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	43 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1656	NICOTINE HYDROCHLORIDE, LIQUID or SOLUTION	6.1		II	43	100 ml	E4	P001 IBC02			
		6.1		III	43 223	5 L	E1	P001 IBC02			
1657	NICOTINE SALICYLATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1658	NICOTINE SULPHATE SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC02		T7	TP2
1659	NICOTINE TARTRATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1660	NITRIC OXIDE, COMPRESSED	2.3	5.1 8			0	E0	P200			
1661	NITROANILINES (o-, m-, p-)	6.1		II	279	500 g	E4	P002 IBC08	B2, B4	T3	TP33
1662	NITROBENZENE	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2
1663	NITROPHENOLS (o-, m-, p-)	6.1		III	279	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1664	NITROTOLUENES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1665	NITROXYLENES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1669	PENTACHLOROETHANE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1670	PERCHLOROMETHYL MERCAPTAN	6.1		I	354	0	E0	P602		T20	TP2 TP13
1671	PHENOL, SOLID	6.1		II	279	500 g	E4	P002 IBC08	B2, B4	T3	TP33
1672	PHENYLCARBYLAMINE CHLORIDE	6.1		I		0	E0	P602		T14	TP2 TP13
1673	PHENYLENEDIAMINES (o-, m-, p-)	6.1		III	279	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1674	PHENYLMERCURIC ACETATE	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33
1677	POTASSIUM ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1678	POTASSIUM ARSENITE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1679	POTASSIUM CUPROCYANIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1680	POTASSIUM CYANIDE, SOLID	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1683	SILVER ARSENITE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1684	SILVER CYANIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1685	SODIUM ARSENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1686	SODIUM ARSENITE, AQUEOUS SOLUTION	6.1		II	43	100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	43 223	5 L	E1	P001 IBC03 LP01		T4	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1687	SODIUM AZIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4		
1688	SODIUM CACODYLATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1689	SODIUM CYANIDE, SOLID	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1690	SODIUM FLUORIDE, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1691	STRONTIUM ARSENITE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1692	STRYCHNINE or STRYCHNINE SALTS	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1693	TEAR GAS SUBSTANCE, LIQUID, N.O.S.	6.1		I	274	0	E0	P001			
		6.1		II	274	0	E0	P001 IBC02			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1694	BROMOBENZYL CYANIDES, LIQUID	6.1		I	138	0	E0	P001		T14	TP2 TP13
1695	CHLOROACETONE, STABILISED	6.1	3 8	I	354	0	E0	P602		T20	TP2 TP13
1697	CHLOROACETOPHENONE, SOLID	6.1		II		0	E0	P002 IBC08	B2, B4	T3	TP33
1698	DIPHENYLAMINE CHLOROARSINE	6.1		I		0	E0	P002		T6	TP33
1699	DIPHENYLCHLOROARSINE, LIQUID	6.1		I		0	E0	P001			
1700	TEAR GAS CANDLES	6.1	4.1			0	E0	P600			
1701	XYLYL BROMIDE, LIQUID	6.1		II		0	E0	P001 IBC02		T7	TP2 TP13
1702	1,1,2,2-TETRACHLOROETHANE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1704	TETRAETHYL DITHIOPYROPHOSPHATE	6.1		II	43	100 ml	E4	P001 IBC02		T7	TP2
1707	THALLIUM COMPOUND, N.O.S.	6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1708	TOLUIDINES, LIQUID	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2
1709	2,4-TOLUYLENEDIAMINE, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1710	TRICHLOROETHYLENE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
1711	XYLIDINES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1712	ZINC ARSENATE, ZINC ARSENITE or ZINC ARSENATE AND ZINC ARSENITE MIXTURE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1713	ZINC CYANIDE	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
1714	ZINC PHOSPHIDE	4.3	6.1	I		0	E0	P403			
1715	ACETIC ANHYDRIDE	8	3	II		1 L	E2	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1716	ACETYL BROMIDE	8		II		1 L	E2	P001 IBC02		T8	TP2
1717	ACETYL CHLORIDE	3	8	II		1 L	E2	P001 IBC02		T8	TP2
1718	BUTYL ACID PHOSPHATE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
1719	CAUSTIC ALKALI LIQUID, N.O.S.	8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
1722	ALLYL CHLOROFORMATE	6.1	3 8	I		0	E0	P001		T14	TP2 TP13
1723	ALLYL IODIDE	3	8	II		1 L	E2	P001 IBC02		T7	TP2 TP13
1724	ALLYLTRICHLOROSILANE, STABILISED	8	3	II	386	0	E0	P010		T10	TP2 TP7 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1725	ALUMINIUM BROMIDE, ANHYDROUS	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1726	ALUMINIUM CHLORIDE, ANHYDROUS	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1727	AMMONIUM HYDROGENDIFLUORIDE, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1728	AMYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1729	ANISOYL CHLORIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1730	ANTIMONY PENTACHLORIDE, LIQUID	8		II		1 L	E2	P001 IBC02		T7	TP2
1731	ANTIMONY PENTACHLORIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1732	ANTIMONY PENTAFLUORIDE	8	6.1	II		1 L	E0	P001 IBC02		T7	TP2
1733	ANTIMONY TRICHLORIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1736	BENZOYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T8	TP2 TP13
1737	BENZYL BROMIDE	6.1	8	II		0	E4	P001 IBC02		T8	TP2 TP13
1738	BENZYL CHLORIDE	6.1	8	II		0	E4	P001 IBC02		T8	TP2 TP13
1739	BENZYL CHLOROFORMATE	8		I		0	E0	P001		T10	TP2 TP13
1740	HYDROGENDIFLUORIDES, SOLID, N.O.S.	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1741	BORON TRICHLORIDE	2.3	8			0	E0	P200			

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UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1742	BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID	8		II		1 L	E2	P001 IBC02		T8	TP2
1743	BORON TRIFLUORIDE PROPIONIC ACID COMPLEX, LIQUID	8		II		1 L	E2	P001 IBC02		T8	TP2
1744	BROMINE or BROMINE SOLUTION	8	6.1	I		0	E0	P804		T22	TP2 TP10 TP13
1745	BROMINE PENTAFLUORIDE	5.1	6.1 8	I		0	E0	P200		T22	TP2 TP13
1746	BROMINE TRIFLUORIDE	5.1	6.1 8	I		0	E0	P200		T22	TP2 TP13
1747	BUTYLTRICHLOROSILANE	8	3	II		0	E0	P010		T10	TP2 TP7 TP13
1748	CALCIUM HYPOCHLORITE, DRY or CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen)	5.1		II	314	1 kg	E2	P002 IBC08	PP85 B2, B4, B13		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		5.1		III	316	5 kg	E1	P002 IBC08	B4, B13		
1749	CHLORINE TRIFLUORIDE	2.3	5.1 8			0	E0	P200			
1750	CHLOROACETIC ACID SOLUTION	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2
1751	CHLOROACETIC ACID, SOLID	6.1	8	II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1752	CHLOROACETYL CHLORIDE	6.1	8	I	354	0	E0	P602		T20	TP2 TP13
1753	CHLOROPHENYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7
1754	CHLOROSULPHONIC ACID (with or without sulphur trioxide)	8		I		0	E0	P001		T20	TP2
1755	CHROMIC ACID SOLUTION	8		II		1 L	E2	P001 IBC02		T8	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1756	CHROMIC FLUORIDE, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1757	CHROMIC FLUORIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1758	CHROMIUM OXYCHLORIDE	8		I		0	E0	P001		T10	TP2
1759	CORROSIVE SOLID, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1760	CORROSIVE LIQUID, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
		8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
1761	CUPRIETHYLENEDIAMINE SOLUTION	8	6.1	II		1 L	E2	P001 IBC02		T7	TP2
		8	6.1	III	223	5 L	E1	P001 IBC03		T7	TP1 TP28
1762	CYCLOHEXENYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1763	CYCLOHEXYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1764	DICHLOROACETIC ACID	8		II		1 L	E2	P001 IBC02		T8	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1765	DICHLOROACETYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T7	TP2
1766	DICHLOROPHENYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1767	DIETHYLDICHLOROSILANE	8	3	II		0	E0	P010		T10	TP2 TP7 TP13
1768	DIFLUOROPHOSPHORIC ACID, ANHYDROUS	8		II		1 L	E2	P001 IBC02		T8	TP2
1769	DIPHENYLDICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1770	DIPHENYLMETHYL BROMIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1771	DODECYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1773	FERRIC CHLORIDE, ANHYDROUS	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1774	FIRE EXTINGUISHER CHARGES, corrosive liquid	8		II		1 L	E0	P001	PP4		
1775	FLUOROBORIC ACID	8		II		1 L	E2	P001 IBC02		T7	TP2
1776	FLUOROPHOSPHORIC ACID, ANHYDROUS	8		II		1 L	E2	P001 IBC02		T8	TP2
1777	FLUOROSULPHONIC ACID	8		I		0	E0	P001		T10	TP2
1778	FLUOROSILICIC ACID	8		II		1 L	E2	P001 IBC02		T8	TP2
1779	FORMIC ACID with more than 85% acid by mass	8	3	II		1 L	E2	P001 IBC02		T7	TP2
1780	FUMARYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T7	TP2
1781	HEXADECYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1782	HEXAFLUOROPHOSPHORIC ACID	8		II		1 L	E2	P001 IBC02		T8	TP2
1783	HEXAMETHYLENEDIAMINE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1784	HEXYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1786	HYDROFLUORIC ACID AND SULPHURIC ACID MIXTURE	8	6.1	I		0	E0	P001		T10	TP2 TP13
1787	HYDRIODIC ACID	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1788	HYDROBROMIC ACID	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1789	HYDROCHLORIC ACID	8		II		1 L	E2	P001 IBC02		T8	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1790	HYDROFLUORIC ACID, with more than 60% hydrogen fluoride	8	6.1	I		0	E0	P802	PP79 PP81	T10	TP2 TP13
	HYDROFLUORIC ACID, with not more than 60% hydrogen fluoride	8	6.1	II		1 L	E2	P001 IBC02		T8	TP2
1791	HYPOCHLORITE SOLUTION	8		II		1 L	E2	P001 IBC02	PP10 B5	T7	TP2 TP24

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP2 TP24
1792	IODINE MONOCHLORIDE, SOLID	8		II		1 kg	E0	P002 IBC08	B2, B4	T7	TP2
1793	ISOPROPYL ACID PHOSPHATE	8		III		5 L	E1	P001 IBC02 LP01		T4	TP1
1794	LEAD SULPHATE with more than 3% free acid	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1796	NITRATING ACID MIXTURE with more than 50% nitric acid	8	5.1	I		0	E0	P001		T10	TP2 TP13
	NITRATING ACID MIXTURE with not more than 50% nitric acid	8		II		1 L	E0	P001 IBC02		T8	TP2 TP13
1798	NITROHYDROCHLORIC ACID	8		I		0	E0	P802		T10	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1799	NONYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1800	OCTADECYL-TRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1801	OCTYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
1802	PERCHLORIC ACID with not more than 50% acid, by mass	8	5.1	II		1 L	E0	P001 IBC02		T7	TP2
1803	PHENOLSULPHONIC ACID, LIQUID	8		II		1 L	E2	P001 IBC02		T7	TP2
1804	PHENYLTRICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1805	PHOSPHORIC ACID, SOLUTION	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1806	PHOSPHORUS PENTACHLORIDE	8		II		1 kg	E0	P002 IBC08	B2, B4	T3	TP33
1807	PHOSPHORUS PENTOXIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1808	PHOSPHORUS TRIBROMIDE	8		II		1 L	E0	P001 IBC02		T7	TP2
1809	PHOSPHORUS TRICHLORIDE	6.1	8	I	354	0	E0	P602		T20	TP2 TP13
1810	PHOSPHORUS OXYCHLORIDE	6.1	8	I	354	0	E0	P602		T20	TP2 TP13
1811	POTASSIUM HYDROGEN DIFLUORIDE SOLID	8	6.1	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1812	POTASSIUM FLUORIDE, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1813	POTASSIUM HYDROXIDE, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1814	POTASSIUM HYDROXIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1815	PROPIONYL CHLORIDE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1816	PROPYLTRICHLOROSILANE	8	3	II		0	E0	P010		T10	TP2 TP7 TP13
1817	PYROSULPHURYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T8	TP2
1818	SILICON TETRACHLORIDE	8		II		0	E0	P010		T10	TP2 TP7 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1819	SODIUM ALUMINATE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1823	SODIUM HYDROXIDE, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1824	SODIUM HYDROXIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1825	SODIUM MONOXIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1826	NITRATING ACID MIXTURE, SPENT, with more than 50% nitric acid	8	5.1	I	113	0	E0	P001		T10	TP2 TP13
	NITRATING ACID MIXTURE, SPENT, with not more than 50% nitric acid	8		II	113	1 L	E0	P001 IBC02		T8	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1827	STANNIC CHLORIDE, ANHYDROUS	8		II		1 L	E2	P001 IBC02		T7	TP2
1828	SULPHUR CHLORIDES	8		I		0	E0	P602		T20	TP2
1829	SULPHUR TRIOXIDE, STABILISED	8		I	386	0	E0	P001		T20	TP4 TP13 TP25 TP26
1830	SULPHURIC ACID with more than 51% acid	8		II		1 L	E2	P001 IBC02		T8	TP2
1831	SULPHURIC ACID, FUMING	8	6.1	I		0	E0	P602		T20	TP2 TP13
1832	SULPHURIC ACID, SPENT	8		II	113	1 L	E0	P001 IBC02		T8	TP2
1833	SULPHUROUS ACID	8		II		1 L	E2	P001 IBC02		T7	TP2
1834	SULPHURYL CHLORIDE	8		I	354	0	E0	P602		T20	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1835	TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC02		T7	TP2
1836	THIONYL CHLORIDE	8		I		0	E0	P802		T10	TP2 TP13
1837	THIOPHOSPHORYL CHLORIDE	8		II		1 L	E0	P001 IBC02		T7	TP2
1838	TITANIUM TETRACHLORIDE	6.1	8	I	354	0	E0	P602		T20	TP2 TP13
1839	TRICHLOROACETIC ACID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
1840	ZINC CHLORIDE SOLUTION	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
1841	ACETALDEHYDE AMMONIA	9		III		5 kg	E1	P002 IBC08 LP02	B3, B6	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1843	AMMONIUM DINITRO-o-CRESOLATE, SOLID	6.1		II		500 g	E4	P002 IBC08	 B2, B4	T3	TP33
1845	CARBON DIOXIDE, SOLID (DRY ICE)	9				0	E0	P003	PP18		
1846	CARBON TETRACHLORIDE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1847	POTASSIUM SULPHIDE, HYDRATED with not less than 30% water of crystallisation	8		II		1 kg	E2	P002 IBC08	 B2, B4	T3	TP33
1848	PROPIONIC ACID with not less than 10% and less than 90% acid by mass	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
1849	SODIUM SULPHIDE, HYDRATED with not less than 30% water	8		II		1 kg	E2	P002 IBC08	 B2, B4	T3	TP33
1851	MEDICINE, LIQUID, TOXIC, N.O.S.	6.1		II	221	100 ml	E4	P001			
		6.1		III	221 223	5 L	E1	P001			
1854	BARIUM ALLOYS, PYROPHORIC	4.2		I		0	E0	P404		T21	TP7 TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1855	CALCIUM, PYROPHORIC or CALCIUM ALLOYS, PYROPHORIC	4.2		I		0	E0	P404			
1856	RAGS, OILY Not subject to this Code (see SP 117)	4.2			29 123	0	E0	P003 IBC08	PP19 B6		
1857	TEXTILE WASTE, WET Not subject to this Code (see SP 117)	4.2		III	123	0	E1	P410			
1858	HEXAFLUOROPROPYLENE (REFRIGERANT GAS R1216)	2.2				120 ml	E1	P200		T50	
1859	SILICON TETRAFLUORIDE	2.3	8			0	E0	P200			
1860	VINYL FLUORIDE, STABILISED	2.1			386	0	E0	P200			
1862	ETHYL CROTONATE	3		II		1 L	E2	P001 IBC02		T4	TP2
1863	FUEL, AVIATION, TURBINE ENGINE (see 3.2.5 for relevant [AUST.] entries)	3		I		500 ml	E3	P001		T11	TP1 TP8 TP28
		3		II		1 L	E2	P001 IBC02		T4	TP1 TP8

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
1865	n-PROPYL NITRATE	3		II	26	1 L	E2	P001 IBC02	B7		
1866	RESIN SOLUTION, flammable	3		I		500 ml	E3	P001		T11	TP1 TP8 TP28
		3		II		5 L	E2	P001 IBC02	PP1	T4	TP1 TP8
		3		III	223	5 L	E1	P001 IBC03 LP01	PP1	T2	TP1
1868	DECABORANE	4.1	6.1	II		1 kg	E0	P002 IBC06	B2	T3	TP33
1869	MAGNESIUM or MAGNESIUM ALLOYS with more than 50% magnesium in pellets, turnings or ribbons	4.1		III	59	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1870	POTASSIUM BOROHYDRIDE	4.3		I		0	E0	P403			
1871	TITANIUM HYDRIDE	4.1		II		1 kg	E2	P410 IBC04	PP40	T3	TP33
1872	LEAD DIOXIDE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1873	PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass	5.1	8	I	60	0	E0	P502	PP28	T10	TP1
1884	BARIUM OXIDE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1885	BENZIDINE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1886	BENZYLIDENE CHLORIDE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
1887	BROMOCHLOROMETHANE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1888	CHLOROFORM	6.1		III		5 L	E1	P001 IBC03 LP01		T7	TP2
1889	CYANOGEN BROMIDE	6.1	8	I		0	E0	P002		T6	TP33
1891	ETHYL BROMIDE	6.1		II		100 ml	E4	P001 IBC02	B8	T7	TP2 TP13
1892	ETHYLDICHLOROARSINE	6.1		I	354	0	E0	P602		T20	TP2 TP13
1894	PHENYLMERCURIC HYDROXIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1895	PHENYLMERCURIC NITRATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
1897	TETRACHLOROETHYLENE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
1898	ACETYL IODIDE	8		II		1 L	E2	P001 IBC02		T7	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1902	DIISOOCTYL ACID PHOSPHATE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.	8		I	274	0	E0	P001			
		8		II	274	1 L	E2	P001 IBC02			
		8		III	223 274	5 L	E1	P001 IBC03 LP01			
1905	SELENIC ACID	8		I		0	E0	P002 IBC07	B1	T6	TP33
1906	SLUDGE ACID	8		II		1 L	E0	P001 IBC02		T8	TP2 TP28
1907	SODA LIME with more than 4% sodium hydroxide	8		III	62	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1908	CHLORITE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2 TP24

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP2 TP24
1910	CALCIUM OXIDE Not subject to this Code (see SP 106)	8		III	106	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1911	DIBORANE	2.3	2.1			0	E0	P200			
1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2.1			228	0	E0	P200		T50	
1913	NEON, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5
1914	BUTYL PROPIONATES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1915	CYCLOHEXANONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1916	2,2'-DICHLORODIETHYL ETHER	6.1	3	II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1917	ETHYL ACRYLATE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1 TP13
1918	ISOPROPYLBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1919	METHYL ACRYLATE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1 TP13
1920	NONANES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
1921	PROPYLENEIMINE, STABILISED	3	6.1	I	386	0	E0	P001		T14	TP2 TP13
1922	PYRROLIDINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
1923	CALCIUM DITHIONITE (CALCIUM HYDROSULPHITE)	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
1928	METHYL MAGNESIUM BROMIDE IN ETHYL ETHER	4.3	3	I		0	E0	P402			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1929	POTASSIUM DITHIONITE (POTASSIUM HYDROSULPHITE)	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
1931	ZINC DITHIONITE (ZINC HYDROSULPHITE)	9		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
1932	ZIRCONIUM SCRAP	4.2		III	223	0	E0	P002 IBC08 LP02	B3	T1	TP33
1935	CYANIDE SOLUTION, N.O.S.	6.1		I	274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP13 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
1938	BROMOACETIC ACID SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC02		T7	TP2
1939	PHOSPHORUS OXYBROMIDE	8		II		1 kg	E0	P002 IBC08	B2, B4	T3	TP33
1940	THIOGLYCOLIC ACID	8		II		1 L	E2	P001 IBC02		T7	TP2
1941	DIBROMODIFLUOROMETHANE	9		III		5 L	E1	P001 LP01		T11	TP2
1942	AMMONIUM NITRATE, with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance.	5.1		III	306	5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
1944	MATCHES, SAFETY (book, card or strike on box)	4.1		III	293 294	5 kg	E1	P407			
1945	MATCHES, WAX “VESTA”	4.1		III	293 294	5 kg	E1	P407			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1950	AEROSOLS	2			63 190 277 327 344 381	See SP 277	E0	P207 LP200	PP87 L2		
1951	ARGON, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	2.2			392	120 ml	E1	P200			
1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1		274	0	E0	P200			
1954	COMPRESSED GAS, FLAMMABLE, N.O.S.	2.1			274	0	E0	P200			
1955	COMPRESSED GAS, TOXIC, N.O.S.	2.3			274	0	E0	P200			
1956	COMPRESSED GAS, N.O.S.	2.2			274 378 392	120 ml	E1	P200			
1957	DEUTERIUM, COMPRESSED	2.1				0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1958	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 114)	2.2				120 ml	E1	P200		T50	
1959	1,1-DIFLUOROETHYLENE (REFRIGERANT GAS R 1132a)	2.1				0	E0	P200			
1961	ETHANE, REFRIGERATED LIQUID	2.1				0	E0	P203		T75	TP5
1962	ETHYLENE	2.1				0	E0	P200			
1963	HELIUM, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5 TP34
1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	2.1			274	0	E0	P200			
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.	2.1			274	0	E0	P200		T50	
1966	HYDROGEN, REFRIGERATED LIQUID	2.1				0	E0	P203		T75	TP5 TP34
1967	INSECTICIDE GAS, TOXIC, N.O.S.	2.3			274	0	E0	P200			
1968	INSECTICIDE GAS, N.O.S.	2.2			274	120 ml	E1	P200			
1969	ISOBUTANE	2.1				0	E0	P200		T50	
1970	KRYPTON, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5
1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content	2.1				0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1972	METHANE, REFRIGERATED LIQUID or NATURAL GAS, REFRIGERATED LIQUID with high methane content	2.1				0	E0	P203		T75	TP5
1973	CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUORO-ETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane (REFRIGERANT GAS R 502)	2.2				120 ml	E1	P200		T50	
1974	CHLORODIFLUOROBROMO-METHANE (REFRIGERANT GAS R 12B1)	2.2				120 ml	E1	P200		T50	
1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)	2.3	5.1 8			0	E0	P200			
1976	OCTAFLUOROCYCLOBUTANE (REFRIGERANT GAS RC 318)	2.2				120 ml	E1	P200		T50	
1977	NITROGEN, REFRIGERATED LIQUID	2.2			345 346	120 ml	E1	P203		T75	TP5
1978	PROPANE	2.1			AU03	0	E0	P200		T50	
1982	TETRAFLUOROMETHANE (REFRIGERANT GAS R 14)	2.2				120 ml	E1	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R133a)	2.2				120 ml	E1	P200		T50	
1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)	2.2				120 ml	E1	P200			
1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	6.1	I	274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		3	6.1	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
1987	ALCOHOLS, N.O.S.	3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	3	6.1	I	274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		3	6.1	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
1989	ALDEHYDES, N.O.S.	3		I	274	0	E3	P001		T11	TP1 TP27
		3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
1990	BENZALDEHYDE	9		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
1991	CHLOROPRENE, STABILISED	3	6.1	I	386	0	E0	P001		T14	TP2 TP6 TP13
1992	FLAMMABLE LIQUID, TOXIC, N.O.S.	3	6.1	I	274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	274	1 L	E2	P001 IBC02		T7	TP2 TP13
		3	6.1	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
1993	FLAMMABLE LIQUID, N.O.S.	3		I	274	0	E3	P001		T11	TP1 TP27
		3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
1994	IRON PENTACARBONYL	6.1	3	I	354	0	E0	P601		T22	TP2 TP13
1999	TARS, LIQUID, including road oils, and cutback bitumens	3		II		5 L	E2	P001 IBC02		T3	TP3 TP29
		3		III	223	5 L	E1	P001 IBC03 LP01		T1	TP3
2000	CELLULOID in block, rods, rolls, sheets, tubes, etc., except scrap	4.1		III	223 383	5 kg	E1	P002 LP02	PP7		
2001	COBALT NAPHTHENATES, POWDER	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2002	CELLULOID, SCRAP	4.2		III	223	0	E0	P002 IBC08 LP02	PP8 B3		
2004	MAGNESIUM DIAMIDE	4.2		II		0	E2	P410 IBC06		T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2006	PLASTICS, NITROCELLULOSE-BASED, SELF-HEATING, N.O.S.	4.2		III	274	0	E0	P002			
2008	ZIRCONIUM POWDER, DRY	4.2		I		0	E0	P404		T21	TP7 TP33
		4.2		II		0	E2	P410 IBC06	B2	T3	TP33
		4.2		III	223	0	E1	P002 IBC08 LP02	B3	T1	TP33
2009	ZIRCONIUM, DRY, finished sheets, strip or coiled wire	4.2		III	223	0	E1	P002 LP02			
2010	MAGNESIUM HYDRIDE	4.3		I		0	E0	P403			
2011	MAGNESIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
2012	POTASSIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
2013	STRONTIUM PHOSPHIDE	4.3	6.1	I		0	E0	P403			
2014	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilised as necessary)	5.1	8	II		1 L	E2	P504 IBC02	PP10 B5	T7	TP2 TP6 TP24

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2015	HYDROGEN PEROXIDE, STABILISED or HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILISED with more than 60% hydrogen peroxide	5.1	8	I		0	E0	P501		T9	TP2 TP6 TP24
2016	AMMUNITION, TOXIC, NON-EXPLOSIVE without burster or expelling charge, non-fused	6.1				0	E0	P600			
2017	AMMUNITION, TEAR-PRODUCING, NON-EXPLOSIVE without burster or expelling charge, non-fused	6.1	8			0	E0	P600			
2018	CHLOROANILINES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2019	CHLOROANILINES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2020	CHLOROPHENOLS, SOLID	6.1		III	205	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2021	CHLOROPHENOLS, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2022	CRESYLIC ACID	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2 TP13
2023	EPICHLOROHYDRIN	6.1	3	II	279	100 ml	E4	P001 IBC02		T7	TP2 TP13
2024	MERCURY COMPOUND, LIQUID, N.O.S.	6.1		I	43 66 274	0	E5	P001			
		6.1		II	43 66 274	100 ml	E4	P001 IBC02			
		6.1		III	43 66 223 274	5 L	E1	P001 IBC03 LP01			
2025	MERCURY COMPOUND, SOLID, N.O.S.	6.1		I	43 66 274	0	E5	P002 IBC07	B1	T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		II	43 66 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	43 66 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2026	PHENYLMERCURIC COMPOUND, N.O.S.	6.1		I	43 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	43 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2027	SODIUM ARSENITE, SOLID	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33
2028	BOMBS, SMOKE, NON-EXPLOSIVE with corrosive liquid, without initiating device	8		II		0	E0	P803			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2029	HYDRAZINE, ANHYDROUS	8	3 6.1	I		0	E0	P001			
2030	HYDRAZINE AQUEOUS SOLUTION with more than 37% hydrazine, by mass	8	6.1	I		0	E0	P001		T10	TP2 TP13
		8	6.1	II		1 L	E0	P001 IBC02		T7	TP2 TP13
		8	6.1	III		5 L	E1	P001 IBC03 LP01		T4	TP1
2031	NITRIC ACID, other than red fuming, with more than 70% nitric acid	8	5.1	I		0	E0	P001	PP81	T10	TP2 TP13
	NITRIC ACID, other than red fuming, with at least 65%, but not more than 70% nitric acid	8	5.1	II		1 L	E2	P001 IBC02	PP81 B15	T8	TP2
	NITRIC ACID, other than red fuming, with less than 65% nitric acid	8		II		1 L	E2	P001 IBC02	PP81 B15	T8	TP2
2032	NITRIC ACID, RED FUMING	8	5.1 6.1	I		0	E0	P602	PP81	T20	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2033	POTASSIUM MONOXIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED	2.1				0	E0	P200			
2035	1,1,1-TRIFLUOROETHANE (REFRIGERANT GAS R143a)	2.1				0	E0	P200		T50	
2036	XENON	2.2			378 392	120 ml	E1	P200			
2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable	2			191 277 303 327 344	See SP 277	E0	P003 LP200	PP17, PP96 L2		
2038	DINITROTOLUENES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2044	2,2-DIMETHYLPROPANE	2.1				0	E0	P200			
2045	ISOBUTYRALDEHYDE (ISOBUTYL ALDEHYDE)	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2046	CYMENES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2047	DICHLOROPROPENES	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
2048	DICYCLOPENTADIENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2049	DIETHYLBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2050	DIISOBUTYLENE, ISOMERIC COMPOUNDS	3		II		1 L	E2	P001 IBC02		T4	TP1
2051	2-DIMETHYLAMINOETHANOL	8	3	II		1 L	E2	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2052	DIPENTENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2053	METHYL ISOBUTYL CARBINOL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2054	MORPHOLINE	8	3	I		0	E0	P001		T10	TP2
2055	STYRENE MONOMER, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2056	TETRAHYDROFURAN	3		II		1 L	E2	P001 IBC02		T4	TP1
2057	TRIPROPYLENE	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2058	VALERALDEHYDE	3		II		1 L	E2	P001 IBC02		T4	TP1
2059	NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose	3		I	198	0	E0	P001		T11	TP1 TP8 TP27
		3		II	198	1 L	E0	P001 IBC02		T4	TP1 TP8
		3		III	198 223	5 L	E0	P001 IBC03 LP01		T2	TP1
2067	AMMONIUM NITRATE BASED FERTILISER	5.1		III	306 307	5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
2071	AMMONIUM NITRATE BASED FERTILISER	9		III	193	5 kg	E1	P002 IBC08 LP02	B3	BK2	

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2073	AMMONIA SOLUTION, relative density less than 0.880 at 15°C in water, with more than 35% but not more than 50% ammonia	2.2				120 ml	E0	P200			
2074	ACRYLAMIDE, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2075	CHLORAL, ANHYDROUS, STABILISED	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2076	CRESOLS, LIQUID	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2
2077	alpha-NAPHTHYLAMINE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2078	TOLUENE DIISOCYANATE	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2 TP13
2079	DIETHYLENETRIAMINE	8		II		1 L	E2	P001 IBC02		T7	TP2
2186	HYDROGEN CHLORIDE, REFRIGERATED LIQUID	2.3	8			0	E0	P099 P200			

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UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2187	CARBON DIOXIDE, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5
2188	ARSINE	2.3	2.1			0	E0	P200			
2189	DICHLOROSILANE	2.3	2.1 8			0	E0	P200			
2190	OXYGEN DIFLUORIDE, COMPRESSED	2.3	5.1 8			0	E0	P200			
2191	SULPHURYL FLUORIDE	2.3				0	E0	P200			
2192	GERMANE	2.3	2.1			0	E0	P200			
2193	HEXAFLUOROETHANE (REFRIGERANT GAS R116)	2.2				120 ml	E1	P200			
2194	SELENIUM HEXAFLUORIDE	2.3	8			0	E0	P200			
2195	TELLURIUM HEXAFLUORIDE	2.3	8			0	E0	P200			
2196	TUNGSTEN HEXAFLUORIDE	2.3	8			0	E0	P200			
2197	HYDROGEN IODIDE, ANHYDROUS	2.3	8			0	E0	P200			
2198	PHOSPHORUS PENTAFLUORIDE	2.3	8			0	E0	P200			
2199	PHOSPHINE	2.3	2.1			0	E0	P200			
2200	PROPADIENE, STABILISED	2.1			386	0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2201	NITROUS OXIDE, REFRIGERATED LIQUID	2.2	5.1			0	E0	P203		T75	TP5 TP22
2202	HYDROGEN SELENIDE, ANHYDROUS	2.3	2.1			0	E0	P200			
2203	SILANE	2.1				0	E0	P200			
2204	CARBONYL SULPHIDE	2.3	2.1			0	E0	P200			
2205	ADIPONITRILE	6.1		III		5 L	E1	P001 IBC03 LP01		T3	TP1
2206	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S.	6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP13 TP28
2208	CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 10% but not more than 39% available chlorine	5.1		III	314	5 kg	E1	P002 IBC08 LP02 L3	PP85 B3, B13		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2209	FORMALDEHYDE SOLUTION with not less than 25% formaldehyde	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2210	MANEB or MANEB PREPARATION with not less than 60% maneb	4.2	4.3	III	273	0	E1	P002 IBC06		T1	TP33
2211	POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour	9		III	382	5 kg	E1	P002 IBC08	PP14 B3, B6	T1	TP33
2212	ASBESTOS, AMPHIBOLE (amosite, tremolite, actinolite, anthophyllite, crocidolite)	9		II	168 274	1 kg	E0	P002 IBC08	PP37 B2, B4	T3	TP33
2213	PARAFORMALDEHYDE	4.1		III	223	5 kg	E1	P002 IBC08 LP02	PP12 B3	T1 BK1 BK2 BK3	TP33
2214	PHTHALIC ANHYDRIDE with more than 0.05% of maleic anhydride	8		III	169	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2215	MALEIC ANHYDRIDE	8		III		5 kg	E1	P002 IBC08	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
	MALEIC ANHYDRIDE, MOLTEN	8		III		0	E0	None		T4	TP3
2216	FISH MEAL (FISH SCRAP), STABILISED Not subject to this Code (see SP 117)	9		III	29 117 300 308	0	E1	P900 IBC08	B3	T1 BK2	TP33
2217	SEED CAKE with not more than 1.5% oil and not more than 11% moisture	4.2		III	29 142	0	E0	P002 IBC08 LP02	PP20 B3, B6	BK2	
2218	ACRYLIC ACID, STABILISED	8	3	II	386	1 L	E2	P001 IBC02		T7	TP2
2219	ALLYL GLYCIDYL ETHER	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2222	ANISOLE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2224	BENZONITRILE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2225	BENZENESULPHONYL CHLORIDE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2226	BENZOTRICHLORIDE	8		II		1 L	E2	P001 IBC02		T7	TP2
2227	n-BUTYL METHACRYLATE, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2232	2-CHLOROETHANAL	6.1		I	354	0	E0	P602		T20	TP2 TP13
2233	CHLOROANISIDINES	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2234	CHLOROBENZOTRIFLUORIDES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2235	CHLOROBENZYL CHLORIDES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2236	3-CHLORO-4-METHYLPHENYL ISOCYANATE, LIQUID	6.1		II		100 ml	E4	P001 IBC02			
2237	CHLORONITROANILINES	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2238	CHLOROTOLUENES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2239	CHLOROTOLUIDINES, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2240	CHROMOSULPHURIC ACID	8		I		0	E0	P001		T10	TP2 TP13
2241	CYCLOHEPTANE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2242	CYCLOHEPTENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2243	CYCLOHEXYL ACETATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2244	CYCLOPENTANOL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2245	CYCLOPENTANONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2246	CYCLOPENTENE	3		II		1 L	E2	P001 IBC02	B8	T7	TP2
2247	n-DECANE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2248	DI-n-BUTYLAMINE	8	3	II		1 L	E2	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2249	DICHLORODIMETHYL ETHER, SYMMETRICAL	6.1	3	I		0	E0	P099			
2250	DICHLOROPHENYL ISOCYANATES	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2251	BICYCLO[2.2.1]HEPTA-2,5-DIENE, STABILISED (2,5-NORBORNADIENE, STABILISED)	3		II	386	1 L	E2	P001 IBC02		T7	TP2
2252	1,2-DIMETHYOXYETHANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2253	N,N-DIMETHYLANILINE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2254	MATCHES, FUSEE	4.1		III	293	5 kg	E0	P407			
2256	CYCLOHEXENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2257	POTASSIUM	4.3		I		0	E0	P403 IBC04	B1	T9	TP7 TP33
2258	1,2-PROPYLENEDIAMINE	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2259	TRIETHYLENETETRAMINE	8		II		1 L	E2	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2260	TRIPROPYLAMINE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2261	XYLENOLS, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2262	DIMETHYLCARBAMOYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T7	TP2
2263	DIMETHYLCYCLOHEXANES	3		II		1 L	E2	P001 IBC02		T4	TP1
2264	N,N-DIMETHYL-CYCLOHEXYLAMINE	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2265	N,N-DIMETHYLFORMAMIDE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP2
2266	DIMETHYL-N-PROPYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP2 TP13
2267	DIMETHYL THIOPHOSPHORYL CHLORIDE	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2269	3,3'-IMINODIPROPYLAMINE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP2
2270	ETHYLAMINE, AQUEOUS SOLUTION with not less than 50% but not more than 70% ethylamine	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2271	ETHYL AMYL KETONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2272	N-ETHYLANILINE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2273	2-ETHYLANILINE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2274	N-ETHYL-N-BENZYLANILINE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2275	2-ETHYLBUTANOL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2276	2-ETHYLHEXYLAMINE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2277	ETHYL METHACRYLATE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
2278	n-HEPTENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2279	HEXACHLOROBUTADIENE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2280	HEXAMETHYLENEDIAMINE, SOLID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2281	HEXAMETHYLENE- DIISOCYANATE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2282	HEXANOLS	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2283	ISOBUTYL METHACRYLATE, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2284	ISOBUTYRONITRILE	3	6.1	II		1 L	E2	P001 IBC02		T7	TP2 TP13
2285	ISOCYANATOBENZO-TRIFLUORIDES	6.1	3	II		100 ml	E4	P001 IBC02		T7	TP2
2286	PENTAMETHYLHEPTANE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2287	ISOHEPTENES	3		II		1 L	E2	P001 IBC02		T4	TP1
2288	ISOHEXENES	3		II		1 L	E2	P001 IBC02	B8	T11	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2289	ISOPHORONEDIAMINE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2290	ISOPHORONE DIISOCYANATE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP2
2291	LEAD COMPOUND, SOLUBLE, N.O.S.	6.1		III	199 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2293	4-METHOXY-4-METHYLPENTAN-2-ONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2294	N-METHYLANILINE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2295	METHYL CHLOROACETATE	6.1	3	I		0	E0	P001		T14	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2296	METHYLCYCLOHEXANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2297	METHYLCYCLOHEXANONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2298	METHYLCYCLOPENTANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2299	METHYL DICHLOROACETATE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2300	2-METHYL-5-ETHYLPYRIDINE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2301	2-METHYLFURAN	3		II		1 L	E2	P001 IBC02		T4	TP1
2302	5-METHYLHEXAN-2-ONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2303	ISOPROPENYLBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2304	NAPHTHALENE, MOLTEN	4.1		III		0	E0	None		T1	TP3
2305	NITROBENZENESULPHONIC ACID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2306	NITROBENZOTRIFLUORIDES, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2307	3-NITRO-4-CHLOROBENZOTRIFLUORIDE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2308	NITROSYLSULPHURIC ACID, LIQUID	8		II		1 L	E2	P001 IBC02		T8	TP2
2309	OCTADIENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2310	PENTANE-2,4-DIONE	3	6.1	III		5 L	E1	P001 IBC03		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2311	PHENETIDINES	6.1		III	279	5 L	E1	P001 IBC03 LP01		T4	TP1
2312	PHENOL, MOLTEN	6.1		II		0	E0	None		T7	TP3
2313	PICOLINES	3		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2315	POLYCHLORINATED BIPHENYLS, LIQUID	9		II	305	1L	E2	P906 IBC02		T4	TP1
2316	SODIUM CUPROCYANIDE, SOLID	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
2317	SODIUM CUPROCYANIDE SOLUTION	6.1		I		0	E5	P001		T14	TP2 TP13
2318	SODIUM HYDROSULPHIDE with less than 25% water of crystallisation	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
2319	TERPENE HYDROCARBONS, N.O.S.	3		III		5 L	E1	P001 IBC03 LP01		T4	TP1 TP29

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2320	TETRAETHYLENEPENTAMINE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2321	TRICHLOROBENZENES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2322	TRICHLOROBUTENE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2323	TRIETHYL PHOSPHITE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2324	TRIISOBUTYLENE	3		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2325	1,3,5-TRIMETHYLBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2326	TRIMETHYL-CYCLOHEXYLAMINE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2327	TRIMETHYL-HEXAMETHYLENEDIAMINES	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2328	TRIMETHYLHEXA-METHYLENEDIISOCYANATE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP2 TP13
2329	TRIMETHYL PHOSPHITE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2330	UNDECANE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2331	ZINC CHLORIDE, ANHYDROUS	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2332	ACETALDEHYDE OXIME	3		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2333	ALLYL ACETATE	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1 TP13
2334	ALLYLAMINE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2335	ALLYL ETHYL ETHER	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1 TP13
2336	ALLYL FORMATE	3	6.1	I		0	E0	P001		T14	TP2 TP13
2337	PHENYL MERCAPTAN	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2338	BENZOTRIFLUORIDE	3		II		1 L	E2	P001 IBC02		T4	TP1
2339	2-BROMOBUTANE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2340	2-BROMOETHYL ETHYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1
2341	1-BROMO-3-METHYLBUTANE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2342	BROMOMETHYLPROPANES	3		II		1 L	E2	P001 IBC02		T4	TP1
2343	2-BROMOPENTANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2344	BROMOPROPANES	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
2345	3-BROMOPROPYNE	3		II		1 L	E2	P001 IBC02		T4	TP1
2346	BUTANEDIONE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2347	BUTYL MERCAPTAN	3		II		1 L	E2	P001 IBC02		T4	TP1
2348	BUTYL ACRYLATES, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2350	BUTYL METHYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1
2351	BUTYL NITRITES	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
2352	BUTYL VINYL ETHER, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
2353	BUTYRYL CHLORIDE	3	8	II		1 L	E2	P001 IBC02		T8	TP2 TP13
2354	CHLOROMETHYL ETHYL ETHER	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2356	2-CHLOROPROPANE	3		I		0	E3	P001		T11	TP2 TP13
2357	CYCLOHEXYLAMINE	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2358	CYCLOOCTATETRAENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2359	DIALLYLAMINE	3	6.1 8	II		1 L	E2	P001 IBC99		T7	TP1
2360	DIALLYL ETHER	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1 TP13
2361	DIISOBUTYLAMINE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2362	1,1-DICHLOROETHANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2363	ETHYL MERCAPTAN	3		I		0	E0	P001		T11	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2364	n-PROPYLBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2366	DIETHYL CARBONATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2367	alpha-METHYLVALERAL-DEHYDE	3		II		1 L	E2	P001 IBC02		T4	TP1
2368	alpha-PINENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2370	1-HEXENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2371	ISOPENTENES	3		I		0	E3	P001		T11	TP2
2372	1,2-DI-(DIMETHYLAMINO) ETHANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2373	DIETHOXYMETHANE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2374	3,3-DIETHOXYPROPENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2375	DIETHYL SULPHIDE	3		II		1 L	E2	P001 IBC02		T7	TP1 TP13
2376	2,3-DIHYDROPYRAN	3		II		1 L	E2	P001 IBC02		T4	TP1
2377	1,1-DIMETHOXYETHANE	3		II		1 L	E2	P001 IBC02		T7	TP1
2378	2-DIMETHYLAMINOACETONITRILE	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1
2379	1,3-DIMETHYLBUTYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2380	DIMETHYLDIETHOXYSILANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2381	DIMETHYL DISULPHIDE	3	6.1	II		1 L	E0	P001 IBC02		T7	TP2 TP13
2382	DIMETHYLHYDRAZINE, SYMMETRICAL	6.1	3	I	354	0	E0	P602		T20	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2383	DIPROPYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2384	DI-n-PROPYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1
2385	ETHYL ISOBUTYRATE	3		II		1 L	E2	P001 IBC02		T4	TP1
2386	1-ETHYLPIPERIDINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2387	FLUOROBENZENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2388	FLUOROTOLUENES	3		II		1 L	E2	P001 IBC02		T4	TP1
2389	FURAN	3		I		0	E3	P001		T12	TP2 TP13
2390	2-IODOBUTANE	3		II		1 L	E2	P001 IBC02		T4	TP1
2391	IODOMETHYLPROPANES	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2392	IODOPROPANES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2393	ISOBUTYL FORMATE	3		II		1 L	E2	P001 IBC02		T4	TP1
2394	ISOBUTYL PROPIONATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2395	ISOBUTYRYL CHLORIDE	3	8	II		1 L	E2	P001 IBC02		T7	TP2
2396	METHACRYLALDEHYDE, STABILISED	3	6.1	II	386	1 L	E2	P001 IBC02		T7	TP1 TP13
2397	3-METHYLBUTAN-2-ONE	3		II		1 L	E2	P001 IBC02		T4	TP1
2398	METHYL tert-BUTYL ETHER	3		II		1 L	E2	P001 IBC02		T7	TP1
2399	1-METHYLPIPERIDINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2400	METHYL ISOVALERATE	3		II		1 L	E2	P001 IBC02		T4	TP1
2401	PIPERIDINE	8	3	I		0	E0	P001		T10	TP2
2402	PROPANETHIOLS	3		II		1 L	E2	P001 IBC02		T4	TP1 TP13
2403	ISOPROPENYL ACETATE	3		II		1 L	E2	P001 IBC02		T4	TP1
2404	PROPIONITRILE	3	6.1	II		1 L	E0	P001 IBC02		T7	TP1 TP13
2405	ISOPROPYL BUTYRATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2406	ISOPROPYL ISOBUTYRATE	3		II		1 L	E2	P001 IBC02		T4	TP1
2407	ISOPROPYL CHLOROFORMATE	6.1	3 8	I	354	0	E0	P602			
2409	ISOPROPYL PROPIONATE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2410	1,2,3,6-TETRAHYDROPYRIDINE	3		II		1 L	E2	P001 IBC02		T4	TP1
2411	BUTYRONITRILE	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1 TP13
2412	TETRAHYDROTHIOPHENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2413	TETRAPROPYL ORTHOTITANATE	3		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2414	THIOPHENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2416	TRIMETHYL BORATE	3		II		1 L	E2	P001 IBC02		T7	TP1
2417	CARBONYL FLUORIDE	2.3	8			0	E0	P200			
2418	SULPHUR TETRAFLUORIDE	2.3	8			0	E0	P200			
2419	BROMOTRIFLUOROETHYLENE	2.1				0	E0	P200			
2420	HEXAFLUOROACETONE	2.3	8			0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2421	NITROGEN TRIOXIDE	2.3	5.1 8			0	E0	P200			
2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R1318)	2.2				120 ml	E1	P200			
2424	OCTAFLUOROPROPANE (REFRIGERANT GAS R218)	2.2				120 ml	E1	P200		T50	
2426	AMMONIUM NITRATE, LIQUID (hot concentrated solution)	5.1			252	0	E0	None		T7	TP1 TP16 TP17
2427	POTASSIUM CHLORATE, AQUEOUS SOLUTION	5.1		II		1 L	E2	P504 IBC02		T4	TP1
		5.1		III	223	5 L	E1	P504 IBC02		T4	TP1
2428	SODIUM CHLORATE, AQUEOUS SOLUTION	5.1		II		1 L	E2	P504 IBC02		T4	TP1
		5.1		III	223	5 L	E1	P504 IBC02		T4	TP1
2429	CALCIUM CHLORATE, AQUEOUS SOLUTION	5.1		II		1 L	E2	P504 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		5.1		III	223	5 L	E1	P504 IBC02		T4	TP1
2430	ALKYLPHENOLS, SOLID, N.O.S. (including C2-C12 homologues)	8		I		0	E0	P002 IBC07	B1	T6	TP33
		8		II		I kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2431	ANISIDINES	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2432	N,N-DIETHYLANILINE	6.1		III	279	5 L	E1	P001 IBC03 LP01		T4	TP1
2433	CHLORONITROTOLUENES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2434	DIBENZYLDICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
2435	ETHYLPHENYL-DICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
2436	THIOACETIC ACID	3		II		1 L	E2	P001 IBC02		T4	TP1
2437	METHYLPHENYLDICHLOROSILANE	8		II		0	E0	P010		T10	TP2 TP7 TP13
2438	TRIMETHYLACETYL CHLORIDE	6.1	3 8	I		0	E0	P001		T14	TP2 TP13
2439	SODIUM HYDROGEN-DIFLUORIDE	8		II		1kg	E2	P002 IBC08	B2, B4	T3	TP33
2440	STANNIC CHLORIDE PENTAHYDRATE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2441	TITANIUM TRICHLORIDE, PYROPHORIC or TITANIUM TRICHLORIDE MIXTURE, PYROPHORIC	4.2	8	I		0	E0	P404			
2442	TRICHLOROACETYL CHLORIDE	8		II		0	E0	P001		T7	TP2
2443	VANADIUM OXYTRICHLORIDE	8		II		1 L	E0	P001 IBC02		T7	TP2
2444	VANADIUM TETRACHLORIDE	8		I		0	E0	P802		T10	TP2
2446	NITROCRESOLS, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2447	PHOSPHORUS, WHITE, MOLTEN	4.2	6.1	I		0	E0	None		T21	TP3 TP7 TP26
2448	SULPHUR, MOLTEN	4.1		III		0	E0	IBC01		T1	TP3
2451	NITROGEN TRIFLUORIDE	2.2	5.1			0	E0	P200			
2452	ETHYLACETYLENE, STABILISED	2.1			386	0	E0	P200			
2453	ETHYL FLUORIDE (REFRIGERANT GAS R161)	2.1				0	E0	P200			
2454	METHYL FLUORIDE (REFRIGERANT GAS R41)	2.1				0	E0	P200			
2455	METHYL NITRITE	2.2				120 ml	E1	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2456	2-CHLOROPROPENE	3		I		0	E3	P001		T11	TP2
2457	2,3-DIMETHYLBUTANE	3		II		1 L	E2	P001 IBC02		T7	TP1
2458	HEXADIENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2459	2-METHYL-1-BUTENE	3		I		0	E3	P001		T11	TP2
2460	2-METHYL-2-BUTENE	3		II		1 L	E2	P001 IBC02	B8	T7	TP1
2461	METHYLPENTADIENE	3		II		1 L	E2	P001 IBC02		T4	TP1
2463	ALUMINIUM HYDRIDE	4.3		I		0	E0	P403			
2464	BERYLLIUM NITRATE	5.1	6.1	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2465	DICHLOROISOCYANURIC ACID, DRY or DICHLOROISOCYANURIC ACID SALTS	5.1		II	135	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2466	POTASSIUM SUPEROXIDE	5.1		I		0	E0	P503 IBC06	B1		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2468	TRICHLOROISOCYANURIC ACID, DRY	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2469	ZINC BROMATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2470	PHENYLACETONITRILE, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2471	OSMIUM TETROXIDE	6.1		I		0	E5	P002 IBC07	PP30 B1	T6	TP33
2473	SODIUM ARSANILATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2474	THIOPHOSGENE	6.1		I	279 354	0	E0	P602		T20	TP2 TP13
2475	VANADIUM TRICHLORIDE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2477	METHYL ISOTHIOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2478	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.	3	6.1	II	274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
		3	6.1	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP13 TP28
2480	METHYL ISOCYANATE	6.1	3	I	354	0	E0	P601		T22	TP2 TP13
2481	ETHYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2482	n-PROPYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2483	ISOPROPYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2484	tert-BUTYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2485	n-BUTYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2486	ISOBUTYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2487	PHENYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2488	CYCLOHEXYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2490	DICHLOROISOPROPYL ETHER	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2491	ETHANOLAMINE or ETHANOLAMINE SOLUTION	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2493	HEXAMETHYLENEIMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2495	IODINE PENTAFLUORIDE	5.1	6.1 8	I		0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2496	PROPIONIC ANHYDRIDE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2498	1,2,3,6-TETRAHYDROBENZALDEHYDE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2501	TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2502	VALERYL CHLORIDE	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2503	ZIRCONIUM TETRACHLORIDE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2504	TETRABROMOETHANE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2505	AMMONIUM FLUORIDE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2506	AMMONIUM HYDROGEN SULPHATE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2507	CHLOROPLATINIC ACID, SOLID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2508	MOLYBDENUM PENTACHLORIDE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2509	POTASSIUM HYDROGEN SULPHATE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2511	2-CHLOROPROPIONIC ACID	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP2
2512	AMINOPHENOLS (o-, m-, p-)	6.1		III	279	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2513	BROMOACETYL BROMIDE	8		II		1 L	E2	P001 IBC02		T8	TP2
2514	BROMOBENZENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2515	BROMOFORM	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2516	CARBON TETRABROMIDE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2517	1-CHLORO-1,1-DIFLUOROETHANE (REFRIGERANT GAS R142b)	2.1				0	E0	P200		T50	
2518	1,5,9-CYCLODODECATRIENE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2520	CYCLOOCTADIENES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2521	DIKETENE, STABILISED	6.1	3	I	354 386	0	E0	P602		T20	TP2 TP13
2522	2-DIMETHYLAMINOETHYL METHACRYLATE, STABILISED	6.1		II	386	100 ml	E4	P001 IBC02		T7	TP2
2524	ETHYL ORTHOFORMATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2525	ETHYL OXALATE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2526	FURFURYLAMINE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2527	ISOBUTYL ACRYLATE, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2528	ISOBUTYL ISOBUTYRATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2529	ISOBUTYRIC ACID	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2531	METHACRYLIC ACID, STABILISED	8		II	386	1 L	E2	P001 IBC02 LP01		T7	TP2 TP18 TP30
2533	METHYL TRICHLOROACETATE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2534	METHYLCHLOROSILANE	2.3	2.1 8			0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2535	4-METHYLMORPHOLINE (N-METHYLMORPHOLINE)	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2536	METHYLTETRAHYDROFURAN	3		II		1 L	E2	P001 IBC02		T4	TP1
2538	NITRONAPHTHALENE	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2541	TERPINOLENE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2542	TRIBUTYLAMINE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2545	HAFNIUM POWDER, DRY	4.2		I		0	E0	P404			
		4.2		II		0	E2	P410 IBC06	B2	T3	TP33
		4.2		III	223	0	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2546	TITANIUM POWDER, DRY	4.2		I		0	E0	P404			
		4.2		II		0	E2	P410 IBC06	B2	T3	TP33
		4.2		III	223	0	E1	P002 IBC08 LP02	B3	T1	TP33
2547	SODIUM SUPEROXIDE	5.1		I		0	E0	P503 IBC06	B1		
2548	CHLORINE PENTAFLUORIDE	2.3	5.1 8			0	E0	P200			
2552	HEXAFLUOROACETONE HYDRATE, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2554	METHYLALLYL CHLORIDE	3		II		1 L	E2	P001 IBC02		T4	TP1 TP13
2555	NITROCELLULOSE WITH WATER (not less than 25% water, by mass)	4.1		II	394	0	E0	P406			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2556	NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol, by mass, and not more than 12.6% nitrogen, by dry mass)	4.1		II	395	0	E0	P406			
2557	NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH or WITHOUT PLASTICISER, WITH or WITHOUT PIGMENT	4.1		II	241 394	0	E0	P406			
2558	EPIBROMOHYDRIN	6.1	3	I		0	E0	P001		T14	TP2 TP13
2560	2-METHYLPENTAN-2-OL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2561	3-METHYL-1-BUTENE	3		I		0	E3	P001		T11	TP2
2564	TRICHLOROACETIC ACID SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2565	DICYCLOHEXYLAMINE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2567	SODIUM PENTACHLORO-PHENATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2570	CADMIUM COMPOUND	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2571	ALKYLSULPHURIC ACIDS	8		II		1 L	E2	P001 IBC02		T8	TP2 TP13 TP28
2572	PHENYLHYDRAZINE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2573	THALLIUM CHLORATE	5.1	6.1	II		1 kg	E2	P002 IBC06	B2	T3	TP33
2574	TRICRESYL PHOSPHATE with more than 3% ortho isomer	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2576	PHOSPHORUS OXYBROMIDE, MOLTEN	8		II		0	E0	None		T7	TP3 TP13
2577	PHENYLACETYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T7	TP2
2578	PHOSPHORUS TRIOXIDE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2579	PIPERAZINE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2580	ALUMINIUM BROMIDE SOLUTION	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2581	ALUMINIUM CHLORIDE SOLUTION	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2582	FERRIC CHLORIDE SOLUTION	8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2583	ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2584	ALKYSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid	8		II		1 L	E2	P001 IBC02		T8	TP2 TP13
2585	ALKYLSULPHONIC ACIDS, SOLID or ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2586	ALKYLSULPHONIC ACIDS, LIQUID or ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2587	BENZOQUINONE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2588	PESTICIDE, SOLID, TOXIC, N.O.S.	6.1		I	61 274	0	E5	P002 IBC99		T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2589	VINYL CHLOROACETATE	6.1	3	II		100 ml	E4	P001 IBC02		T7	TP2
2590	ASBESTOS, CHRYSOTILE	9		III	168	5 kg	E1	P002 IBC08	PP37 B2, B3	T1	TP33
2591	XENON, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5
2599	CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane (REFRIGERANT GAS R 503)	2.2				120 ml	E1	P200			
2601	CYCLOBUTANE	2.1				0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2602	DICHLORODIFLUORO-METHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane (REFRIGERANT GAS R 500)	2.2				120 ml	E1	P200		T50	
2603	CYCLOHEPTATRIENE	3	6.1	II		1 L	E2	P001 IBC02		T7	TP1 TP13
2604	BORON TRIFLUORIDE DIETHYL ETHERATE	8	3	I		0	E0	P001		T10	TP2
2605	METHOXYMETHYL ISOCYANATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2606	METHYL ORTHOSILICATE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2607	ACROLEIN DIMER, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2608	NITROPROPANES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2609	TRIALLYL BORATE	6.1		III		5 L	E1	P001 IBC03 LP01			
2610	TRIALLYLAMINE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2611	PROPYLENE CHLOROHYDRIN	6.1	3	II		100 ml	E4	P001 IBC02		T7	TP2 TP13
2612	METHYL PROPYL ETHER	3		II		1 L	E2	P001 IBC02	B8	T7	TP2
2614	METHALLYL ALCOHOL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2615	ETHYL PROPYL ETHER	3		II		1 L	E2	P001 IBC02		T4	TP1
2616	TRIISOPROPYL BORATE	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1
2617	METHYLCYCLOHEXANOLS, flammable	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2618	VINYLTOLUENES, STABILISED	3		III	386	5 L	E1	P001 IBC03 LP01		T2	TP1
2619	BENZYLDIMETHYLAMINE	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2620	AMYL BUTYRATES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2621	ACETYL METHYL CARBINOL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2622	GLYCIDALDEHYDE	3	6.1	II		1 L	E2	P001 IBC02	B8	T7	TP1
2623	FIRELIGHTERS, SOLID with flammable liquid	4.1		III		5 kg	E1	P002 LP02	PP15		
2624	MAGNESIUM SILICIDE	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
2626	CHLORIC ACID, AQUEOUS SOLUTION with not more than 10% chloric acid	5.1		II		1 L	E0	P504 IBC02		T3	TP33
2627	NITRITES, INORGANIC, N.O.S.	5.1		II	103 274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2628	POTASSIUM FLUOROACETATE	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
2629	SODIUM FLUOROACETATE	6.1		I		0	E5	P002 IBC07	B1	T6	TP33
2630	SELENATES or SELENITES	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
2642	FLUOROACETIC ACID	6.1		I		0	E5	P002 IBC07	B1	T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2643	METHYL BROMOACETATE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2644	METHYL IODIDE	6.1		I	354	0	E0	P602		T20	TP2 TP13
2645	PHENACYL BROMIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2646	HEXACHLOROCYCLO-PENTADIENE	6.1		I	354	0	E0	P602		T20	TP2 TP13
2647	MALONONITRILE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2648	1,2-DIBROMOBUTAN-3-ONE	6.1		II		100 ml	E4	P001 IBC02			
2649	1,3-DICHLOROACETONE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2650	1,1-DICHLORO-1-NITROETHANE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2651	4,4'-DIAMINODIPHENYL-METHANE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2653	BENZYL IODIDE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2655	POTASSIUM FLUOROSILICATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2656	QUINOLINE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2657	SELENIUM DISULPHIDE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2659	SODIUM CHLOROACETATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2660	NITROTOLUIDINES (MONO)	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2661	HEXACHLOROACETONE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2664	DIBROMOMETHANE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2667	BUTYLTOLUENES	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2668	CHLOROACETONITRILE	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
2669	CHLOROCRESOLS SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2670	CYANURIC CHLORIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2671	AMINOPYRIDINES (o-, m-, p,)	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2672	AMMONIA SOLUTION, relative density between 0.880 and 0.957 at 15°C in water, with more than 10% but not more than 35% ammonia	8		III		5 L	E1	P001 IBC03 LP01	B11	T7	TP1
2673	2-AMINO-4-CHLOROPHENOL	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2674	SODIUM FLUOROSILICATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2676	STIBINE	2.3	2.1			0	E0	P200			
2677	RUBIDIUM HYDROXIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2678	RUBIDIUM HYDROXIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2679	LITHIUM HYDROXIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP2
2680	LITHIUM HYDROXIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2681	CAESIUM HYDROXIDE SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2682	CAESIUM HYDROXIDE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2683	AMMONIUM SULPHIDE SOLUTION	8	3 6.1	II		1 L	E2	P001 IBC01		T7	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2684	3-DIETHYLAMINO-PROPYLAMINE	3	8	III		5 L	E1	P001 IBC03		T4	TP1
2685	N,N-DIETHYLETHYLENE-DIAMINE	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2686	2-DIETHYLAMINOETHANOL	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2687	DICYCLOHEXYLAMMONIUM NITRITE	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2688	1-BROMO-3-CHLOROPROPANE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2689	GLYCEROL alpha-MONOCHLOROHYDRIN	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2690	N,n-BUTYLIMIDAZOLE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2691	PHOSPHORUS PENTABROMIDE	8		II		1 kg	E0	P002 IBC08	B2, B4	T3	TP33
2692	BORON TRIBROMIDE	8		I		0	E0	P602		T20	TP2 TP13
2693	BISULPHITES, AQUEOUS SOLUTION, N.O.S.	8		III	274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
2698	TETRAHYDROPHTHALIC ANHYDRIDES with more than 0.05% of maleic anhydride	8		III	29 169	5 kg	E1	P002 IBC08 LP02	PP14 B3	T1	TP33
2699	TRIFLUOROACETIC ACID	8		I		0	E0	P001		T10	TP2
2705	1-PENTOL	8		II		1 L	E2	P001 IBC02		T7	TP2
2707	DIMETHYLDIOXANES	3		II		1 L	E2	P001 IBC02		T4	TP1
		3		III	223	5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7a)**	**(7b)**	**(8)**	**(9)**	**(10)**	**(11)**
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2709	BUTYLBENZENES	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2710	DIPROPYL KETONE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2713	ACRIDINE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2714	ZINC RESINATE	4.1		III		5 kg	E1	P002 IBC06		T1	TP33
2715	ALUMINIUM RESINATE	4.1		III		5 kg	E1	P002 IBC06		T1	TP33
2716	1,4-BUTYNEDIOL	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2717	CAMPHOR, synthetic	4.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2719	BARIUM BROMATE	5.1	6.1	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2720	CHROMIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2721	COPPER CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2722	LITHIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2723	MAGNESIUM CHLORATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2724	MANGANESE NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2725	NICKEL NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2726	NICKEL NITRITE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2727	THALLIUM NITRATE	6.1	5.1	II		500 g	E4	P002 IBC06	B2	T3	TP33
2728	ZIRCONIUM NITRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2729	HEXACHLOROBENZENE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2730	NITROANISOLES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2732	NITROBROMOBENZENES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	8	I	274	0	E0	P001		T14	TP1 TP27
		3	8	II	274	1 L	E2	P001 IBC02		T11	TP1 TP27
		3	8	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
2734	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	8	3	I	274	0	E0	P001		T14	TP2 TP27
		8	3	II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27
		8		II	274	1 L	E2	P001 IBC02		T11	TP1 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
2738	N-BUTYLANILINE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2739	BUTYRIC ANHYDRIDE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2740	n-PROPYL CHLOROFORMATE	6.1	3 8	I		0	E0	P602		T20	TP2 TP13
2741	BARIUM HYPOCHLORITE with more than 22% available chlorine	5.1	6.1	II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2742	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	6.1	3 8	II	274	100 ml	E4	P001 IBC01			
2743	n-BUTYL CHLOROFORMATE	6.1	3 8	II		100 ml	E0	P001		T20	TP2 TP13
2744	CYCLOBUTYL CHLOROFORMATE	6.1	3 8	II		100 ml	E4	P001 IBC01		T7	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2745	CHLOROMETHYL CHLOROFORMATE	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2 TP13
2746	PHENYL CHLOROFORMATE	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2 TP13
2747	tert-BUTYLCYCLOHEXYL CHLOROFORMATE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2748	2-ETHYLHEXYL CHLOROFORMATE	6.1	8	II		100 ml	E4	P001 IBC02		T7	TP2 TP13
2749	TETRAMETHYLSILANE	3		I		0	E0	P001		T14	TP2
2750	1,3-DICHLOROPROPANOL-2	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2751	DIETHYLTHIOPHOSPHORYL CHLORIDE	8		II		1 L	E2	P001 IBC02		T7	TP2
2752	1,2-EPOXY-3-ETHOXY-PROPANE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2753	N-ETHYLBENZYLTOLUIDINES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T7	TP1
2754	N-ETHYLTOLUIDINES	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2757	CARBAMATE PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2758	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23°C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2759	ARSENICAL PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2760	ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23°C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2762	ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23°C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2763	TRIAZINE PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2764	TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2772	THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2775	COPPER BASED PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2776	COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2777	MERCURY BASED PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2778	MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2780	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2781	BIPYRIDILIUM PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2782	BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2784	ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2785	4-THIAPENTANAL	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2786	ORGANOTIN PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2787	ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2788	ORGANOTIN COMPOUND, LIQUID, N.O.S.	6.1		I	43 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	43 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	43 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28
2789	ACETIC ACID, GLACIAL or ACETIC ACID SOLUTION, more than 80% acid, by mass	8	3	II		1 L	E2	P001 IBC02		T7	TP2
2790	ACETIC ACID SOLUTION, not less than 50% but not more than 80% acid, by mass	8		II		1 L	E2	P001 IBC02		T7	TP2
	ACETIC ACID SOLUTION, more than 10% and less than 50% acid, by mass	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2793	FERROUS METAL BORINGS, SHAVINGS, TURNINGS or CUTTINGS in a form liable to self-heating	4.2		III	223	0	E1	P003 IBC08 LP02	PP20 B3, B6	BK2	
2794	BATTERIES, WET, FILLED WITH ACID, electric storage	8			295 AU08	1 L	E0	P801			
2795	BATTERIES, WET, FILLED WITH ALKALI, electric storage	8			295	1 L	E0	P801			
2796	SULPHURIC ACID with not more than 51% acid or BATTERY FLUID, ACID	8		II		1 L	E2	P001 IBC02		T8	TP2
2797	BATTERY FLUID, ALKALI	8		II		1 L	E2	P001 IBC02		T7	TP2 TP28
2798	PHENYLPHOSPHORUS DICHLORIDE	8		II		1 L	E0	P001 IBC02		T7	TP2 TP28
2799	PHENYLPHOSPHORUS THIODICHLORIDE	8		II		1 L	E0	P001 IBC02		T7	TP2
2800	BATTERIES, WET, NON-SPILLABLE, electric storage	8			238	1 L	E0	P003	PP16		
2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
2802	COPPER CHLORIDE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2803	GALLIUM	8		III		5 kg	E0	P800	PP41	T1	TP33
2805	LITHIUM HYDRIDE, FUSED SOLID	4.3		II		500 g	E2	P410 IBC04		T3	TP33
2806	LITHIUM NITRIDE	4.3		I		0	E0	P403 IBC04	B1		
2807	MAGNETISED MATERIAL Not subject to this Code (see SP 106)	9		III	106		E0				
2809	MERCURY	8	6.1	III	365	5 kg	E0	P800			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2810	TOXIC LIQUID, ORGANIC, N.O.S. (see 3.2.5 for relevant [AUST.] entries)	6.1		I	274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
2811	TOXIC SOLID, ORGANIC, N.O.S. (see 3.2.5 for relevant [AUST.] entries)	6.1		I	274	0	E5	P002 IBC99		T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2812	SODIUM ALUMINATE, SOLID Not subject to this Code (see SP 106)	8		III	106	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2813	WATER-REACTIVE SOLID, N.O.S.	4.3		I	274	0	E0	P403 IBC99		T9	TP7 TP33
		4.3		II	274	500 g	E2	P410 IBC07	B2	T3	TP33
		4.3		III	223 274	1 kg	E1	P410 IBC08	B4	T1	TP33
2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS	6.2			318 341	0	E0	P620		BK1 BK2	
2815	N-AMINOETHYLPIPERAZINE	8	6.1	III		5 L	E1	P001 IBC03 LP01		T4	TP1
2817	AMMONIUM HYDROGEN-DIFLUORIDE SOLUTION	8	6.1	II		1 L	E2	P001 IBC02		T8	TP2 TP13
		8	6.1	III	223	5 L	E1	P001 IBC03		T4	TP1 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2818	AMMONIUM POLYSULPHIDE SOLUTION	8	6.1	II		1 L	E2	P001 IBC02		T7	TP2 TP13
		8	6.1	III	223	5 L	E1	P001 IBC03		T4	TP1 TP13
2819	AMYL ACID PHOSPHATE	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2820	BUTYRIC ACID	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2821	PHENOL SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2822	2-CHLOROPYRIDINE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2823	CROTONIC ACID, SOLID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2826	ETHYL CHLOROTHIOFORMATE	8	3	II		0	E0	P001		T7	TP2
2829	CAPROIC ACID	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2830	LITHIUM FERROSILICON	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33
2831	1,1,1-TRICHLOROETHANE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2834	PHOSPHOROUS ACID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2835	SODIUM ALUMINIUM HYDRIDE	4.3		II		500 g	E0	P410 IBC04		T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2837	BISULPHATES, AQUEOUS SOLUTION	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2838	VINYL BUTYRATE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
2839	ALDOL	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2840	BUTYRALDOXIME	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2841	DI-n-AMYLAMINE	3	6.1	III		5 L	E1	P001 IBC03		T4	TP1
2842	NITROETHANE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2844	CALCIUM MANGANESE SILICON	4.3		III		1 kg	E1	P410 IBC08	B4	T1	TP33
2845	PYROPHORIC LIQUID, ORGANIC, N.O.S.	4.2		I	274	0	E0	P400		T22	TP2 TP7
2846	PYROPHORIC SOLID, ORGANIC, N.O.S.	4.2		I	274	0	E0	P404			
2849	3-CHLORO-PROPANOL-1	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2850	PROPYLENE TETRAMER	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2851	BORON TRIFLUORIDE DIHYDRATE	8		II		1 L	E2	P001 IBC02		T7	TP2
2852	DIPICRYL SULPHIDE, WETTED with not less than 10% water, by mass	4.1		I	28	0	E0	P406	PP24		
2853	MAGNESIUM FLUOROSILICATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2854	AMMONIUM FLUOROSILICATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2855	ZINC FLUOROSILICATE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2856	FLUOROSILICATES, N.O.S.	6.1		III	274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2857	REFRIGERATING MACHINES containing non-flammable, non-toxic, gases or ammonia solutions (UN 2672)	2.2			119	0	E0	P003	PP32		
2858	ZIRCONIUM, DRY, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)	4.1		III		5 kg	E1	P002 LP02			
2859	AMMONIUM METAVANADATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2861	AMMONIUM POLYVANADATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2862	VANADIUM PENTOXIDE, non-fused form	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2863	SODIUM AMMONIUM VANADATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2864	POTASSIUM METAVANADATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2865	HYDROXYLAMINE SULPHATE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2869	TITANIUM TRICHLORIDE MIXTURE	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2870	ALUMINIUM BOROHYDRIDE	4.2	4.3	I		0	E0	P400		T21	TP7 TP33
	ALUMINIUM BOROHYDRIDE IN DEVICES	4.2	4.3	I		0	E0	P002	PP13		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2871	ANTIMONY POWDER	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2872	DIBROMOCHLOROPROPANES	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
2873	DIBUTYLAMINOETHANOL	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2874	FURFURYL ALCOHOL	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2875	HEXACHLOROPHENE	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2876	RESORCINOL	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2878	TITANIUM SPONGE GRANULES or TITANIUM SPONGE POWDERS	4.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2879	SELENIUM OXYCHLORIDE	8	6.1	I		0	E0	P001		T10	TP2 TP13
2880	CALCIUM HYPOCHLORITE, HYDRATED or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, with not less than 5.5% but not more than 16% water	5.1		II	314 322	1 kg	E2	P002 IBC08	PP85 B2, B4, B13		
		5.1		III	223 314	5 kg	E1	P002 IBC08	B4, B13		
2881	METAL CATALYST, DRY	4.2		I	274	0	E0	P404		T21	TP7 TP33
		4.2		II	274	0	E0	P410 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		4.2		III	223 274	0	E1	P002 IBC08 LP02	B3	T1	TP33
2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only	6.2			318 341	0	E0	P620			
2901	BROMINE CHLORIDE	2.3	5.1 8			0	E0	P200			
2902	PESTICIDE, LIQUID, TOXIC, N.O.S.	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
	PESTICIDE, LIQUID, TOXIC, N.O.S. cont.	6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2
2904	CHLOROPHENOLATES, LIQUID or PHENOLATES, LIQUID	8		III		5 L	E1	P001 IBC03 LP01			
2905	CHLOROPHENOLATES, SOLID or PHENOLATES, SOLID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2907	ISOSORBIDE DINITRATE MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate	4.1		II	127	0	E0	P406 IBC06	PP26 PP80 B2, B12		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING	7			290 368	0	E0	See ARPANSA Radioactive Transport Code			
2909	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM	7			290	0	E0	See ARPANSA Radioactive Transport Code			
2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL	7			290 368	0	E0	See ARPANSA Radioactive Transport Code			
2911	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES	7			290	0	E0	See ARPANSA Radioactive Transport Code			
2912	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non-fissile or fissile-excepted	7			172 317 325	0	E0	See ARPANSA Radioactive Transport Code		T5	TP4
2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non-fissile or fissile-excepted	7			172 317 325	0	E0	See ARPANSA Radioactive Transport Code		T5	TP4
2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non-fissile or fissile-excepted	7			172 317 325	0	E0	See ARPANSA Radioactive Transport Code			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non-fissile or fissile-excepted	7			172 317 337 325	0	E0	See ARPANSA Radioactive Transport Code			
2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non-fissile or fissile-excepted	7			172 317 337 325	0	E0	See ARPANSA Radioactive Transport Code			
2919	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non-fissile or fissile-excepted	7			172 317 325	0	E0	See ARPANSA Radioactive Transport Code			
2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S.	8	3	I	274	0	E0	P001		T14	TP2 TP27
		8	3	II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
2921	CORROSIVE SOLID, FLAMMABLE, N.O.S.	8	4.1	I	274	0	E0	P002 IBC99		T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		8	4.1	II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
2922	CORROSIVE LIQUID, TOXIC, N.O.S.	8	6.1	I	274	0	E0	P001		T14	TP2 TP13 TP27
		8	6.1	II	274	1 L	E2	P001 IBC02		T7	TP2
		8	6.1	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
2923	CORROSIVE SOLID, TOXIC, N.O.S.	8	6.1	I	274	0	E0	P002 IBC99		T6	TP33
		8	6.1	II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8	6.1	III	223 274	5 kg	E1	P002 IBC08	B3	T1	TP33
2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	8	I	274	0	E0	P001		T14	TP2
		3	8	II	274	1 L	E2	P001 IBC02		T11	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3	8	III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
2925	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.	4.1	8	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33
		4.1	8	III	223 274	5 kg	E1	P002 IBC06		T1	TP33
2926	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.	4.1	6.1	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33
		4.1	6.1	III	223 274	5 kg	E1	P002 IBC06		T1	TP33
2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	6.1	8	I	274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1	8	II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27
2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.	6.1	8	I	274	0	E5	P002 IBC99		T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1	8	II	274	500 g	E4	P002 IBC06	B2	T3	TP33
2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	3	I	274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
2930	TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.	6.1	4.1	I	274	0	E5	P002 IBC99		T6	TP33
		6.1	4.1	II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
2931	VANADYL SULPHATE	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
2933	METHYL 2-CHLOROPROPIONATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2934	ISOPROPYL 2-CHLORO-PROPIONATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2935	ETHYL 2-CHLORO-PROPIONATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2936	THIOLACTIC ACID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2937	alpha-METHYLBENZYL ALCOHOL, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2940	9-PHOSPHABICYCLONONANES (CYCLOOCTADIENE PHOSPHINES)	4.2		II		0	E2	P410 IBC06	B2	T3	TP33
2941	FLUOROANILINES	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2942	2-TRIFLUOROMETHYLANILINE	6.1		III		5 L	E1	P001 IBC03 LP01			
2943	TETRAHYDROFURFURYL-AMINE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2945	N-METHYLBUTYLAMINE	3	8	II		1 L	E2	P001 IBC02		T7	TP1
2946	2-AMINO-5-DIETHYL-AMINOPENTANE	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
2947	ISOPROPYL CHLOROACETATE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
2948	3-TRIFLUOROMETHYLANILINE	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2949	SODIUM HYDROSULPHIDE, HYDRATED with not less than 25% water of crystallisation	8		II		1 kg	E2	P002 IBC08	B2, B4	T7	TP2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
2950	MAGNESIUM GRANULES, COATED, particle size not less than 149 microns	4.3		III		1 kg	E1	P410 IBC08	B4	T1 BK2	TP33
2956	5-tert-BUTYL-2,4,6-TRINITRO-m-XYLENE (MUSK XYLENE)	4.1		III	132 133	5 kg	E0	P409			
2965	BORON TRIFLUORIDE DIMETHYL ETHERATE	4.3	3 8	I		0	E0	P401		T10	TP2 TP7 TP13
2966	THIOGLYCOL	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
2967	SULPHAMIC ACID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2968	MANEB, STABILISED or MANEB PREPARATION, STABILISED against self-heating	4.3		III	223	1 kg	E1	P002 IBC08	B4	T1	TP33
2969	CASTOR BEANS or CASTOR MEAL or CASTOR POMACE or CASTOR FLAKE	9		II	141	5 kg	E2	P002 IBC08	PP34 B2, B4	T3 BK1 BK2	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2977	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE	7	6.1 8			0	E0	See ARPANSA Radioactive Transport Code			
2978	RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non-fissile or fissile-excepted	7	6.1 8		317	0	E0	See ARPANSA Radioactive Transport Code			
2983	ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide	3	6.1	I		0	E0	P001		T14	TP2 TP7 TP13
2984	HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8% but less than 20% hydrogen peroxide (stabilised as necessary)	5.1		III	65	5 L	E1	P504 IBC02	B5	T4	TP1 TP6 TP24
2985	CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.	3	8	II		0	E0	P010		T14	TP2 TP7 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2986	CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.	8	3	II		0	E0	P010		T14	TP2 TP7 TP13 TP27
2987	CHLOROSILANES, CORROSIVE, N.O.S.	8		II		0	E0	P010		T14	TP2 TP7 TP13 TP27
2988	CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.	4.3	3 8	I		0	E0	P401		T14	TP2 TP7 TP13
2989	LEAD PHOSPHITE, DIBASIC	4.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		4.1		III	223	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
2990	LIFE-SAVING APPLIANCES, SELF-INFLATING	9			296	0	E0	P905			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
2992	CARBAMATE PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
2994	ARSENICAL PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C cont.	6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
2998	TRIAZINE PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3010	COPPER BASED PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3015	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3021	PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
3022	1,2-BUTYLENE OXIDE, STABILISED	3		II	386	1 L	E2	P001 IBC02		T4	TP1
3023	2-METHYL-2-HEPTANETHIOL	6.1	3	I	354	0	E0	P602		T20	TP2 TP13
3024	COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3028	BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage	8			295 304	2 kg	E0	P801			
3048	ALUMINIUM PHOSPHIDE PESTICIDE	6.1		I	153	0	E0	P002 IBC07	B1	T6	TP33
3054	CYCLOHEXYL MERCAPTAN	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
3055	2-(2-AMINOETHOXY) ETHANOL	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3056	n-HEPTALDEHYDE	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
3057	TRIFLUOROACETYL CHLORIDE	2.3	8			0	E0	P200		T50	TP21
3064	NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin	3		II	359	0	E0	P300			
3065	ALCOHOLIC BEVERAGES, with more than 70% alcohol by volume	3		II	146	5 L	E2	P001 IBC02	PP2	T4	TP1
	ALCOHOLIC BEVERAGES, with more than 24% but not more than 70% alcohol by volume	3		III	144 145 247	5 L	E1	P001 IBC03	PP2	T2	TP1
3066	PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)	8		II	163 367	1 L	E2	P001 IBC02		T7	TP2 TP28
		8		III	163 223 367	5 L	E1	P001 IBC03		T4	TP1 TP29

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3070	ETHYLENE OXIDE AND DICHLORODIFLUORO-METHANE MIXTURE with not more than 12.5% ethylene oxide	2.2			392	120 ml	E1	P200		T50	
3071	MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.	6.1	3	II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
3072	LIFE-SAVING APPLIANCES NOT SELF-INFLATING containing dangerous goods as equipment	9			296	0	E0	P905			
3073	VINYLPYRIDINES, STABILISED	6.1	3 8	II	386	100 ml	E4	P001 IBC01		T7	TP2 TP13
3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	9		III	274 331 335 375 AU01	5 kg	E1	P002 IBC08 LP02	PP12 B3	T1 BK2 BK3	TP33
3078	CERIUM, turnings or gritty powder	4.3		II		500 g	E2	P410 IBC07	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3079	METHACRYLONITRILE, STABILISED	6.1	3	I	354 386	0	E0	P602		T20	TP2 TP13
3080	ISOCYANATES, TOXIC, FLAMMABLE, N.O.S. or ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.	6.1	3	II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9		III	274 331 335 375 AU01	5 L	E1	P001 IBC03 LP01	PP1	T4	TP1 TP29
3083	PERCHLORYL FLUORIDE	2.3	5.1			0	E0	P200			
3084	CORROSIVE SOLID, OXIDISING, N.O.S.	8	5.1	I	274	0	E0	P002		T6	TP33
		8	5.1	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33
3085	OXIDISING SOLID, CORROSIVE, N.O.S.	5.1	8	I	274	0	E0	P503			
		5.1	8	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		5.1	8	III	223 274	5 kg	E1	P002 IBC08	B3	T1	TP33
3086	TOXIC SOLID, OXIDISING, N.O.S.	6.1	5.1	I	274	0	E5	P002		T6	TP33
		6.1	5.1	II	274	500 g	E4	P002 IBC06	B2	T3	TP33
3087	OXIDISING SOLID, TOXIC, N.O.S.	5.1	6.1	I	274	0	E0	P503			
		5.1	6.1	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33
		5.1	6.1	III	223 274	5 kg	E1	P002 IBC08	B3	T1	TP33
3088	SELF-HEATING SOLID, ORGANIC, N.O.S.	4.2		II	274	0	E2	P410 IBC06	B2	T3	TP33
		4.2		III	223 274	0	E1	P002 IBC08 LP02	B3	T1	TP33
3089	METAL POWDER, FLAMMABLE, N.O.S.	4.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		4.1		III	223	5 kg	E1	P002 IBC08	B2, B4	T1	TP33
3090	LITHIUM METAL BATTERIES (including lithium alloy batteries)	9			188 230 310 376 377 384 387	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3091	LITHIUM METALBATTERIES CONTAINED IN EQUIPMENT or LITHIUM METALBATTERIES PACKED WITH EQUIPMENT	9			188 230 310 360 376 377 384 387 390	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
3092	1-METHOXY-2-PROPANOL	3		III		5 L	E1	P001 IBC03 LP01		T2	TP1
3093	CORROSIVE LIQUID, OXIDISING, N.O.S.	8	5.1	I	274	0	E0	P001			
		8	5.1	II	274	1 L	E2	P001 IBC02			
3094	CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.	8	4.3	I	274	0	E0	P001			
		8	4.3	II	274	1 L	E2	P001			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3095	CORROSIVE SOLID, SELF-HEATING, N.O.S.	8	4.2	I	274	0	E0	P002		T6	TP33
		8	4.2	II	274	1 kg	E2	P002 IBC06	 B2	T3	TP33
3096	CORROSIVE SOLID, WATER-REACTIVE, N.O.S.	8	4.3	I	274	0	E0	P002		T6	TP33
		8	4.3	II	274	1 kg	E2	P002 IBC06	 B2	T3	TP33
3097	FLAMMABLE SOLID, OXIDISING, N.O.S.	4.1	5.1	II	274	1 kg	E0	P099			
		4.1	5.1	III	223 274	5 kg	E0	P099		T1	TP33
3098	OXIDISING LIQUID, CORROSIVE, N.O.S.	5.1	8	I	274	0	E0	P502			
		5.1	8	II	274	1 L	E2	P504 IBC01			
		5.1	8	III	223 274	5 L	E1	P504 IBC02			
3099	OXIDISING LIQUID, TOXIC, N.O.S.	5.1	6.1	I	274	0	E0	P502			
		5.1	6.1	II	274	1 L	E2	P504 IBC01			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		5.1	6.1	III	223 274	5 L	E1	P504 IBC02			
3100	OXIDISING SOLID, SELF-HEATING, N.O.S.	5.1	4.2	I	274	0	E0	P099			
		5.1	4.2	II	274	0	E0	P099			
3101	ORGANIC PEROXIDE TYPE B, LIQUID	5.2			122 181 195 274	25 ml	E0	P520			
3102	ORGANIC PEROXIDE TYPE B, SOLID	5.2			122 181 195 274	100 g	E0	P520			
3103	ORGANIC PEROXIDE TYPE C, LIQUID	5.2			122 195 274	25 ml	E0	P520			
3104	ORGANIC PEROXIDE TYPE C, SOLID	5.2			122 195 274	100 g	E0	P520			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3105	ORGANIC PEROXIDE TYPE D, LIQUID	5.2			122 274	125 ml	E0	P520			
3106	ORGANIC PEROXIDE TYPE D, SOLID	5.2			122 274	500 g	E0	P520			
3107	ORGANIC PEROXIDE TYPE E, LIQUID	5.2			122 274	125 ml	E0	P520			
3108	ORGANIC PEROXIDE TYPE E, SOLID	5.2			122 274	500 g	E0	P520			
3109	ORGANIC PEROXIDE TYPE F, LIQUID	5.2			122 274	125 ml	E0	P520 IBC520		T23	
3110	ORGANIC PEROXIDE TYPE F, SOLID	5.2			122 274	500 g	E0	P520 IBC520		T23	TP33
3111	ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED	5.2			122 181 195 274	0	E0	P520			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3112	ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED	5.2			122 181 195 274	0	E0	P520			
3113	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED	5.2			122 195 274	0	E0	P520			
3114	ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED	5.2			122 195 274	0	E0	P520			
3115	ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED	5.2			122 274	0	E0	P520			
3116	ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED	5.2			122 274	0	E0	P520			
3117	ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED	5.2			122 274	0	E0	P520			
3118	ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED	5.2			122 274	0	E0	P520			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3119	ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED	5.2			122 274	0	E0	P520 IBC520		T23	
3120	ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED	5.2			122 274	0	E0	P520 IBC520		T23	TP33
3121	OXIDISING SOLID, WATER-REACTIVE, N.O.S.	5.1	4.3	I	274	0	E0	P099			
		5.1	4.3	II	274	1 kg	E0	P099			
3122	TOXIC LIQUID, OXIDISING, N.O.S.	6.1	5.1	I	274 315	0	E0	P001			
		6.1	5.1	II	274	100 ml	E4	P001 IBC02			
3123	TOXIC LIQUID, WATER-REACTIVE, N.O.S.	6.1	4.3	I	274 315	0	E0	P099			
		6.1	4.3	II	274	100 ml	E4	P001 IBC02			
3124	TOXIC SOLID, SELF-HEATING, N.O.S.	6.1	4.2	I	274	0	E5	P002		T6	TP33
		6.1	4.2	II	274	0	E4	P002 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.	6.1	4.3	I	274	0	E5	P099		T6	TP33
		6.1	4.3	II	274	500 g	E4	P002 IBC06	B2	T3	TP33
3126	SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.	4.2	8	II	274	0	E2	P410 IBC05	B2	T3	TP33
		4.2	8	III	223 274	0	E1	P002 IBC08	B3	T1	TP33
3127	SELF-HEATING SOLID, OXIDISING, N.O.S.	4.2	5.1	II	274	0	E0	P099		T3	TP33
		4.2	5.1	III	223 274	0	E0	P099		T1	TP33
3128	SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.	4.2	6.1	II	274	0	E2	P410 IBC05	B2	T3	TP33
		4.2	6.1	III	223 274	0	E1	P002 IBC08	B3	T1	TP33
3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	8	I	274	0	E0	P402		T14	TP2 TP7 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		4.3	8	II	274	500 ml	E0	P402 IBC01		T11	TP2 TP7
		4.3	8	III	223 274	1 L	E1	P001 IBC02		T7	TP2 TP7
3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	6.1	I	274	0	E0	P402			
		4.3	6.1	II	274	500 ml	E0	P402 IBC01			
		4.3	6.1	III	223 274	1 L	E1	P001 IBC02			
3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.	4.3	8	I	274	0	E0	P403		T9	TP7 TP33
		4.3	8	II	274	500 g	E2	P410 IBC06	B2	T3	TP33
		4.3	8	III	223 274	1 kg	E1	P410 IBC08	B4	T1	TP33
3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	4.3	4.1	I	274	0	E0	P403 IBC99			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		4.3	4.1	II	274	500 g	E2	P410 IBC04		T3	TP33
		4.3	4.1	III	223 274	1 kg	E1	P410 IBC06		T1	TP33
3133	WATER-REACTIVE SOLID, OXIDISING, N.O.S.	4.3	5.1	II	274	500 g	E0	P099			
		4.3	5.1	III	223 274	1 kg	E0	P099			
3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.	4.3	6.1	I	274	0	E0	P403			
		4.3	6.1	II	274	500 g	E2	P410 IBC05	B2	T3	TP33
		4.3	6.1	III	223 274	1 kg	E1	P410 IBC08	B4	T1	TP33
3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.	4.3	4.2	I	274	0	E0	P403			
		4.3	4.2	II	274	0	E2	P410 IBC05	B2	T3	TP33
		4.3	4.2	III	223 274	0	E1	P410 IBC08	B4	T1	TP33
3136	TRIFLUOROMETHANE, REFRIGERATED LIQUID	2.2				120 ml	E1	P203		T75	TP5

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3137	OXIDISING SOLID, FLAMMABLE, N.O.S.	5.1	4.1	I	274	0	E0	P099			
3138	ETHYLENE, ACETYLENE AND PROPYLENE MIXTURE, REFRIGERATED LIQUID containing at least 71.5% ethylene with not more than 22.5% acetylene and not more than 6% propylene	2.1				0	E0	P203		T75	TP5
3139	OXIDISING LIQUID, N.O.S.	5.1		I	274	0	E0	P502			
		5.1		II	274	1 L	E2	P504 IBC02			
		5.1		III	223 274	5 L	E1	P504 IBC02			
3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.	6.1		I	43 274	0	E5	P001			
		6.1		II	43 274	100 ml	E4	P001 IBC02			
		6.1		III	43 223 274	5 L	E1	P001 IBC03 LP01			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3141	ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S.	6.1		III	45 274	5 L	E1	P001 IBC03 LP01			
3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.	6.1		I	274	0	E5	P001			
		6.1		II	274	100 ml	E4	P001 IBC02			
	DISINFECTANT, LIQUID, TOXIC, N.O.S. cont.	6.1		III	223 274	5 L	E1	P001 IBC03 LP01			
3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.	6.1		I	43 274	0	E5	P001			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		II	43 274	100 ml	E4	P001 IBC02			
		6.1		III	43 223 274	5 L	E1	P001 IBC03 LP01			
3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C2-C12 homologues)	8		I		0	E0	P001		T14	TP2
		8		II		1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3146	ORGANOTIN COMPOUND, SOLID, N.O.S.	6.1		I	43 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		III	43 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3148	WATER-REACTIVE LIQUID, N.O.S.	4.3		I	274	0	E0	P402		T13	TP2 TP7
		4.3		II	274	500 ml	E2	P402 IBC01		T7	TP2 TP7
		4.3		III	223 274	1 L	E1	P001 IBC02		T7	TP2 TP7

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3149	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE with acid(s), water and not more than 5% peroxyacetic acid, STABILISED	5.1	8	II	196	1 L	E2	P504 IBC02	PP10 B5	T7	TP2 TP6 TP24
3150	DEVICES, SMALL, HYDROCARBON GAS POWERED or HYDROCARBON GAS REFILLS FOR SMALL DEVICES with release device	2.1				0	E0	P003			
3151	POLYHALOGENATED BIPHENYLS, LIQUID or HALOGENATED MONOMETHYLDIPHENYL-METHANES, LIQUID or POLYHALOGENATED TERPHENYLS, LIQUID	9		II	203 305	1 L	E2	P906 IBC02			
3152	POLYHALOGENATED BIPHENYLS, SOLID or HALOGENATED MONOMETHYLDIPHENYL-METHANES, SOLID or POLYHALOGENATED TERPHENYLS, SOLID	9		II	203 305	1 kg	E2	P906 IBC08	B2, B4	T3	TP33
3153	PERFLUORO (METHYL VINYL ETHER)	2.1				0	E0	P200		T50	
3154	PERFLUORO (ETHYL VINYL ETHER)	2.1				0	E0	P200			
3155	PENTACHLOROPHENOL	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33
3156	COMPRESSED GAS, OXIDISING, N.O.S.	2.2	5.1		274	0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3157	LIQUEFIED GAS, OXIDISING, N.O.S.	2.2	5.1		274	0	E0	P200			
3158	GAS, REFRIGERATED LIQUID, N.O.S.	2.2			274	120 ml	E1	P203		T75	TP5
3159	1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)	2.2				120 ml	E1	P200		T50	
3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1		274	0	E0	P200			
3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.	2.1			274	0	E0	P200		T50	
3162	LIQUEFIED GAS, TOXIC, N.O.S.	2.3			274	0	E0	P200			
3163	LIQUEFIED GAS, N.O.S.	2.2			274 392	120 ml	E1	P200		T50	
3164	ARTICLES, PRESSURISED, PNEUMATIC or HYDRAULIC (containing non-flammable gas)	2.2			283 371	120 ml	E0	P003	PP32		
3165	AIRCRAFT HYDRAULIC POWER UNIT FUEL TANK (containing a mixture of anhydrous hydrazine and methylhydrazine) (M86 fuel)	3	6.1 8	I		0	E0	P301			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3166	VEHICLE, FLAMMABLE GAS POWERED or VEHICLE, FLAMMABLE LIQUID POWERED or VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED or VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED Not subject to this Code (see SP 106)	9			123 356 388	0	E0	None			
3167	GAS SAMPLE, NON-PRESSURISED, FLAMMABLE, N.O.S., not refrigerated liquid	2.1			209	0	E0	P201			
3168	GAS SAMPLE, NON-PRESSURISED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid	2.3	2.1		209	0	E0	P201			
3169	GAS SAMPLE, NON-PRESSURISED, TOXIC, N.O.S., not refrigerated liquid	2.3			209	0	E0	P201			
3170	ALUMINIUM SMELTING BY-PRODUCTS or ALUMINIUM REMELTING BY-PRODUCTS	4.3		II	244	500 g	E2	P410 IBC07	B2	T3 BK2	TP33
		4.3		III	223 244	1 kg	E1	P002 IBC08	B4	T1 BK2	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3171	BATTERY-POWERED VEHICLE or BATTERY-POWERED EQUIPMENT Not subject to this Code (see SP 106)	9			123 388	0	E0	None			
3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.	6.1		I	210 274	0	E5	P001			
		6.1		II	210 274	100 ml	E4	P001 IBC02			
		6.1		III	210 223 274	5 L	E1	P001 IBC03 LP01			
3174	TITANIUM DISULPHIDE	4.2		III		0	E1	P002 IBC08 LP02	B3	T1	TP33
3175	SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.	4.1		II	216 274	1 kg	E2	P002 IBC06	PP9 B2	T3 BK1 BK2	TP33
3176	FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.	4.1		II	274	0	E0			T3	TP3 TP26

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		4.1		III	223 274	0	E0	IBC01		T1	TP3 TP26
3178	FLAMMABLE SOLID, INORGANIC, N.O.S.	4.1		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		4.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3179	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.	4.1	6.1	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33
		4.1	6.1	III	223 274	5 kg	E1	P002 IBC06		T1	TP33
3180	FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.	4.1	8	II	274	1 kg	E2	P002 IBC06	B2	T3	TP33
		4.1	8	III	223 274	5 kg	E1	P002 IBC06		T1	TP33
3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.	4.1		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		4.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3182	METAL HYDRIDES, FLAMMABLE, N.O.S.	4.1		II	274	1 kg	E2	P410 IBC04	PP40	T3	TP33
		4.1		III	223 274	5 kg	E1	P002 IBC04		T1	TP33
3183	SELF-HEATING LIQUID, ORGANIC, N.O.S.	4.2		II	274	0	E2	P001 IBC02			
		4.2		III	223 274	0	E1	P001 IBC02			
3184	SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.	4.2	6.1	II	274	0	E2	P402 IBC02			
		4.2	6.1	III	223 274	0	E1	P001 IBC02			
3185	SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.	4.2	8	II	274	0	E2	P402 IBC02			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		4.2	8	III	223 274	0	E1	P001 IBC02			
3186	SELF-HEATING LIQUID, INORGANIC, N.O.S.	4.2		II	274	0	E2	P001 IBC02			
		4.2		III	223 274	0	E1	P001 IBC02			
3187	SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.	4.2	6.1	II	274	0	E2	P402 IBC02			
		4.2	6.1	III	223 274	0	E1	P001 IBC02			
3188	SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.	4.2	8	II	274	0	E2	P402 IBC02			
		4.2	8	III	223 274	0	E1	P001 IBC02			
3189	METAL POWDER, SELF-HEATING, N.O.S.	4.2		II	274	0	E2	P410 IBC06	B2	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		4.2		III	223 274	0	E1	P002 IBC08 LP02	B3	T1	TP33
3190	SELF-HEATING SOLID, INORGANIC, N.O.S.	4.2		II	274	0	E2	P410 IBC06	B2	T3	TP33
		4.2		III	223 274	0	E1	P002 IBC08 LP02	B3	T1	TP33
3191	SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.	4.2	6.1	II	274	0	E2	P410 IBC05	B2	T3	TP33
		4.2	6.1	III	223 274	0	E1	P002 IBC08	B3	T1	TP33
3192	SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.	4.2	8	II	274	0	E2	P410 IBC05	B2	T3	TP33
		4.2	8	III	223 274	0	E1	P002 IBC08	B3	T1	TP33
3194	PYROPHORIC LIQUID, INORGANIC, N.O.S.	4.2		I	274	0	E0	P400			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3200	PYROPHORIC SOLID, INORGANIC, N.O.S.	4.2		I	274	0	E0	P404		T21	TP7 TP33
3205	ALKALINE EARTH METAL ALCOHOLATES, N.O.S.	4.2		II	183 274	0	E2	P410 IBC06	B2	T3	TP33
		4.2		III	183 223 274	0	E1	P002 IBC08 LP02	B3	T1	TP33
3206	ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.	4.2	8	II	182 274	0	E2	P410 IBC05	B2	T3	TP33
		4.2	8	III	182 223 274	0	E1	P002 IBC08	B3	T1	TP33
3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.	4.3		I	274	0	E0	P403 IBC99			
		4.3		II	274	500 g	E0	P410 IBC07	B2	T3	TP33
		4.3		III	223 274	1 kg	E1	P410 IBC08	B4	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.	4.3	4.2	I	274	0	E0	P403			
		4.3	4.2	II	274	0	E2	P410 IBC05	B2	T3	TP33
		4.3	4.2	III	223 274	0	E1	P410 IBC08	B4	T1	TP33
3210	CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		II	274 351	1 L	E2	P504 IBC02		T4	TP1
		5.1		III	223 274 351	5 L	E1	P504 IBC02		T4	TP1
3211	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		II		1 L	E2	P504 IBC02		T4	TP1
		5.1		III	223	5 L	E1	P504 IBC02		T4	TP1
3212	HYPOCHLORITES, INORGANIC, N.O.S.	5.1		II	274 349	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
3213	BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		II	274 350	1 L	E2	P504 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		5.1		III	223 274 350	5 L	E1	P504 IBC02		T4	TP1
3214	PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		II	206 274 353	1 L	E2	P504 IBC02		T4	TP1
3215	PERSULPHATES, INORGANIC, N.O.S.	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3216	PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		III		5 L	E1	P504 IBC02		T4	TP1 TP29
3218	NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		II	270	1 L	E2	P504 IBC02		T4	TP1
		5.1		III	223 270	5 L	E1	P504 IBC02		T4	TP1
3219	NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1		II	103 274	1 L	E2	P504 IBC01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		5.1		III	103 223 274	5 L	E1	P504 IBC02		T4	TP1
3220	PENTAFLUOROETHANE (REFRIGERANT GAS R 125)	2.2				120 ml	E1	P200		T50	
3221	SELF-REACTIVE LIQUID TYPE B	4.1			181 274	25 ml	E0	P520	PP21		
3222	SELF-REACTIVE SOLID TYPE B	4.1			181 274	100 g	E0	P520	PP21		
3223	SELF-REACTIVE LIQUID TYPE C	4.1			274	25 ml	E0	P520	PP21 PP94 PP95		
3224	SELF-REACTIVE SOLID TYPE C	4.1			274	100 g	E0	P520	PP21 PP94 PP95		
3225	SELF-REACTIVE LIQUID TYPE D	4.1			274	125 ml	E0	P520			
3226	SELF-REACTIVE SOLID TYPE D	4.1			274	500 g	E0	P520			
3227	SELF-REACTIVE LIQUID TYPE E	4.1			274	125 ml	E0	P520			
3228	SELF-REACTIVE SOLID TYPE E	4.1			274	500 g	E0	P520			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3229	SELF-REACTIVE LIQUID TYPE F	4.1			274	125 ml	E0	P520 IBC99		T23	
3230	SELF-REACTIVE SOLID TYPE F	4.1			274	500 g	E0	P520 IBC99		T23	
3231	SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED	4.1			181 194 274	0	E0	P520	PP21		
3232	SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED	4.1			181 194 274	0	E0	P520	PP21		
3233	SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520	PP21		
3234	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520	PP21		
3235	SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520			
3236	SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3237	SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520			
3238	SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520			
3239	SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520		T23	
3240	SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	4.1			194 274	0	E0	P520		T23	
3241	2-BROMO-2-NITROPROPANE-1,3-DIOL	4.1		III	246	5 kg	E1	P520 IBC08	PP22 B3		
3242	AZODICARBONAMIDE	4.1		II	215	1 kg	E0	P409		T3	TP33
3243	SOLIDS CONTAINING TOXIC LIQUID, N.O.S.	6.1		II	217 274	500 g	E4	P002 IBC02	PP9	T2 BK1 BK2	TP33
3244	SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.	8		II	218 274	1 kg	E2	P002 IBC05	PP9	T3 BK1 BK2	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3245	GENETICALLY MODIFIED MICROORGANISMS, or GENETICALLY MODIFIED ORGANISMS	9			219 AU06	0	E0	P904 IBC99			
3246	METHANESULPHONYL CHLORIDE	6.1	8	I	354	0	E0	P602		T20	TP2 TP13
3247	SODIUM PEROXOBORATE, ANHYDROUS	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
3248	MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	6.1	II	220 221	1 L	E2	P001			
		3	6.1	III	220 221 223	5 L	E1	P001			
3249	MEDICINE, SOLID, TOXIC, N.O.S.	6.1		II	221	500 g	E4	P002	PP6	T3	TP33
		6.1		III	221 223	5 kg	E1	P002	PP6	T1	TP33
3250	CHLOROACETIC ACID, MOLTEN	6.1	8	II		0	E0	None		T7	TP3 TP28
3251	ISOSORBIDE-5-MONONITRATE	4.1		III	132 226	5 kg	E0	P409			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	2.1				0	E0	P200		T50	
3253	DISODIUM TRIOXOSILICATE	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3254	TRIBUTYLPHOSPHANE	4.2		I		0	E0	P400		T21	TP2 TP7
3255	tert-BUTYL HYPOCHLORITE	4.2	8	I		0	E0	P099			
3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash point above 60°C, at or above its flash point	3		III	274	0	E0	P099 IBC01		T3	TP3 TP29
3257	ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100°C and below its flash point (including molten metals, molten salts, etc.)	9		III	232 274	0	E0	P099 IBC01		T3	TP3 TP29
3258	ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240°C	9		III	232 274	0	E0	P099			
3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	8		I	274	0	E0	P002 IBC07	B1	T6	TP33
		8		II	274	1 kg	E2	P002 IBC08	B2, B4	T3	TP33
		8		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27
		8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27
		8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27
		8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8		I	274	0	E0	P001		T14	TP2 TP27
		8		II	274	1 L	E2	P001 IBC02		T11	TP2 TP27
		8		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3268	SAFETY DEVICES, electronically initiated	9			280 289	0	E0	P902 LP902			
3269	POLYESTER RESIN KIT, liquid base material	3		II	236	5 L	E0	P302			
		3		III	236	5 L	E0	P302			
3270	NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6% nitrogen, by dry mass	4.1		II	237 286	1 kg	E2	P411			
3271	ETHERS, N.O.S.	3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
3272	ESTERS, N.O.S.	3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
3273	NITRILES, FLAMMABLE, TOXIC, N.O.S.	3	6.1	I	274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
3274	ALCOHOLATES SOLUTION, N.O.S., in alcohol	3	8	II	274	1 L	E2	P001 IBC02			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.	6.1	3	I	274 315	0	E5	P001		T14	TP2 TP13 TP27
	NITRILES, TOXIC, FLAMMABLE, N.O.S. cont.	6.1	3	II	274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
3276	NITRILES, LIQUID, TOXIC, N.O.S..	6.1		I	274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3277	CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.	6.1	8	II	274	100 ml	E4	P001 IBC02		T8	TP2 TP13 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3278	ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.	6.1		I	43 274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	43 274	100 ml	E4	P001 IBC02		T11	TP2 TP27
		6.1		III	43 223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	6.1	3	I	43 274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	43 274	100 ml	E4	P001		T11	TP2 TP13 TP27
3280	ORGANOARSENIC COMPOUND, LIQUID, N.O.S.	6.1		I	274 315	0	E5	P001		T14	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3281	METAL CARBONYLS, LIQUID, N.O.S.	6.1		I	274 315	0	E5	P601		T14	TP2 TP13 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3282	ORGANOMETALLIC COMPOUND, LIQUID, TOXIC, N.O.S.	6.1		I	274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3283	SELENIUM COMPOUND, SOLID, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3284	TELLURIUM COMPOUND, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3285	VANADIUM COMPOUND, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	6.1 8	I	274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1 8	II	274	1 L	E2	P001 IBC99		T11	TP2 TP13 TP27
3287	TOXIC LIQUID, INORGANIC, N.O.S.	6.1		I	274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
		6.1		III	223 274	5 L	E1	P001 IBC03 LP01		T7	TP1 TP28
3288	TOXIC SOLID, INORGANIC, N.O.S.	6.1		I	274	0	E5	P002 IBC99		T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	6.1	8	I	274 315	0	E5	P001		T14	TP2 TP13 TP27
		6.1	8	II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27
3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.	6.1	8	I	274	0	E5	P002 IBC99		T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1	8	II	274	500 g	E4	P002 IBC06	B2	T3	TP33
3291	CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S.	6.2				0	E0	P62A P621 IBC620 LP621		BK2[1]	
3292	BATTERIES, CONTAINING SODIUM, or CELLS, CONTAINING SODIUM	4.3			239	0	E0	P408			
3293	HYDRAZINE, AQUEOUS SOLUTION with not more than 37% hydrazine, by mass	6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
3294	HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with not more than 45% hydrogen cyanide	6.1	3	I		0	E0	P601		T14	TP2 TP13
3295	HYDROCARBONS, LIQUID, N.O.S.	3		I		500 ml	E3	P001		T11	TP1 TP8 TP28

[1] Use of bulk container BK2 for UN 3291 is subject to 4.3.2.4.2

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3		II		1 L	E2	P001 IBC02		T7	TP1 TP8 TP28
		3		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
3296	HEPTAFLUOROPROPANE (REFRIGERANT GAS R 227)	2.2				120 ml	E1	P200		T50	
3297	ETHYLENE OXIDE AND CHLOROTETRAFLUORO-ETHANE MIXTURE with not more than 8.8% ethylene oxide	2.2			392	120 ml	E1	P200		T50	
3298	ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9% ethylene oxide	2.2			392	120 ml	E1	P200		T50	
3299	ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6% ethylene oxide	2.2			392	120 ml	E1	P200		T50	
3300	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide	2.3	2.1			0	E0	P200			
3301	CORROSIVE LIQUID, SELF-HEATING, N.O.S.	8	4.2	I	274	0	E0	P001			
		8	4.2	II	274	0	E2	P001			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3302	2-DIMETHYLAMINOETHYL ACRYLATE, STABILIZED	6.1		II	386	100 ml	E4	P001 IBC02		T7	TP2
3303	COMPRESSED GAS, TOXIC, OXIDISING, N.O.S.	2.3	5.1		274	0	E0	P200			
3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	8		274	0	E0	P200			
3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	2.1 8		274	0	E0	P200			
3306	COMPRESSED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	5.1 8		274	0	E0	P200			
3307	LIQUEFIED GAS, TOXIC, OXIDISING, N.O.S.	2.3	5.1		274	0	E0	P200			
3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	8		274	0	E0	P200			
3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	2.1 8		274	0	E0	P200			
3310	LIQUEFIED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	5.1 8		274	0	E0	P200			
3311	GAS, REFRIGERATED LIQUID, OXIDISING, N.O.S.	2.2	5.1		274	0	E0	P203		T75	TP5 TP22
3312	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.	2.1			274	0	E0	P203		T75	TP5

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3313	ORGANIC PIGMENTS, SELF-HEATING	4.2		II		0	E2	P002 IBC08	B2, B4	T3	TP33
		4.2		III	223	0	E1	P002 IBC08 LP02	B3	T1	TP33
3314	PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour	9		III	207	5 kg	E1	P002 IBC08	PP14 B3, B6		
3315	CHEMICAL SAMPLE, TOXIC	6.1		I	250	0	E0	P099			
3316	CHEMICAL KIT or FIRST AID KIT	9			251 340	See SP 251 in chapter 3.3	See SP 340 in chapter 3.3	P901			
3317	2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass	4.1		I	28	0	E0	P406	PP26		
3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	2.3	8		23	0	E0	P200		T50	
3319	NITROGLYCERIN MIXTURE, DESENSITISED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass	4.1		II	272 274	0	E0	P099			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3320	SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide by mass	8		II		1 L	E2	P001 IBC02		T7	TP2
		8		III	223	5 L	E1	P001 IBC03 LP01		T4	TP2
3321	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted	7			172 317 325 336	0	E0	See ARPANSA Radioactive Transport Code		T5	TP4
3322	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted	7			172 317 325 336	0	E0	See ARPANSA Radioactive Transport Code		T5	TP4
3323	RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile-excepted	7			172 317 325	0	E0	See ARPANSA Radioactive Transport Code			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3324	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE	7			172 326 336	0	E0	See ARPANSA Radioactive Transport Code			
3325	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE	7			172 326 336	0	E0	See ARPANSA Radioactive Transport Code			
3326	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE	7			172 326	0	E0	See ARPANSA Radioactive Transport Code			
3327	RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form	7			172 326	0	E0	See ARPANSA Radioactive Transport Code			
3328	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE	7			172 337 326	0	E0	See ARPANSA Radioactive Transport Code			
3329	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE	7			172 337 326	0	E0	See ARPANSA Radioactive Transport Code			
3330	RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE	7			172 326	0	E0	See ARPANSA Radioactive Transport Code			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3331	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE	7			172 326	0	E0	See ARPANSA Radioactive Transport Code			
3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted	7			172 317	0	E0	See ARPANSA Radioactive Transport Code			
3333	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE	7			172	0	E0	See ARPANSA Radioactive Transport Code			
3334	AVIATION REGULATED LIQUID, N.O.S. Not subject to this Code (see SP 106)	9			106 274 276	0	E1	N/A			
3335	AVIATION REGULATED SOLID, N.O.S. Not subject to this Code (see SP 106)	9			106 274 276	0	E1	N/A			
3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.	3		I	274	0	E0	P001		T11	TP2
		3		II	274	1 L	E2	P001 IBC02		T7	TP1 TP8 TP28

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		3		III	223 274	5 L	E1	P001 IBC03 LP01		T4	TP1 TP29
3337	REFRIGERANT GAS R 404A	2.2				120 ml	E1	P200		T50	
3338	REFRIGERANT GAS R 407A	2.2				120 ml	E1	P200		T50	
3339	REFRIGERANT GAS R 407B	2.2				120 ml	E1	P200		T50	
3340	REFRIGERANT GAS R 407C	2.2				120 ml	E1	P200		T50	
3341	THIOUREA DIOXIDE	4.2		II		0	E2	P002 IBC06	B2	T3	TP33
		4.2		III	223	0	E1	P002 IBC08 LP02	B3	T1	TP33
3342	XANTHATES	4.2		II		0	E2	P002 IBC06	B2	T3	TP33
		4.2		III	223	0	E1	P002 IBC06 LP02	B2	T1	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3343	NITROGLYCERIN MIXTURE, DESENSITISED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass	3			274 278	0	E0	P099			
3344	PENTAERYTHRITE TETRANITRATE (PENTAERYTHRITOL TETRANITRATE; PETN) MIXTURE, DESENSITISED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass	4.1		II	272 274	0	E0	P406	PP26 PP80		
3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3346	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	61 274	0	E0	P001		T14	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		3	6.1	II	61 274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27
3347	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3348	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28
3349	PYRETHROID PESTICIDE, SOLID, TOXIC	6.1		I	61 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	61 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	61 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3350	PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point less than 23 °C	3	6.1	I	274	0	E0	P001		T14	TP2 TP13 TP27
		3	6.1	II	274	1 L	E2	P001 IBC02		T11	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point not less than 23 °C	6.1	3	I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1	3	II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1	3	III	61 223 274	5 L	E1	P001 IBC03		T7	TP2 TP28
3352	PYRETHROID PESTICIDE, LIQUID, TOXIC	6.1		I	61 274	0	E5	P001		T14	TP2 TP13 TP27
		6.1		II	61 274	100 ml	E4	P001 IBC02		T11	TP2 TP27
		6.1		III	61 223 274	5 L	E1	P001 IBC03 LP01		T7	TP2 TP28
3354	INSECTICIDE GAS, FLAMMABLE, N.O.S.	2.1			274	0	E0	P200			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1		274	0	E0	P200			
3356	OXYGEN GENERATOR, CHEMICAL †	5.1			284	0	E0	P500			
3357	NITROGLYCERIN MIXTURE, DESENSITISED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass	3		II	274 288	0	E0	P099			
3358	REFRIGERATING MACHINES containing flammable, non-toxic, liquefied gas	2.1			291	0	E0	P003	PP32		
3359	FUMIGATED CARGO TRANSPORT UNIT	9			302	0	E0	None			
3360	FIBRES, VEGETABLE, DRY Not subject to this Code (see SP 117)	4.1			29 123 299	0	E0	P003	PP19		
3361	CHLOROSILANES, TOXIC, CORROSIVE, N.O.S.	6.1	8	II	274	0	E0	P010		T14	TP2 TP7 TP13 TP27
3362	CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	6.1	3 8	II	274	0	E0	P010		T14	TP2 TP7 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3363	DANGEROUS GOODS IN ARTICLES or DANGEROUS GOODS IN MACHINERY or DANGEROUS GOODS IN APPARATUS	9			301	0	E0	P907			
3364	TRINITROPHENOL (PICRIC ACID), WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP24		
3365	TRINITROCHLOROBENZENE (PICRYL CHLORIDE), WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP24		
3366	TRINITROTOLUENE (TNT), WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP24		
3367	TRINITROBENZENE, WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP24		
3368	TRINITROBENZOIC ACID, WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP24		
3369	SODIUM DINITRO-o-CRESOLATE, WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP24		
3370	UREA NITRATE, WETTED, with not less than 10% water by mass	4.1		I	28	0	E0	P406	PP78		
3371	2-METHYLBUTANAL	3		II		1 L	E2	P001 IBC02		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3373	BIOLOGICAL SUBSTANCE, CATEGORY B	6.2			319 341	0	E0	P650		T1 BK1 BK2	TP1
3374	ACETYLENE, SOLVENT FREE	2.1				0	E0	P200			
3375	AMMONIUM NITRATE EMULSION or SUSPENSION or GEL, intermediate for blasting explosives	5.1		II	309	0	E2	P505 IBC02	B16	T1 T2	TP1 TP9 TP17 TP32
3376	4-NITROPHENYLHYDRAZINE, with not less than 30% water, by mass	4.1		I	28	0	E0	P406	PP26		
3377	SODIUM PERBORATE MONOHYDRATE	5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2 BK3	TP33
3378	SODIUM CARBONATE PEROXYHYDRATE	5.1		II		1 kg	E2	P002 IBC08	B2, B4	T3 BK1 BK2 BK3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		5.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1 BK1 BK2	TP33
3379	DESENSITISED EXPLOSIVE, LIQUID, N.O.S.	3		I	274 311	0	E0	P099			
3380	DESENSITISED EXPLOSIVE, SOLID, N.O.S.	4.1		I	274 311 394	0	E0	P099			
3381	TOXIC BY INHALATION LIQUID, N.O.S with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1		I	274	0	E0	P601		T22	TP2 TP13
3382	TOXIC BY INHALATION LIQUID, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1		I	274	0	E0	P602		T20	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3383	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3	I	274	0	E0	P601		T22	TP2 TP13
3384	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3	I	274	0	E0	P602		T20	TP2 TP13
3385	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	4.3	I	274	0	E0	P601		T22	TP2 TP13
3386	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	4.3	I	274	0	E0	P602		T20	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3387	TOXIC BY INHALATION LIQUID, OXIDISING, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	5.1	I	274	0	E0	P601		T22	TP2 TP13
3388	TOXIC BY INHALATION LIQUID, OXIDISING, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	5.1	I	274	0	E0	P602		T20	TP2 TP13
3389	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	8	I	274	0	E0	P601		T22	TP2 TP13
3390	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	8	I	274	0	E0	P602		T20	TP2 TP13
3391	ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC	4.2		I	274	0	E0	P404	PP86	T21	TP7 TP33 TP36

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3392	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC	4.2		I	274	0	E0	P400	PP86	T21	TP2 TP7 TP36
3393	ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC, WATER -REACTIVE	4.2	4.3	I	274	0	E0	P404	PP86	T21	TP7 TP33 TP36 TP41
3394	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER- REACTIVE	4.2	4.3	I	274	0	E0	P400	PP86	T21	TP2 TP7 TP36 TP41
3395	ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE	4.3		I	274	0	E0	P403		T9	TP7 TP33 TP36 TP41
		4.3		II	274	500 g	E2	P410 IBC04		T3	TP33 TP36 TP41

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		4.3		III	223 274	1 kg	E1	P410 IBC06		T1	TP33 TP36 TP41
3396	ORGANOMETALLIC SUBSTANCE, SOLID, WATER - REACTIVE, FLAMMABLE	4.3	4.1	I	274	0	E0	P403		T9	TP7 TP33 TP36 TP41
		4.3	4.1	II	274	500 g	E2	P410 IBC04		T3	TP33 TP36 TP41
	ORGANOMETALLIC SUBSTANCE, SOLID, WATER - REACTIVE, FLAMMABLE cont.	4.3	4.1	III	223 274	1 kg	E1	P410 IBC06		T1	TP33 TP36 TP41
3397	ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, SELF-HEATING	4.3	4.2	I	274	0	E0	P403		T9	TP7 TP33 TP36 TP41

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		4.3	4.2	II	274	500 g	E2	P410 IBC04		T3	TP33 TP36 TP41
		4.3	4.2	III	223 274	1 kg	E1	P410 IBC06		T1	TP33 TP36 TP41
3398	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER - REACTIVE	4.3		I	274	0	E0	P402		T13	TP2 TP7 TP36 TP41
		4.3		II	274	500 ml	E2	P001 IBC01		T7	TP2 TP7 TP36 TP41
		4.3		III	223 274	1 L	E1	P001 IBC02		T7	TP2 TP7 TP36 TP41

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3399	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER - REACTIVE, FLAMMABLE	4.3	3	I	274	0	E0	P402		T13	TP2 TP7 TP36 TP41
	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER - REACTIVE, FLAMMABLE	4.3	3	II	274	500 ml	E2	P001 IBC01		T7	TP2 TP7 TP36 TP41
		4.3	3	III	223 274	1 L	E1	P001 IBC02		T7	TP2 TP7 TP36 TP41
3400	ORGANOMETALLIC SUBSTANCE, SOLID, SELF-HEATING	4.2		II	274	500 g	E2	P410 IBC06		T3	TP33 TP36
		4.2		III	223 274	1 kg	E1	P002 IBC08		T1	TP33 TP36
3401	ALKALI METAL AMALGAM, SOLID	4.3		I	182	0	E0	P403		T9	TP7 TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3402	ALKALINE EARTH METAL AMALGAM, SOLID	4.3		I	183	0	E0	P403		T9	TP7 TP33
3403	POTASSIUM METAL ALLOYS, SOLID	4.3		I		0	E0	P403		T9	TP7 TP33
3404	POTASSIUM SODIUM ALLOYS, SOLID	4.3		I		0	E0	P403		T9	TP7 TP33
3405	BARIUM CHLORATE SOLUTION	5.1	6.1	II		1 L	E2	P504 IBC02		T4	TP1
		5.1	6.1	III	223	5 L	E1	P001 IBC02		T4	TP1
3406	BARIUM PERCHLORATE SOLUTION	5.1	6.1	II		1 L	E2	P504 IBC02		T4	TP1
		5.1	6.1	III	223	5 L	E1	P001 IBC02		T4	TP1
3407	CHLORATE AND MAGNESIUM CHLORIDE MIXTURE SOLUTION	5.1		II		1 L	E2	P504 IBC01		T4	TP1
		5.1		III	223	5 L	E1	P504 IBC01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3408	LEAD PERCHLORATE SOLUTION	5.1	6.1	II		1 L	E2	P504 IBC02		T4	TP1
		5.1	6.1	III	223	5 L	E1	P001 IBC02		T4	TP1
3409	CHLORONITROBENZENES, LIQUID	6.1		II	279	100 ml	E4	P001 IBC02		T7	TP2
3410	4-CHLORO-o-TOLUIDINE HYDROCHLORIDE SOLUTION	6.1		III	223	5 L	E1	P001 IBC03		T4	TP1
3411	beta-NAPHTHYLAMINE SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC02		T7	TP2
3412	FORMIC ACID with not less than 10% but not more than 85% acid by mass	8		II		1 L	E2	P001 IBC02		T7	TP2
	FORMIC ACID with not less than 5% but less than 10% acid by mass	8		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3413	POTASSIUM CYANIDE SOLUTION	6.1		I		0	E5	P001		T14	TP2 TP13
		6.1		II		100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27
		6.1		III	223	5 L	E1	P001 IBC03 LP01		T7	TP2 TP13 TP28
3414	SODIUM CYANIDE SOLUTION	6.1		I		0	E5	P001		T14	TP2 TP13
		6.1		II		100 ml	E4	P001 IBC02		T11	TP2 TP13 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		III	223	5 L	E1	P001 IBC03 LP01		T7	TP2 TP13 TP28
3415	SODIUM FLUORIDE SOLUTION	6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
3416	CHLOROACETOPHENONE, LIQUID	6.1		II		0	E0	P001 IBC02		T7	TP2 TP13
3417	XYLYL BROMIDE, SOLID	6.1		II		0	E4	P002 IBC08	B2, B4	T3	TP33
3418	2,4-TOLUYLENEDIAMINE SOLUTION	6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
3419	BORON TRIFLUORIDE ACETIC ACID COMPLEX, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
3420	BORON TRIFLUORIDE PROPIONIC ACID COMPLEX, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3421	POTASSIUM HYDROGEN DIFLUORIDE SOLUTION	8	6.1	II		1 L	E2	P001 IBC02		T7	TP2
		8	6.1	III	223	5 L	E1	P001 IBC03		T4	TP1
3422	POTASSIUM FLUORIDE SOLUTION	6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1
3423	TETRAMETHYLAMMONIUM HYDROXIDE, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
3424	AMMONIUM DINITRO-o-CRESOLATE, SOLUTION	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
		6.1		III	223	5 L	E1	P001 IBC02		T7	TP2
3425	BROMOACETIC ACID, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33
3426	ACRYLAMIDE SOLUTION	6.1		III	223	5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3427	CHLOROBENZYL CHLORIDES, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3428	3-CHLORO-4-METHYLPHENYL ISOCYANATE, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3429	CHLOROTOLUIDINES, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1
3430	XYLENOLS, LIQUID	6.1		II		100 ml	E4	P001 IBC02		T7	TP2
3431	NITROBENZOTRIFLUORIDES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3432	POLYCHLORINATED BIPHENYLS, SOLID	9		II	305	1 kg	E2	P906 IBC08	B2, B4	T3	TP33
3434	NITROCRESOLS, LIQUID	6.1		III		5 L	E1	P001 IBC03 LP01		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3436	HEXAFLUOROACETONE HYDRATE, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3437	CHLOROCRESOLS, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3438	alpha-METHYLBENZYL ALCOHOL, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3439	NITRILES, SOLID, TOXIC, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3440	SELENIUM COMPOUND, LIQUID, N.O.S.	6.1		I	274	0	E5	P001		T14	TP2 TP27
		6.1		II	274	100 ml	E4	P001 IBC02		T11	TP2 TP27

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		III	223 274	5 L	E1	P001 IBC03		T7	TP1 TP28
3441	CHLORODINITROBENZENES, SOLID	6.1		II	279	500 g	E4	P002 IBC08	B2, B4	T3	TP33
3442	DICHLOROANILINES, SOLID	6.1		II	279	500 g	E4	P002 IBC08	B2, B4	T3	TP33
3443	DINITROBENZENES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3444	NICOTINE HYDROCHLORIDE, SOLID	6.1		II	43	500 g	E4	P002 IBC08	B2, B4	T3	TP33
3445	NICOTINE SULPHATE, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3446	NITROTOLUENES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3447	NITROXYLENES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3448	TEAR GAS SUBSTANCE, SOLID, N.O.S.	6.1		I	274	0	E0	P002		T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		II	274	0	E0	P002 IBC08	B2, B4	T3	TP33
3449	BROMOBENZYL CYANIDES, SOLID	6.1		I	138	0	E5	P002		T6	TP33
3450	DIPHENYLCHLOROARSINE, SOLID	6.1		I		0	E0	P002 IBC07	B1	T6	TP33
3451	TOLUIDINES, SOLID	6.1		II	279	500 g	E4	P002 IBC08	B2, B4	T3	TP33
3452	XYLIDINES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3453	PHOSPHORIC ACID, SOLID	8		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3454	DINITROTOLUENES, SOLID	6.1		II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3455	CRESOLS, SOLID	6.1	8	II		500 g	E4	P002 IBC08	B2, B4	T3	TP33
3456	NITROSYLSULPHURIC ACID, SOLID	8		II		1 kg	E2	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3457	CHLORONITROTOLUENES, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3458	NITROANISOLES, SOLID	6.1		III	279	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3459	NITROBROMOBENZENES, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3460	N-ETHYLBENZYLTOLUIDINES, SOLID	6.1		III		5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3462	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	6.1		I	210 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	210 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		III	210 223 274	5 kg	E1	P002 IBC08	B3	T1	TP33
3463	PROPIONIC ACID with not less than 90% acid by mass	8	3	II		1 L	E2	P001 IBC02		T7	TP2
3464	ORGANOPHOSPHORUS COMPOUND, SOLID, TOXIC, N.O.S.	6.1		I	43 274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	43 274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	43 223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3465	ORGANOARSENIC COMPOUND, SOLID, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3466	METAL CARBONYLS, SOLID, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3467	ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.	6.1		I	274	0	E5	P002 IBC07	B1	T6	TP33
		6.1		II	274	500 g	E4	P002 IBC08	B2, B4	T3	TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
		6.1		III	223 274	5 kg	E1	P002 IBC08 LP02	B3	T1	TP33
3468	HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM CONTAINED IN EQUIPMENT or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM PACKED WITH EQUIPMENT	2.1			321 356	0	E0	P205			
3469	PAINT, FLAMMABLE, CORROSIVE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE (including paint thinning or reducing compound)	3	8	I	163 367	0	E0	P001		T11	TP2 TP27
		3	8	II	163 367	1 L	E2	P001 IBC02		T7	TP2 TP8 TP28
		3	8	III	163 223 367	5 L	E1	P001 IBC03		T4	TP1 TP29

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3470	PAINT, CORROSIVE, FLAMMABLE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL CORROSIVE, FLAMMABLE (including paint thinning or reducing compound)	8	3	II	163 367	1 L	E2	P001 IBC02		T7	TP2 TP8 TP28
3471	HYDROGENDIFLUORIDES SOLUTION, N.O.S.	8	6.1	II		1 L	E2	P001 IBC02		T7	TP2
		8	6.1	III	223	5L	E1	P001 IBC03		T4	TP1
3472	CROTONIC ACID, LIQUID	8		III		5L	E1	P001 IBC03 LP01		T4	TP1
3473	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing flammable liquids	3			328	1 L	E0	P004			
3474	1-HYDROXYBENZOTRIAZOLE MONOHYDRATE with not less than 20% water, by mass	4.1		I		0	E0	P406	PP48		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3475	ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 10% ethanol	3		II	333	1 L	E2	P001 [IBC02]		T4	TP1
3476	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing water-reactive substances	4.3			328 334	500 ml or 500 g	E0	P004			
3477	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing corrosive substances	8			328 334	1 L or 1 kg	E0	P004			
3478	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing liquefied flammable gas	2.1			328 338	120 ml	E0	P004			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3479	FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT, containing hydrogen in metal hydride	2.1			328 339	120 ml	E0	P004			
3480	LITHIUM ION BATTERIES (including lithium ion polymer batteries)	9			188 230 310 348 376 377 384 387 390	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3481	LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or LITHIUM ION BATTERIES PACKED WITH EQUIPMENT	9			188 230 310 348 360 376 377 384 387	0	E0	P903 P908 P909 P910 P911 LP903 LP904 LP905 LP906			
3482	ALKALI METAL DISPERSION, FLAMMABLE or ALKALINE EARTH METAL DISPERSION, FLAMMABLE	4.3	3	I	182 183	0	E0	P402			
3483	MOTOR FUEL ANTI-KNOCK MIXTURE, FLAMMABLE	6.1	3	I		0	E0	P602		T14	TP2 TP13
3484	HYDRAZINE AQUEOUS SOLUTION, FLAMMABLE, with more than 37% hydrazine, by mass	8	3 6.1	I		0	E0	P001		T10	TP2 TP13
3485	CALCIUM HYPOCHLORITE, DRY, CORROSIVE or CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 39% available chlorine (8.8% available oxygen)	5.1	8	II	314	1 kg	E2	P002 IBC08	PP85 B2, B4, B13		

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3486	CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 10% but not more than 39% available chlorine	5.1	8	III	314	5 kg	E1	P002 IBC08 LP02	PP85 B3, B13		
3487	CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, CORROSIVE, with not less than 5.5% but not more than 16% water	5.1	8	II	314 322	1 kg	E2	P002 IBC08	PP85 B2, B4, B13		
3487	CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE or CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, CORROSIVE, with not less than 5.5% but not more than 16% water	5.1	8	III	223 314	5 kg	E1	P002 IBC08	PP85 B4, B13		
3488	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3 8	I	274	0	E0	P601		T22	TP2 TP13

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3489	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3 8	I	274	0	E0	P602		T20	TP2 TP13
3490	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m³ and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	4.3 3	I	274	0	E0	P601		T22	TP2 TP13
3491	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, FLAMMABLE, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m³ and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	4.3 3	I	274	0	E0	P602		T20	TP2 TP13
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	6.1	I	343	0	E0	P001		T14	TP2 TP13
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	6.1	II	343	1 L	E2	P001 IBC02		T7	TP2
3494	PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	6.1	III	343	5 L	E1	P001 IBC03		T4	TP1

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3495	IODINE	8	6.1	III	279	5 kg	E1	P002 IBC08	B3	T1	TP33
3496	BATTERIES, NICKEL-METAL HYDRIDE	9			117	0	E0	N/A			
3497	KRILL MEAL	4.2		II	300	0	E2	P410 IBC06	B2	T3	TP33
3497	KRILL MEAL	4.2		III	300	0	E1	P002 IBC08 LP02	B3	T1	TP33
3498	IODINE MONOCHLORIDE, LIQUID	8		II		1 L	E0	P001 IBC02		T7	TP2
3499	CAPACITOR, ELECTRIC DOUBLE LAYER (with an energy storage capacity greater than 0.3Wh)	9			361	0	E0	P003			
3500	CHEMICAL UNDER PRESSURE, N.O.S.	2.2			274 362	0	E0	P206	PP97	T50	TP4 TP40
3501	CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.	2.1			274 362	0	E0	P206	PP89	T50	TP4 TP40
3502	CHEMICAL UNDER PRESSURE, TOXIC, N.O.S.	2.2	6.1		274 362	0	E0	P206	PP89	T50	TP4 TP40

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3503	CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.	2.2	8		274 362	0	E0	P206	PP89	T50	TP4 TP40
3504	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.	2.1	6.1		274 362	0	E0	P206	PP89	T50	TP4 TP40
3505	CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.	2.1	8		274 362	0	E0	P206	PP89	T50	TP4 TP40
3506	MERCURY CONTAINED IN MANUFACTURED ARTICLES	8	6.1		366	5 kg	E0	P003	PP90		
3507	URANIUM HEXAFLOURIDE, RADIOACTIVE MATERIAL, EXCEPTED PACKAGE, less than 0.1 Kg per package, non-fissile oe fissile-excepted	6.1	7 8	I	317 369	0	E0	P603			
3508	CAPACITOR, ASYMMETRIC (with an energy storage capacity less than 0.3 Wh)	9			372	0	E0	P003			
3509	PACKAGINGS DISCARDED, EMPTY, UNCLEANED	9			374	0	E0				
3510	ADSORBED GAS, FLAMMABLE, NOS	2.1			274	0	E0	P208			
3511	ADSORBED GAS, NOS	2.2			274	0	E0	P208			
3512	ADSORBED GAS, TOXIC, NOS	2.3			274	0	E0	P208			
3513	ADSORBED GAS, OXIDISING, NOS	2.2	5.1		274	0	E0	P208			
3514	ADSORBED GAS, TOXIC, FLAMMABLE, NOS	2.3	2.1		274	0	E0	P208			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs		Portable Tanks & Bulk Containers	
								Packing Instruction	Special Packing Provisions	Instructions	Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3515	ADSORBED GAS, TOXIC, OXIDISING, NOS	2.3	5.1		274	0	E0	P208			
3516	ADSORBED GAS, TOXIC, CORROSIVE, NOS	2.3	8		274 379	0	E0	P208			
3517	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, NOS	2.3	2.1 8		274	0	E0	P208			
3518	ADSORBED GAS, TOXIC, OXIDISING, CORROSIVE NOS	2.3	5.1 8		274	0	E0	P208			
3519	BORON TRIFLUORIDE, ADSORBED	2.3	8			0	E0	P208			
3520	CHLORINE, ADSORBED	2.3	5.1 8			0	E0	P208			
3521	SILICON TETRAFLUORIDE, ADSORBED	2.3	8			0	E0	P208			
3522	ARSINE, ADSORBED	2.3	2.1			0	E0	P208			
3523	GERMANE, ADSORBED	2.3	2.1			0	E0	P208			
3524	PHOSPHOROUS PENTAFLUORIDE, ADSORBED	2.3	8			0	E0	P208			
3525	PHOSPHINE, ADSORBED	2.3	2.1			0	E0	P208			
3526	HYDROGEN SELENIDE, ADSORBED	2.3	2.1			0	E0	P208			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3527	POLYESTER RESIN KIT, solid base material	4.1		II	236 340	5kg	E0	P412			
3527	POLYESTER RESIN KIT, solid base material	4.1		III	236 340	5kg	E0	P412			
3528	ENGINE, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED or ENGINE, FUEL CELL, FLAMMABLE LIQUID POWERED or MACHINERY, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED or MACHINERY, FUEL CELL, FLAMMABLE LIQUID POWERED	3			363	0	E0	P005			
3529	ENGINE, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED or ENGINE, FUEL CELL, FLAMMABLE GAS POWERED or MACHINERY, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED or MACHINERY, FUEL CELL, FLAMMABLE GAS POWERED	2.1			356 363	0	E0	P005			
3530	ENGINE, INTERNAL COMBUSTION or MACHINERY, INTERNAL COMBUSTION	9			363	0	E0	P005			
3531	POLYMERIZING SUBSTANCE, SOLID, STABILIZED, N.O.S.	4.1		III	274 386	0	E0	P002 IBC07	PP92 B18	T7	TP4 TP6 TP33

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	***3.1.2***	***2.0***	***2.0***	***2.0.1.3***	***3.3***	***3.4***	***3.5***	***4.1.4***	***4.1.4***	***4.2.5 4.3.2***	***4.2.5***
3532	POLYMERIZING SUBSTANCE, LIQUID, STABILIZED, N.O.S.	4.1		III	274 386	0	E0	P001 IBC03	PP3 B19	T7	TP4 TP6
3533	POLYMERIZING SUBSTANCE, SOLID, TEMPERATURE CONTROLLED, N.O.S.	4.1		III	274 386	0	E0	P002 IBC07	PP92 B18	T7	TP4 TP6 TP33
3534	POLYMERIZING SUBSTANCE, LIQUID, TEMPERATURE CONTROLLED, N.O.S.	4.1		III	274 386	0	E0	P001 IBC03	PP3 B19	T7	TP4 TP6
3535	TOXIC SOLID, FLAMMABLE, INORGANIC, N.O.S.	6.1	4.1	I	274	0	E5	P002 IBC99		T6	TP33
3535	TOXIC SOLID, FLAMMABLE, INORGANIC, N.O.S.	6.1	4.1	II	274	500g	E4	P002 IBC08	B2, B4	T3	TP33
3536	LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT lithium ion batteries or lithium metal batteries	9			389	0	E0				
3537	ARTICLES CONTAINING FLAMMABLE GAS, N.O.S.	2.1	See 2.0.5.6		274 391	0	E0	P006 LP03			
3538	ARTICLES CONTAINING NON-FLAMMABLE, NON TOXIC GAS, N.O.S.	2.2	See 2.0.5.6		274 391	0	E0	P006 LP03			

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5* *4.3.2*	*4.2.5*
3539	ARTICLES CONTAINING TOXIC GAS, N.O.S.	2.3	See 2.0.5.6		274 391	0	E0				
3540	ARTICLES CONTAINING FLAMMABLE LIQUID, N.O.S.	3	See 2.0.5.6		274 391	0	E0	P006 LP03			
3541	ARTICLES CONTAINING FLAMMABLE SOLID, N.O.S.	4.1	See 2.0.5.6		274 391	0	E0	P006 LP03			
3542	ARTICLES CONTAINING A SUBSTANCE LIABLE TO SPONTANEOUS COMBUSTION, N.O.S.	4.2	See 2.0.5.6		274 391	0	E0				
3543	ARTICLES CONTAINING A SUBSTANCE WHICH IN CONTACT WITH WATER EMITS FLAMMABLE GASES, N.O.S	4.3	See 2.0.5.6		274 391	0	E0				
3544	ARTICLES CONTAINING OXIDIZING SUBSTANCE, N.O.S.	5.1	See 2.0.5.6		274 391	0	E0				

Table 3.2.3: Dangerous Goods List

UN No.	Name and Description	Class or Division	Subsidiary Hazard	Packing Group	Special Provisions	Limited Quantities	Excepted Quantities	Packagings & IBCs: Packing Instruction	Packagings & IBCs: Special Packing Provisions	Portable Tanks & Bulk Containers: Instructions	Portable Tanks & Bulk Containers: Special Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
Ref	*3.1.2*	*2.0*	*2.0*	*2.0.1.3*	*3.3*	*3.4*	*3.5*	*4.1.4*	*4.1.4*	*4.2.5 4.3.2*	*4.2.5*
3545	ARTICLES CONTAINING ORGANIC PEROXIDE, N.O.S.	5.2	See 2.0.5.6		274 391	0	E0				
3546	ARTICLES CONTAINING TOXIC SUBSTANCE, N.O.S.	6.1	See 2.0.5.6		274 391	0	E0	P006 LP03			
3547	ARTICLES CONTAINING CORROSIVE SUBSTANCE, N.O.S.	8	See 2.0.5.6		274 391	0	E0	P006 LP03			
3548	ARTICLES CONTAINING MISCELLANEOUS DANGEROUS GOODS, N.O.S.	9	See 2.0.5.6		274 391	0	E0	P006 LP03			
3549	MEDICAL WASTE, CATEGORY A, AFFECTING HUMANS, solid or MEDICAL WASTE, CATEGORY A, AFFECTING ANIMALS only, solid	6.2			395	0	EO	P622 LP622			

3.2.4 ALPHABETICAL INDEX OF SUBSTANCES AND ARTICLES

3.2.4.1 Notes to the Index

3.2.4.1.1 This index is an alphabetical list of the substances and articles which are listed in numerical order in the Dangerous Goods List in 3.2.3.

3.2.4.1.2 For the purpose of determining the alphabetical order the following information has been ignored even when it forms part of the proper shipping name: numbers; Greek letters; the abbreviations "sec" and "tert"; and the letters "N" (nitrogen), "n" (normal), "o" (ortho) "m" (meta), "p" (para) and "N.O.S." (not otherwise specified).

3.2.4.1.3 The name of a substance or article in block capital letters indicates a proper shipping name.

3.2.4.1.4 The name of a substance or article in block capital letters followed by the word "see" indicates an alternative proper shipping name or part of a proper shipping name (except for PCBs).

3.2.4.1.5 An entry in lower case letters followed by the word "see" indicates that the entry is not a proper shipping name; it is a synonym.

3.2.4.1.6 Where an entry is partly in block capital letters and partly in lower case letters, the latter part is considered not to be part of the proper shipping name.

3.2.4.1.7 A proper shipping name may be used in the singular or plural, as appropriate, for the purposes of documentation and package marking.

3.2.4.2 Alphabetical Index of Substances and Articles

Table 3.2.4.2: Alphabetical Index of Substances and Articles

Name & Description	Class	UN No
Accumulators, electric, –see	4.3	3292
	8	2794
	8	2795
	8	2800
	8	3028
ACETAL	3	1088
ACETALDEHYDE	3	1089
ACETALDEHYDE AMMONIA	9	1841
ACETALDEHYDE OXIME	3	2332
ACETIC ACID, GLACIAL	8	2789
ACETIC ACID SOLUTION, more than 10% but not more than 80% acid, by mass	8	2790
ACETIC ACID SOLUTION, more than 80% acid, by mass	8	2789
ACETIC ANHYDRIDE	8	1715
Acetoin, –see	3	2621
ACETONE	3	1090

Name & Description	Class	UN No
ACETONE CYANOHYDRIN, STABILISED	6.1	1541
ACETONE OILS	3	1091
ACETONITRILE	3	1648
ACETYL BROMIDE	8	1716
ACETYL CHLORIDE	3	1717
ACETYLENE, DISSOLVED	2.1	1001
ACETYLENE, SOLVENT FREE	2.1	3374
Acetylene tetrabromide, –see	6.1	2504
Acetylene tetrachloride, –see	6.1	1702
ACETYL IODIDE	8	1898
ACETYL METHYL CARBINOL	3	2621
Acid butyl phosphate, –see	8	1718
Acid mixture, hydrofluoric and sulphuric, –see	8	1786
Acid mixture, nitrating acid, –see	8	1796
Acid mixture, spent, nitrating acid, –see	8	1826
Acraldehyde, inhibited, –see	6.1	1092
ACRIDINE	6.1	2713
ACROLEIN DIMER, STABILISED	3	2607
ACROLEIN, STABILISED	6.1	1092
ACRYLAMIDE, SOLID	6.1	2074
ACRYLAMIDE SOLUTION	6.1	3426
ACRYLIC ACID, STABILISED	8	2218
ACRYLONITRILE, STABILISED	3	1093
Actinolite, –see	9	2212
Activated carbon, –see	4.2	1362
Activated charcoal, –see	4.2	1362
ADHESIVES containing flammable liquid	3	1133
ADIPONITRILE	6.1	2205
ADSORBED GAS, FLAMMABLE, N.O.S.	2.1	3510
ADSORBED GAS, N.O.S.	2.1	3511
ADSORBED GAS, OXIDISING, N.O.S.	2.2	3513
ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	3516
ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	3517
ADSORBED GAS, TOXIC, FLAMMABLE	2.3	3514
ADSORBED GAS, TOXIC, N.O.S.	2.3	3512
ADSORBED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	3518
ADSORBED GAS, TOXIC, OXIDISING	2.3	3515
Aeroplane flares, –see	1.1G 1.2G 1.3G 1.4G 1.4S	0420 0421 0093 0403 0404
AEROSOLS	2	1950
AGENT, BLASTING, TYPE B, –see	1.5D	0331
AGENT, BLASTING, TYPE E, –see	1.5D	0332

Name & Description	Class	UN No
–see SAFETY DEVICES, PYROTECHNIC	9	3268
–see SAFETY DEVICES, electronically initiated	9	3268
AIR, COMPRESSED	2.2	1002
Aircraft evacuation slides, –see	9	2990
AIRCRAFT HYDRAULIC POWER UNIT FUEL TANK (containing a mixture of anhydrous hydrazine and methylhydrazine) (M86 fuel)	3	3165
Aircraft survival kits, –see	9	2990
AIR, REFRIGERATED LIQUID	2.2	1003
ALCOHOLATES SOLUTION, N.O.S., in alcohol	3	3274
Alcohol, denatured, –see	3	1986 1987
Alcohol, industrial, –see	3	1986 1987
ALCOHOLS, N.O.S.	3	1987
ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.	3	1986
ALCOHOLIC BEVERAGES, with more than 70% alcohol by volume	3	3065
ALCOHOLIC BEVERAGES, with more than 24% but not more than 70% alcohol by volume	3	3065
Aldehyde, –see	3	1989
ALDEHYDES, N.O.S.	3	1989
ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.	3	1988
ALDOL	6.1	2839
ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.	4.2	3206
ALKALI METAL ALLOY, LIQUID, N.O.S.	4.3	1421
ALKALI METAL AMALGAM, LIQUID	4.3	1389
ALKALI METAL AMALGAM, SOLID	4.3	3401
ALKALI METAL AMIDES	4.3	1390
ALKALI METAL DISPERSION	4.3	1391
ALKALI METAL DISPERSION, FLAMMABLE	4.3	3482
Alkaline corrosive battery fluid, –see	8	2797
ALKALINE EARTH METAL ALCOHOLATES, N.O.S.	4.2	3205
ALKALINE EARTH METAL ALLOY, N.O.S.	4.3	1393
ALKALINE EARTH METAL AMALGAM, LIQUID	4.3	1392
ALKALINE EARTH METAL AMALGAM, SOLID	4.3	3402
ALKALINE EARTH METAL DISPERSION	4.3	1391
ALKALINE EARTH METAL DISPERSION, FLAMMABLE	4.3	3482
ALKALOID SALTS, LIQUID, N.O.S.	6.1	3140
ALKALOID SALTS, SOLID, N.O.S.	6.1	1544
ALKALOIDS, LIQUID, N.O.S.	6.1	3140
ALKALOIDS, SOLID, N.O.S.	6.1	1544
ALKYLPHENOLS, LIQUID, N.O.S. (including C_2-C_{12} homologues)	8	3145

Name & Description	Class	UN No
ALKYLPHENOLS, SOLID, N.O.S. (including C_2-C_{12} homologues)	8	2430
ALKYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid	8	2584
ALKYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	8	2586
ALKYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	8	2583
ALKYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	8	2585
ALKYLSULPHURIC ACIDS	8	2571
Allene, –see	2.1	2200
ALLYL ACETATE	3	2333
ALLYL ALCOHOL	6.1	1098
ALLYLAMINE	6.1	2334
ALLYL BROMIDE	3	1099
ALLYL CHLORIDE	3	1100
Allyl chlorocarbonate, –see	6.1	1722
ALLYL CHLOROFORMATE	6.1	1722
ALLYL ETHYL ETHER	3	2335
ALLYL FORMATE	3	2336
ALLYL GLYCIDYL ETHER	3	2219
ALLYL IODIDE	3	1723
ALLYL ISOTHIOCYANATE, STABILISED	6.1	1545
ALLYLTRICHLOROSILANE, STABILISED	8	1724
ALUMINIUM BOROHYDRIDE	4.2	2870
ALUMINIUM BOROHYDRIDE IN DEVICES	4.2	2870
ALUMINIUM BROMIDE, ANHYDROUS	8	1725
ALUMINIUM BROMIDE SOLUTION	8	2580
ALUMINIUM CARBIDE	4.3	1394
ALUMINIUM CHLORIDE, ANHYDROUS	8	1726
ALUMINIUM CHLORIDE SOLUTION	8	2581
Aluminium dross, –see	4.3	3170
ALUMINIUM FERROSILICON POWDER	4.3	1395
ALUMINIUM HYDRIDE	4.3	2463
ALUMINIUM NITRATE	5.1	1438
ALUMINIUM PHOSPHIDE	4.3	1397
ALUMINIUM PHOSPHIDE PESTICIDE	6.1	3048
ALUMINIUM POWDER, COATED	4.1	1309
ALUMINIUM POWDER, UNCOATED	4.3	1396
ALUMINIUM REMELTING BY-PRODUCTS	4.3	3170
ALUMINIUM RESINATE	4.1	2715
ALUMINIUM SILICON POWDER, UNCOATED	4.3	1398
ALUMINIUM SMELTING BY-PRODUCTS	4.3	3170
Amatols, –see	1.1D	0082
AMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	2733

Name & Description	Class	UN No
AMINES, LIQUID, CORROSIVE, N.O.S.	8	2735
AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	8	2734
AMINES, SOLID, CORROSIVE, N.O.S.	8	3259
Aminobenzene, –see	6.1	1547
2-Aminobenzotrifluoruride, –see	6.1	2942
3-Aminobenzotrifluoruride, –see	6.1	2948
Aminobutane, –see	3	1125
2-AMINO-4-CHLOROPHENOL	6.1	2673
2-AMINO-5-DIETHYL-AMINOPENTANE	6.1	2946
2-AMINO-4,6-DINITROPHENOL, WETTED with not less than 20% water, by mass	4.1	3317
2-(2-AMINOETHOXY)ETHANOL	8	3055
N-AMINOETHYLPIPERAZINE	8	2815
1-Amino-2-nitrobenzene, –see	6.1	1661
1-Amino-3-nitrobenzene, –see	6.1	1661
1-Amino-4-nitrobenzene, –see	6.1	1661
AMINOPHENOLS (o-, m-, p-)	6.1	2512
AMINOPYRIDINES (o-, m-, p-)	6.1	2671
AMMONIA, ANHYDROUS	2.3	1005
AMMONIA SOLUTION relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia	8	2672
AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 35% but not more than 50% ammonia	2.2	2073
AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	2.3	3318
AMMONIUM ARSENATE	6.1	1546
Ammonium bichromate, –see	5.1	1439
Ammonium bifluoride solid, –see	8	1727
Ammonium bifluoride solution, –see	8	2817
Ammonium bisulphate, –see	8	2506
Ammonium bisulphite solution, –see	8	2693
AMMONIUM DICHROMATE	5.1	1439
AMMONIUM DINITRO-o- CRESOLATE, SOLID	6.1	1843
AMMONIUM DINITRO-o-CRESOLATE, SOLUTION	6.1	3424
AMMONIUM FLUORIDE	6.1	2505
AMMONIUM FLUOROSILICATE	6.1	2854
Ammonium hexafluorosilicate, –see	6.1	2854
AMMONIUM HYDROGEN- DIFLUORIDE, SOLID	8	1727
AMMONIUM HYDROGEN- DIFLUORIDE SOLUTION	8	2817
AMMONIUM HYDROGEN SULPHATE	8	2506
Ammonium hydrosulphide solution (treat as ammonium sulphide solution), –see	8	2683
AMMONIUM METAVANADATE	6.1	2859
AMMONIUM NITRATE BASED FERTILISER	5.1 9	2067 2071

Name & Description	Class	UN No
AMMONIUM NITRATE EMULSION, intermediate for blasting explosives	5.1	3375
Ammonium nitrate explosive, –see	1.1D 1.5D	0082 0331
AMMONIUM NITRATE GEL, intermediate for blasting explosives	5.1	3375
AMMONIUM NITRATE, LIQUID (hot concentrated solution)	5.1	2426
AMMONIUM NITRATE SUSPENSION, intermediate for blasting explosives	5.1	3375
AMMONIUM NITRATE	1.1D	0222
AMMONIUM NITRATE, with not more than 0.2% total combustible material, including any organic substance calculated as carbon, to the exclusion of any other added substance.	5.1	1942
AMMONIUM PERCHLORATE	1.1D 5.1	0402 1442
Ammonium permanganate, –see	5.1	1482
AMMONIUM PERSULPHATE	5.1	1444
AMMONIUM PICRATE dry or wetted with less than 10% water, by mass	1.1D	0004
AMMONIUM PICRATE, WETTED with not less than 10% water, by mass	4.1	1310
AMMONIUM POLYSULPHIDE SOLUTION	8	2818
AMMONIUM POLYVANADATE	6.1	2861
Ammonium silicofluoride, –see	6.1	2854
AMMONIUM SULPHIDE SOLUTION	8	2683
Ammunition, blank, –see	1.1C 1.2C 1.3C 1.4C 1.4S	0326 0413 0327 0338 0014
Ammunition, fixed) Ammunition, semi-fixed) –see Ammunition, separate loading,)	1.1E 1.1F 1.2E 1.2F 1.4E 1.4F	0006 0005 0321 0007 0412 0348
AMMUNITION, ILLUMINATING with or without burster, expelling charge or propelling charge	1.2G 1.3G 1.4G	0171 0254 0297
AMMUNITION, INCENDIARY, liquid or gel, with burster, expelling charge or propelling charge	1.3J	0247
AMMUNITION, INCENDIARY with or without burster, expelling charge or propelling charge	1.2G 1.3G 1.4G	0009 0010 0300
Ammunition, incendiary (water- activated contrivances) with burster, expelling charge or propelling charge, –see	1.2L 1.3L	0248 0249

Name & Description	Class	UN No
AMMUNITION, INCENDIARY, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1.2H 1.3H	0243 0244
Ammunition, industrial, –see	1.2C 1.3C 1.3C 1.4C 1.4C 1.4S	0381 0275 0277 0276 0278 0323
Ammunition, lachrymatory, –see	1.2G 1.3G 1.4G 6.1	0018 0019 0301 2017
AMMUNITION, PRACTICE	1.3G 1.4G	0488 0362
AMMUNITION, PROOF	1.4G	0363
AMMUNITION, SMOKE with or without burster, expelling charge or propelling charge	1.2G 1.3G 1.4G	0015 0016 0303
Ammunition, smoke (water-activated contrivances), white phosphorus with burster, expelling charge or propelling charge, –see	1.2L	0248
Ammunition, smoke (water-activated contrivances), without white phosphorus or phosphides with burster, expelling charge or propelling charge, –see	1.3L	0249
AMMUNITION, SMOKE, WHITE PHOSPHORUS with burster, expelling charge or propelling charge	1.2H 1.3H	0245 0246
Ammunition, sporting, –see	1.2C 1.3C 1.4C 1.4S	0328 0417 0339 0012
AMMUNITION, TEAR-PRODUCING, NON-EXPLOSIVE without burster or expelling charge, non-fused	6.1	2017
AMMUNITION, TEAR-PRODUCING with burster, expelling charge or propelling charge	1.2G 1.3G 1.4G	0018 0019 0301
AMMUNITION, TOXIC with burster, expelling charge or propelling charge	1.2K 1.3K	0020 0021
Ammunition, toxic (water-activated contrivances) with burster, expelling charge or propelling charge, –see	1.2L 1.3L	0248 0249
AMMUNITION, TOXIC, NON- EXPLOSIVE without burster or expelling charge, non-fused	6.1	2016
Amorces (caps, toy), –see	1.1G 1.4G 1.4S	0333 0336 0337
Amosite, –see	9	2212
Amphibole asbestos, -see	9	2212
AMYL ACETATES	3	1104
AMYL ACID PHOSPHATE	8	2819

Name & Description	Class	UN No
Amyl aldehyde, –see	3	2058
AMYLAMINE	3	1106
AMYL BUTYRATES	3	2620
AMYL CHLORIDE	3	1107
n-AMYLENE, –see	3	1108
AMYL FORMATES	3	1109
AMYL MERCAPTAN	3	1111
n-AMYL METHYL KETONE	3	1110
AMYL NITRATE	3	1112
AMYL NITRITE	3	1113
AMYLTRICHLOROSILANE	8	1728
Anaesthetic ether, –see	3	1155
ANILINE	6.1	1547
Aniline chloride, –see	6.1	1548
ANILINE HYDROCHLORIDE	6.1	1548
Aniline oil, –see	6.1	1547
Aniline salt, –see	6.1	1548
ANISIDINES	6.1	2431
ANISOLE	3	2222
ANISOYL CHLORIDE	8	1729
Anthophyllite, –see	9	2212
Antimonous chloride, –see	8	1733
ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S.	6.1	3141
ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.	6.1	1549
Antimony hydride, –see	2.3	2676
ANTIMONY LACTATE	6.1	1550
Antimony (III) lactate, –see	6.1	1550
ANTIMONY PENTACHLORIDE, LIQUID	8	1730
ANTIMONY PENTACHLORIDE SOLUTION	8	1731
ANTIMONY PENTAFLUORIDE	8	1732
Antimony perchloride, liquid, –see	8	1730
ANTIMONY POTASSIUM TARTRATE	6.1	1551
ANTIMONY POWDER	6.1	2871
ANTIMONY TRICHLORIDE	8	1733
A.n.t.u., –see	6.1	1651
ARGON, COMPRESSED	2.2	1006
ARGON, REFRIGERATED LIQUID	2.2	1951
Arsenates, n.o.s., –see	6.1 6.1	1556 1557
ARSENIC	6.1	1558
ARSENIC ACID, LIQUID	6.1	1553
ARSENIC ACID, SOLID	6.1	1554
ARSENICAL DUST	6.1	1562
Arsenical flue dust, –see	6.1	1562

Name & Description	Class	UN No
ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	2760
ARSENICAL PESTICIDE, LIQUID, TOXIC	6.1	2994
ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	2993
ARSENICAL PESTICIDE, SOLID, TOXIC	6.1	2759
ARSENIC BROMIDE	6.1	1555
Arsenic (III) bromide, –see	6.1	1555
Arsenice chloride, –see	6.1	1560
ARSENIC COMPOUND, LIQUID, N.O.S., inorganic, including: Arsenates, n.o.s., Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	1556
ARSENIC COMPOUND, SOLID, N.O.S., inorganic, including: Arsenates, n.o.s.; Arsenites, n.o.s.; and Arsenic sulphides, n.o.s.	6.1	1557
Arsenic (III) oxide, –see	6.1	1561
Arsenic (V) oxide, –see	6.1	1559
ARSENIC PENTOXIDE	6.1	1559
Arsenic sulphides, –see	6.1 6.1	1556 1557
ARSENIC TRICHLORIDE	6.1	1560
ARSENIC TRIOXIDE	6.1	1561
Arsenious chloride, –see	6.1	1560
Arsenites, n.o.s., –see	6.1 6.1	1556 1557
Arsenous chloride, –see	6.1	1560
ARSINE	2.3	2188
ARSINE, ADSORBED	2.3	3522
ARTICLES CONTAINING FLAMMABLE GAS, N.O.S.	2.1	3537
ARTICLES CONTAINING NONFLAMMABLE, NON TOXIC GAS, N.O.S.	2.2	3538
ARTICLES CONTAINING TOXIC GAS, N.O.S.	2.3	3539
ARTICLES CONTAINING FLAMMABLE LIQUID, N.O.S	3	3540
ARTICLES CONTAINING FLAMMABLE SOLID, N.O.S.	4.1	3541
ARTICLES CONTAINING A SUBSTANCE LIABLE TO SPONTANEOUS COMBUSTION, N.O.S.	4,2	3542
ARTICLES CONTAINING A SUBSTANCE WHICH IN CONTACT WITH WATER EMITS FLAMMABLE GASES, N.O.S.	4.3	3543
ARTICLES CONTAINING OXIDIZING SUBSTANCE, N.O.S.	5.1	3544
ARTICLES CONTAINING ORGANIC PEROXIDE, N.O.S.	5.2	3545
ARTICLES CONTAINING TOXIC SUBSTANCE, N.O.S.	6.1	3546
ARTICLES CONTAINING CORROSIVE SUBSTANCE, N.O.S.	8	3547

Name & Description	Class	UN No
ARTICLES CONTAINING MISCELLANEOUS DANGEROUS GOODS, N.O.S.	9	3548
ARTICLES, EEI, –see	1.6N	0486
ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE	1.6N	0486
ARTICLES, EXPLOSIVE, N.O.S.	1.1C	0462
	1.1D	0463
	1.1E	0464
	1.1F	0465
	1.1L	0354
	1.1L	0356
	1.2C	0466
	1.2D	0467
	1.2E	0468
	1.2F	0469
	1.2L	0355
	1.3C	0470
	1.3L	0356
	1.4B	0350
	1.4C	0351
	1.4D	0352
	1.4E	0471
	1.4F	0472
	1.4G	0353
	1.4S	0349
ARTICLES, PRESSURISED, HYDRAULIC (containing non- flammable gas)	2.2	3164
ARTICLES, PRESSURISED, PNEUMATIC (containing non- flammable gas)	2.2	3164
ARTICLES, PYROPHORIC	1.2L	0380
ARTICLES, PYROTECHNIC for technical purposes	1.1G	0428
	1.2G	0429
	1.3G1.4G	0430
	1.4S	0431
		0432
ARYLSULPHONIC ACIDS, LIQUID with more than 5% free sulphuric acid	8	2584
ARYLSULPHONIC ACIDS, LIQUID with not more than 5% free sulphuric acid	8	2586
ARYLSULPHONIC ACIDS, SOLID with more than 5% free sulphuric acid	8	2583
ARYLSULPHONIC ACIDS, SOLID with not more than 5% free sulphuric acid	8	2585
ASBESTOS, AMPHIBOLE	9	2212
ASBESTOS, CHRYSOTILE	9	2590
ASPHALT CUT BACKS [AUST.] –see 3.2.5		
AVIATION GASOLINE [AUST.] –see 3.2.5		
Aviation regulated liquid, n.o.s.	9	3334
Aviation regulated solid, n.o.s.	9	3335
AVIATION TURBINE FUEL [AUST.] –see 3.2.5		

Name & Description	Class	UN No
AZODICARBONAMIDE	4.1	3242
Bag charges, –see	1.1C 1.2C 1.3C	0279 0414 0242
Ballistite, –see	1.1C 1.3C	0160 0161
Bangalore torpedoes, –see	1.1D 1.1F 1.2D 1.2F	0137 0136 0138 0294
BARIUM	4.3	1400
BARIUM ALLOYS, PYROPHORIC	4.2	1854
BARIUM AZIDE, dry or wetted with less than 50% water, by mass	1.1A	0224
BARIUM AZIDE, WETTED with not less than 50% water, by mass	4.1	1571
Barium binoxide, –see	5.1	1449
BARIUM BROMATE	5.1	2719
BARIUM CHLORATE, SOLID	5.1	1445
BARIUM CHLORATE SOLUTION	5.1	3405
BARIUM COMPOUND, N.O.S.	6.1	1564
BARIUM CYANIDE	6.1	1565
Barium dioxide, –see	5.1	1449
BARIUM HYPOCHLORITE with more than 22% available chlorine	5.1	2741
BARIUM NITRATE	5.1	1446
BARIUM OXIDE	6.1	1884
BARIUM PERCHLORATE, SOLID	5.1	1447
BARIUM PERCHLORATE SOLUTION	5.1	3406
BARIUM PERMANGANATE	5.1	1448
BARIUM PEROXIDE	5.1	1449
Barium selenate, –see	6.1	2630
Barium selenite, –see	6.1	2630
Barium superoxide, –see	5.1	1449
BATTERIES, CONTAINING SODIUM	4.3	3292
BATTERIES, DRY, CONTAINING POTASSIUM HYDROXIDE SOLID, electric storage	8	3028
BATTERIES, NICKEL-METAL HYDRIDE	9	3496
BATTERIES, WET, FILLED WITH ACID, electric storage	8	2794
BATTERIES, WET, FILLED WITH ALKALI, electric storage	8	2795
BATTERIES, WET, NON- SPILLABLE, electric storage	8	2800
BATTERY FLUID, ACID	8	2796
BATTERY FLUID, ALKALI	8	2797
Battery, lithium, –see	9 9	3090 3091
BATTERY-POWERED EQUIPMENT	9	3171

Name & Description	Class	UN No
BATTERY-POWERED VEHICLE	9	3171
BENZALDEHYDE	9	1990
BENZENE	3	1114
BENZENESULPHONYL CHLORIDE	8	2225
Benzenethiol, –see	6.1	2337
BENZIDINE	6.1	1885
Benzol, –see	3	1114
Benzolene, –see	3	1268
BENZONITRILE	6.1	2224
BENZOQUINONE	6.1	2587
Benzosulphochloride, –see	8	2225
BENZOTRICHLORIDE	8	2226
BENZOTRIFLUORIDE	3	2338
BENZOYL CHLORIDE	8	1736
BENZYL BROMIDE	6.1	1737
BENZYL CHLORIDE	6.1	1738
Benzyl chlorocarbonate, –see	8	1739
BENZYL CHLOROFORMATE	8	1739
Benzyl cyanide, –see	6.1	2470
BENZYLDIMETHYLAMINE	8	2619
BENZYLIDENE CHLORIDE	6.1	1886
BENZYL IODIDE	6.1	2653
BERYLLIUM COMPOUND, N.O.S.	6.1	1566
BERYLLIUM NITRATE	5.1	2464
BERYLLIUM POWDER	6.1	1567
Bhusa	4.1	1327
BICYCLO[2.2.1]HEPTA-2,5-DIENE, STABILISED	3	2251
Bifluorides, n.o.s., –see	8	1740
BIOLOGICAL SUBSTANCE, CATEGORY B	6.2	3373
(BIO) MEDICAL WASTE, N.O.S.	6.2	3291
BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	2782
BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC	6.1	3016
BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	3015
BIPYRIDILIUM PESTICIDE, SOLID, TOXIC	6.1	2781
BISULPHATES, AQUEOUS SOLUTION	8	2837
BISULPHITES, AQUEOUS SOLUTION, N.O.S.	8	2693
BITUMEN CUT BACKS [AUST.] –see 3.2.5		
BLACK POWDER, COMPRESSED	1.1D	0028
BLACK POWDER, granular or as a meal	1.1D	0027
BLACK POWDER, IN PELLETS	1.1D	0028
Blasting cap assemblies, –see	1.1B 1.4B	0360 0361
Blasting caps, electric, –see	1.1B 1.4B 1.4S	0030 0255 0456

Name & Description	Class	UN No
Blasting caps, non electric, –see	1.1B 1.4B 1.4S	0029 0267 0455
Bleaching powder, –see	5.1	2208
BOMBS with bursting charge	1.1D 1.1F 1.2D 1.2F	0033 0034 0035 0291
Bombs, illuminating, –see	1.3G	0254
BOMBS, PHOTO-FLASH	1.1D 1.1F 1.2G 1.3G	0038 0037 0039 0299
BOMBS, SMOKE, NON-EXPLOSIVE with corrosive liquid, without initiating device	8	2028
Bombs, target identification, –see	1.2G 1.3G 1.4G	0171 0254 0297
BOMBS WITH FLAMMABLE LIQUID with bursting charge	1.1J 1.2J	0399 0400
BOOSTERS without detonator	1.1D 1.2D	0042 0283
BOOSTERS WITH DETONATOR	1.1B 1.2B	0225 0268
Borate and chlorate mixture, –see	5.1	1458
BORNEOL	4.1	1312
BORON TRIBROMIDE	8	2692
BORON TRICHLORIDE	2.3	1741
BORON TRIFLUORIDE	2.3	1008
BORON TRIFLUORIDE, ADSORBED	2.3	3519
BORON TRIFLUORIDE ACETIC ACID COMPLEX, LIQUID	8	1742
BORON TRIFLUORIDE ACETIC ACID COMPLEX, SOLID	8	3419
BORON TRIFLUORIDE DIETHYL ETHERATE	8	2604
BORON TRIFLUORIDE DIHYDRATE	8	2851
BORON TRIFLUORIDE DIMETHYL ETHERATE	4.3	2965
BORON TRIFLUORIDE PROPIONIC ACID COMPLEX, LIQUID	8	1743
BORON TRIFLUORIDE PROPIONIC ACID COMPLEX, SOLID	8	3420
BROMATES, INORGANIC, N.O.S.	5.1	1450
BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S	5.1	3213
BROMINE	8	1744
BROMINE CHLORIDE	2.3	2901
BROMINE PENTAFLUORIDE	5.1	1745

Name & Description	Class	UN No
BROMINE SOLUTION	8	1744
BROMINE TRIFLUORIDE	5.1	1746
BROMOACETIC ACID SOLUTION	8	1938
BROMOACETIC ACID, SOLID	8	3425
BROMOACETONE	6.1	1569
omega-Bromoacetone, –see	6.4	2645
BROMOACETYL BROMIDE	8	2513
BROMOBENZENE	3	2514
BROMOBENZYL CYANIDES, LIQUID	6.1	1694
BROMOBENZYL CYANIDES, SOLID	6.1	3449
1-BROMOBUTANE	3	1126
2-BROMOBUTANE	3	2339
BROMOCHLOROMETHANE	6.1	1887
1-BROMO-3-CHLOROPROPANE	6.1	2688
1-Bromo-2,3-epoxypropane, –see	6.1	2558
Bromoethane, –see	6.1	1891
2-BROMOETHYL ETHYL ETHER	3	2340
BROMOFORM	6.1	2515
Bromomethane, –see	2.3	1062
1-BROMO-3-METHYLBUTANE	3	2341
BROMOMETHYLPROPANES	3	2342
2-BROMO-2-NITROPROPANE- 1,3-DIOL	4.1	3241
2-BROMOPENTANE	3	2343
BROMOPROPANES	3	2344
3-BROMOPROPYNE	3	2345
BROMOTRIFLUOROETHYLENE	2.1	2419
BROMOTRIFLUOROMETHANE	2.2	1009
BRUCINE	6.1	1570
BURSTERS, explosive	1	0043
BUTADIENES, STABILISED	2.1	1010
BUTADIENES AND HYDROCARBON MIXTURE, STABILISED, containing more than 40% butadienes	2.1	1010
BUTANE	2.1	1011
BUTANEDIONE	3	2346
Butane-1-thiol, –see	3	2347
1-Butanol, –see	3	1120
Butan-2-ol, –see	3	1120
BUTANOLS	3	1120
Butanol, secondary, –see	3	1120
Butanol, tertiary, –see	3	1120
Butanone, –see	3	1193
2-Butenal, –see	6.1	1143
Butene, –see	2.1	1012
Bute-1-ene-3-one, –see	3	1251
1,2-Buteneoxide, –see	3	3022

Name & Description	Class	UN No
2-Buten-1-ol, –see	3	2614
BUTYL ACETATES	3	1123
Butyl acetate, secondary, –see	3	1123
BUTYL ACID PHOSPHATE	8	1718
BUTYL ACRYLATES, STABILISED	3	2348
Butyl alcohols, –see	3	1120
n-BUTYLAMINE	3	1125
N-BUTYLANILINE	6.1	2738
sec-Butyl benzene, –see	3	2709
BUTYLBENZENES	3	2709
n-Butyl bromide, –see	3	1126
n-Butyl chloride, –see	3	1127
n-BUTYL CHLOROFORMATE	6.1	2743
tert-BUTYLCYCLOHEXYL CHLOROFORMATE	6.1	2747
BUTYLENE	2.1	1012
1,2-BUTYLENE OXIDE, STABILISED	3	3022
Butyl ethers, –see	3	1149
Butyl ethyl ether, –see	3	1179
n-BUTYL FORMATE	3	1128
tert-BUTYL HYPOCHLORITE	4.2	3255
N,n-BUTYLIMIDAZOLE	6.1	2690
N,n-Butyliminazole, –see	6.1	2690
n-BUTYL ISOCYANATE	6.1	2485
tert-BUTYL ISOCYANATE	6.1	2484
BUTYL MERCAPTAN	3	2347
n-BUTYL METHACRYLATE, STABILISED	3	2227
BUTYL METHYL ETHER	3	2350
BUTYL NITRITES	3	2351
Butylphenols, liquid, –see	8	3145
Butylphenols, solid, –see	8	2430
BUTYL PROPIONATES	3	1914
p-tert-Butyltoluene, –see	6.1	2667
BUTYLTOLUENES	6.1	2667
BUTYLTRICHLOROSILANE	8	1747
5-tert-BUTYL-2,4,6-TRINITRO-m- XYLENE	4.1	2956
BUTYL VINYL ETHER, STABILISED	3	2352
But-1-yne, –see	2.1	2452
1,4-BUTYNEDIOL	6.1	2716
2-Butyne-1,4-diol, –see	6.1	2716
BUTYRALDEHYDE	3	1129
BUTYRALDOXIME	3	2840
BUTYRIC ACID	8	2820
BUTYRIC ANHYDRIDE	8	2739
Butyrone, –see	3	2710
BUTYRONITRILE	3	2411
Butyroyl chloride, –see	3	2353

Name & Description	Class	UN No
BUTYRYL CHLORIDE	3	2353
Cable cutters, explosive, –see	1.4S	0070
CACODYLIC ACID	6.1	1572
CADMIUM COMPOUND	6.1	2570
CAESIUM	4.3	1407
CAESIUM HYDROXIDE	8	2682
CAESIUM HYDROXIDE SOLUTION	8	2681
CAESIUM NITRATE	5.1	1451
Caffeine, –see	6.1	1544
Cajeputene, –see	3	2052
CALCIUM	4.3	1401
CALCIUM ALLOYS, PYROPHORIC	4.2	1855
CALCIUM ARSENATE	6.1	1573
CALCIUM ARSENATE AND CALCIUM ARSENITE MIXTURE, SOLID	6.1	1574
Calcium bisulphite solution, –see	8	2693
CALCIUM CARBIDE	4.3	1402
CALCIUM CHLORATE	5.1	1452
CALCIUM CHLORATE, AQUEOUS SOLUTION	5.1	2429
CALCIUM CHLORITE	5.1	1453
CALCIUM CYANAMIDE with more than 0.1% calcium carbide	4.3	1403
CALCIUM CYANIDE	6.1	1575
CALCIUM DITHIONITE	4.2	1923
CALCIUM HYDRIDE	4.3	1404
CALCIUM HYDROSULPHITE, –see	4.2	1923
CALCIUM HYPOCHLORITE, DRY	5.1	1748
CALCIUM HYPOCHLORITE, DRY, CORROSIVE	5.1	3485
CALCIUM HYPOCHLORITE, HYDRATED with not less than 5.5% but not more than 16% water	5.1	2880
CALCIUM HYPOCHLORITE, HYDRATED, CORROSIVE, with not less than 5.5% but not more than 16% water	5.1	3487
CALCIUM HYPOCHLORITE, HYDRATED MIXTURE with not less than 5.5% but not more than 16% water	5.1	2880
CALCIUM HYPOCHLORITE, HYDRATED MIXTURE, CORROSIVE, with not less than 5.5% but not more than 16% water	5.1	3487
CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 39% available chlorine (8.8% available oxygen)	5.1	1748
CALCIUM HYPOCHLORITE MIXTURE, DRY with more than 10% but not more than 39% available chlorine	5.1	2208
CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 39% available chlorine (8.8% available oxygen)	5.1	3485

Name & Description	Class	UN No
CALCIUM HYPOCHLORITE MIXTURE, DRY, CORROSIVE with more than 10% but not more than 39% available chlorine	5.1	3486
CALCIUM MANGANESE SILICON	4.3	2844
CALCIUM NITRATE	5.1	1454
Calcium oxide	8	1910
CALCIUM PERCHLORATE	5.1	1455
CALCIUM PERMANGANATE	5.1	1456
CALCIUM PEROXIDE	5.1	1457
CALCIUM PHOSPHIDE	4.3	1360
CALCIUM, PYROPHORIC	4.2	1855
CALCIUM RESINATE	4.1	1313
CALCIUM RESINATE, FUSED	4.1	1314
Calcium selenate, –see	6.1	2630
CALCIUM SILICIDE	4.3	1405
Calcium silicon, –see	4.3	1405
Calcium superoxide, –see	5.1	1457
Camphanone, –see	4.1	2717
CAMPHOR OIL	3	1130
CAMPHOR, synthetic	4.1	2717
CAPACITOR, ASYMMETRIC (with an energy storage capacity greater than 0.3 Wh)	9	3508
CAPACITOR, ELECTRIC DOUBLE LAYER (with an energy storage capacity greater than 0.3 Wh)	9	3499
CAPROIC ACID	8	2829
CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23 °C	3	2758
CARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	2992
CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	2991
CARBAMATE PESTICIDE, SOLID, TOXIC	6.1	2757
Carbolic acid, –see	6.1 6.1 6.1	1671 2312 2821
CARBON, animal or vegetable origin	4.2	1361
CARBON, ACTIVATED	4.2	1362
Carbon bisulphide, –see	3	1131
Carbon black (animal or vegetable origin), –see	4.2	1361
CARBON DIOXIDE	2.2	1013
Carbon dioxide and ethylene oxide mixture, –see	2.1 2.2 2.3	1041 1952 3300
CARBON DIOXIDE, REFRIGERATED LIQUID	2.2	2187
Carbon dioxide, solid	9	1845
CARBON DISULPHIDE	3	1131

Name & Description	Class	UN No
Carbonic anhydride, –see	2.2	1013
	9	1845
	2.2	2187
CARBON MONOXIDE, COMPRESSED	2.3	1016
Carbon oxysulphide, –see	2.3	2204
CARBON TETRABROMIDE	6.1	2516
CARBON TETRACHLORIDE	6.1	1846
Carbonyl chloride, –see	2.3	1076
CARBONYL FLUORIDE	2.3	2417
CARBONYL SULPHIDE	2.3	2204
Cartridge cases, empty, primed, –see	1.4C	0379
	1.4S	0055
Cartridges, actuating, for fire extinguisher or apparatus valve, –see	1.2C	0381
	1.3C	0275
	1.4C	0276
	1.4S	0323
Cartridges, explosive, –see	1.1D	0048
CARTRIDGES, FLASH	1.1G	0049
	1.3G	0050
CARTRIDGES FOR TOOLS, BLANK	1.3C	0327
	1.4C	0338
	1.4S	0014
CARTRIDGES FOR WEAPONS with bursting charge	1.1E	0006
	1.1F	0005
	1.2E	0321
	1.2F	0007
	1.4E	0412
	1.4F	0348
CARTRIDGES FOR WEAPONS, BLANK	1.1C	0326
	1.2C	0413
	1.3C	0327
	1.4C	0338
	1.4S	0014
CARTRIDGES FOR WEAPONS, INERT PROJECTILE	1.2C	0328
	1.3C	0417
	1.4C	0339
	1.4S	0012
Cartridges, illuminating, –see	1.2G	0171
	1.3G	0254
	1.4G	0297
CARTRIDGES, OIL WELL	1.3C	0277
	1.4C	0278
CARTRIDGES, POWER DEVICE	1.2C	0381
	1.3C	0275
	1.4C	0276
	1.4S	0323
CARTRIDGES, SIGNAL	1.3G	0054
	1.4G	0312
	1.4S	0405

Name & Description	Class	UN No
CARTRIDGES, SMALL ARMS	1.3C 1.4C 1.4S	0417 0339 0012
CARTRIDGES, SMALL ARMS, BLANK	1.3C 1.4C 1.4S	0327 0338 0014
Cartridges, starter, jet engine, –see	1.2C 1.3C 1.4C 1.4S	0381 0275 0276 0323
CASES, CARTRIDGE, EMPTY, WITH PRIMER	1.4C 1.4S	0379 0055
CASES, COMBUSTIBLE, EMPTY, WITHOUT PRIMER	1.3C 1.4C	0447 0446
Casinghead gasoline, –see	3	1203
CASTOR BEANS	9	2969
CASTOR FLAKE	9	2969
CASTOR MEAL	9	2969
CASTOR POMACE	9	2969
CAUSTIC ALKALI LIQUID, N.O.S.	8	1719
Caustic potash, –see	8	1814
Caustic soda, –see	8	1824
Caustic soda liquor, –see	8	1824
CELLS, CONTAINING SODIUM	4.3	3292
CELLULOID in block, rods, rolls, sheets, tubes, etc., except scrap	4.1	2000
CELLULOID, SCRAP	4.2	2002
Cement, –see	3	1133
CERIUM, slabs, ingots or rods	4.1	1333
CERIUM, turnings or gritty powder	4.3	3078
Cer mishmetall, –see	4.1	1323
Charcoal, activated, –see	4.1	1362
Charcoal, non-activated, –see	4.2	1361
CHARGES, BURSTING, PLASTICS BONDED	1.1D 1.2D 1.4D 1.4S	0457 0458 0459 0460
CHARGES, DEMOLITION	1.1D	0048
CHARGES, DEPTH	1.1D	0056
Charges, expelling, explosive, for fire extinguishers, –see	1.2C 1.3C 1.4C 1.4S	0381 0275 0276 0323
CHARGES, EXPLOSIVE, COMMERCIAL without detonator	1.1D 1.2D 1.4D 1.4S	0442 0443 0444 0445

Name & Description	Class	UN No
CHARGES, PROPELLING	1.1C	0271
	1.2C	0415
	1.3C	0272
	1.4C	0491
CHARGES, PROPELLING, FOR CANNON	1.1C	0279
	1.2C	0414
	1.3C	0242
CHARGES, SHAPED, FLEXIBLE, LINEAR	1.1D	0288
	1.4D	0237
CHARGES, SHAPED, without detonator	1.1D	0059
	1.2D	0439
	1.4D	0440
	1.4S	0441
CHARGES, SUPPLEMENTARY, EXPLOSIVE	1.1D	0060
CHEMICAL KIT	9	3316
CHEMICAL SAMPLE, TOXIC	6.1	3315
CHEMICAL UNDER PRESSURE, N.O.S.	2.2	3500
CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.	2.1	3501
CHEMICAL UNDER PRESSURE, TOXIC, N.O.S.	2.2	3502
CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.	2.2	3503
CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.	2.1	3504
CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.	2.1	3505
Chile saltpetre, –see	5.1	1498
CHLORAL, ANHYDROUS, STABILISED	6.1	2075
CHLORATE AND BORATE MIXTURE	5.1	1458
CHLORATE AND MAGNESIUM CHLORIDE MIXTURE, SOLID	5.1	1459
CHLORATE AND MAGNESIUM CHLORIDE MIXTURE SOLUTION	5.1	3407
CHLORATES, INORGANIC, N.O.S.	5.1	1461
CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	3210
CHLORIC ACID, AQUEOUS SOLUTION with not more than 10% chloric acid	5.1	2626
CHLORINE	2.3	1017
CHLORINE, ADSORBED	2.3	3520
CHLORINE PENTAFLUORIDE	2.3	2548
CHLORINE TRIFLUORIDE	2.3	1749
CHLORITES, INORGANIC, N.O.S.	5.1	1462
CHLORITE SOLUTION	8	1908
Chloroacetaldehyde, –see	6.1	2232
CHLOROACETIC ACID, MOLTEN	6.1	3250
CHLOROACETIC ACID, SOLID	6.1	1751
CHLOROACETIC ACID SOLUTION	6.1	1750

Name & Description	Class	UN No
CHLOROACETONE, STABILISED	6.1	1695
CHLOROACETONITRILE	6.1	2668
CHLOROACETOPHENONE, SOLID	6.1	1697
CHLOROACETOPHENONE, LIQUID	6.1	3416
CHLOROACETYL CHLORIDE	6.1	1752
CHLOROANILINES, LIQUID	6.1	2019
CHLOROANILINES, SOLID	6.1	2018
CHLOROANISIDINES	6.1	2233
CHLOROBENZENE	3	1134
CHLOROBENZOTRIFLUORIDES	3	2234
CHLOROBENZYL CHLORIDES, LIQUID	6.1	2235
CHLOROBENZYL CHLORIDES, SOLID	6.1	3427
1-Chloro-3-bromopropane, –see	6.1	2688
1-Chlorobutane, –see	3	1127
2-Chlorobutane, –see	3	1127
CHLOROBUTANES	3	1127
CHLOROCRESOLS SOLUTION	6.1	2669
CHLOROCRESOLS, SOLID	6.1	3437
CHLORODIFLUOROBROMO- METHANE	2.3	1974
1-CHLORO-1,1-DIFLUOROETHANE	2.2	2517
CHLORODIFLUOROMETHANE	2.2	1018
CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUORO-ETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane	2.2	1973
3-Chloro-1,2-dihydroxypropane, –see	6.1	2689
Chlorodimethyl ether, –see	6.1	1239
CHLORODINITROBENZENES, LIQUID	6.1	1577
CHLORODINITROBENZENES, SOLID	6.1	3441
2-CHLOROETHANAL	6.1	2232
Chloroethane, –see	2.1	1037
Chloroethane nitrile, –see	6.1	2668
2-Chloroethanol, –see	6.1	1135
CHLOROFORM	6.1	1888
CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.	6.1	3277
CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	6.1	2742
Chloromethane, –see	2.1	1063
1-Chloro-3-methylbutane, –see	3	1107
2-Chloro-2-methylbutane, –see	3	1107
CHLOROMETHYL CHLOROFORMATE	6.1	2745
Chloromethyl cyanide, –see	6.1	2668
CHLOROMETHYL ETHYL ETHER	3	2354
Chloromethyl methyl ether, –see	6.1	1239
3-CHLORO-4-METHYLPHENYL ISOCYANATE, LIQUID	6.1	2236

Name & Description	Class	UN No
3-CHLORO-4-METHYLPHENYL ISOCYANATE, SOLID	6.1	3428
3-Chloro-2-methylprop-1-ene, –see	3	2554
CHLORONITROANILINES	6.1	2237
CHLORONITROBENZENES, SOLID	6.1	1578
CHLORONITROBENZENES, LIQUID	6.1	3409
CHLORONITROTOLUENES, LIQUID	6.1	2433
CHLORONITROTOLUENES, SOLID	6.1	3457
CHLOROPENTAFLUOROETHANE	2.2	1020
CHLOROPHENOLATES, LIQUID	8	2904
CHLOROPHENOLATES, SOLID	8	2905
CHLOROPHENOLS, LIQUID	6.1	2021
CHLOROPHENOLS, SOLID	6.1	2020
CHLOROPHENYL- TRICHLOROSILANE	8	1753
CHLOROPICRIN	6.1	1580
CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2.3	1582
CHLOROPICRIN AND METHYL BROMIDE MIXTURE with more than 2% chloropicrin	2.3	1581
CHLOROPICRIN MIXTURE, N.O.S.	6.1	1583
CHLOROPLATINIC ACID, SOLID	8	2507
CHLOROPRENE, STABILISED	3	1991
1-CHLOROPROPANE	3	1278
2-CHLOROPROPANE	3	2356
3-Chloro-propanediol-1,2, –see	6.1	2689
3-CHLOROPROPANOL-1	6.1	2849
2-CHLOROPROPENE	3	2456
3-Chloropropene, –see	3	1100
3-Chloroprop-1-ene, –see	3	1100
2-CHLOROPROPIONIC ACID	8	2511
2-CHLOROPYRIDINE	6.1	2822
CHLOROSILANES, CORROSIVE, N.O.S.	8	2987
CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.	8	2986
CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.	3	2985
CHLOROSILANES, TOXIC, CORROSIVE, N.O.S.	6.1	3361
CHLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.	6.1	3362
CHLOROSILANES, WATER- REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.	4.3	2988
CHLOROSULPHONIC ACID (with or without sulphur trioxide)	8	1754
1-CHLORO-1,2,2,2- TETRAFLUOROETHANE	2.2	1021
CHLOROTOLUENES	3	2238
4-CHLORO-o-TOLUIDINE HYDROCHLORIDE, SOLID	6.1	1579

Name & Description	Class	UN No
4-CHLORO-ortho-TOLUIDINE HYDROCHLORIDE SOLUTION	6.1	3410
CHLOROTOLUIDINES, SOLID	6.1	2239
CHLOROTOLUIDINES, LIQUID	6.1	3429
1-CHLORO-2,2,2-TRIFLUORO- ETHANE	2.2	1983
Chlorotrifluoroethylene, –see	2.3	1082
CHLOROTRIFLUOROMETHANE	2.2	1022
CHLOROTRIFLUOROMETHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane	2.2	2599
Chromic acid, solid, –see	5.1	1463
CHROMIC ACID SOLUTION	8	1755
Chromic anhydride, solid, –see	5.1	1463
CHROMIC FLUORIDE, SOLID	8	1756
CHROMIC FLUORIDE SOLUTION	8	1757
Chromic nitrate, –see	5.1	2720
Chromium (VI) dichloride dioxide, –see	8	1758
Chromium (III) fluoride, solid, –see	8	1756
CHROMIUM NITRATE	5.1	2720
Chromium (III) nitrate, –see	5.1	2720
CHROMIUM OXYCHLORIDE	8	1758
CHROMIUM TRIOXIDE, ANHYDROUS	5.1	1463
CHROMOSULPHURIC ACID	8	2240
Chryosotile, –see	9	2590
Cinene, –see	3	2052
Cinnamene, –see	3	2055
Cinnamol, –see	3	2055
CLINICAL WASTE, UNSPECIFIED, N.O.S.	6.2	3291
COAL GAS, COMPRESSED	2	1023
COAL TAR DISTILLATES, FLAMMABLE	3	1136
Coal tar naphtha, –see	3	1268
Coal tar oil, –see	3	1136
COATING SOLUTION (includes surface treatment or coatings used for industrial or other purposes such as vehicle under coating, drum or barrel lining)	3	1139
COBALT NAPHTHENATES, POWDER	4.1	2001
COBALT RESINATE, PRECIPITATED	4.1	1318
Cocculus, –see	6.1	3172
Collodion cottons, –see	1.1D 1.1D 1.3C 3 4.1 4.1 4.1	0340 0341 0342 2059 2555 2556 2557

Name & Description	Class	UN No
COMPONENTS, EXPLOSIVE TRAIN, N.O.S.	1.1B 1.2B 1.4B 1.4S	0461 0382 0383 0384
Composition B, –see	1.1D	0118
COMPRESSED GAS, N.O.S.	2.2	1956
COMPRESSED GAS, FLAMMABLE, N.O.S.	2.1	1954
COMPRESSED GAS, OXIDISING, N.O.S.	2.2	3156
COMPRESSED GAS, TOXIC, N.O.S.	2.3	1955
COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	3304
COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	1953
COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	3305
COMPRESSED GAS, TOXIC, OXIDISING, N.O.S.	2.3	3303
COMPRESSED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	3306
CONTRIVANCES, WATER- ACTIVATED with burster, expelling charge or propelling charge	1.2L 1.3L	0248 0249
COPPER ACETOARSENITE	6.1	1585
COPPER ARSENITE	6.1	1586
Copper (II) arsenite, –see	6.1	1586
COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2776
COPPER BASED PESTICIDE, LIQUID, TOXIC	6.1	3010
COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3009
COPPER BASED PESTICIDE, SOLID, TOXIC	6.1	2775
COPPER CHLORATE	5.1	2721
Copper (II) chlorate, –see	5.1	2721
COPPER CHLORIDE	8	2802
COPPER CYANIDE	6.1	1587
Copper selenate, –see	6.1	2630
Copper selenite, –see	6.1	2630
COPRA	4.2	1363
CORD, DETONATING, flexible	1.1D 1.4D	0065 0289
CORD, DETONATING, metal clad	1.1D 1.2D	0102 0290
CORD, DETONATING, MILD EFFECT, metal clad	1.4D	0104
CORD, IGNITER	1.4G	0066
Cordite, –see	1.1C 1.3C	0160 0161
CORROSIVE LIQUID, N.O.S.	8	1760
CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.	8	3264
CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.	8	3265
CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.	8	3266
CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.	8	3267

Name & Description	Class	UN No
CORROSIVE LIQUID, FLAMMABLE, N.O.S.	8	2920
CORROSIVE LIQUID, OXIDISING, N.O.S.	8	3093
CORROSIVE LIQUID, SELF- HEATING, N.O.S.	8	3301
CORROSIVE LIQUID, TOXIC, N.O.S.	8	2922
CORROSIVE LIQUID, WATER- REACTIVE, N.O.S.	8	3094
CORROSIVE SOLID, N.O.S.	8	1759
CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.	8	3260
CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.	8	3261
CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.	8	3262
CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.	8	3263
CORROSIVE SOLID, FLAMMABLE, N.O.S.	8	2921
CORROSIVE SOLID, OXIDISING, N.O.S.	8	3084
CORROSIVE SOLID, SELF- HEATING, N.O.S.	8	3095
CORROSIVE SOLID, TOXIC, N.O.S.	8	2923
CORROSIVE SOLID, WATER- REACTIVE, N.O.S.	8	3096
COTTON WASTE, OILY	4.2	1364
COTTON, WET	4.2	1365
COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	3024
COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	3026
COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3025
COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	3027
Creosote, –see	6.1	2810
Creosote salts, –see	4.1	1334
CRESOLS, LIQUID	6.1	2076
CRESOLS, SOLID	6.1	3455
CRESYLIC ACID	6.1	2022
Crocidolite, –see	9	2212
CROTONALDEHYDE	6.1	1143
CROTONALDEHYDE, STABILISED	6.1	1143
CROTONIC ACID, LIQUID	8	3472
CROTONIC ACID, SOLID	8	2823
Crotonic aldehyde, stabilised, –see	6.1	1143
CROTONYLENE	3	1144
Crude naphtha, –see	3	1268
Cumene, –see	3	1918
Cupric chlorate, –see	5.1	2721
CUPRIETHYLENEDIAMINE SOLUTION	8	1761
CUT BACKS, ASPHALT [AUST.] –see 3.2.5		
CUT BACKS, BITUMEN [AUST.] –see 3.2.5		
CUTTERS, CABLE, EXPLOSIVE	1.4S	0070
CYANIDE SOLUTION, N.O.S.	6.1	1935
CYANIDES, INORGANIC, SOLID, N.O.S.	6.1	1588
Cyanides, organic, flammable, toxic, n.o.s., –see	3	3273

Name & Description	Class	UN No
Cyanides, organic, toxic, n.o.s., –see	6.1 6.1	3276 3439
Cyanides, organic, toxic, flammable, n.o.s., –see	6.1	3275
Cyanoacetonitrile, –see	6.1	2647
CYANOGEN	2.3	1026
CYANOGEN BROMIDE	6.1	1889
CYANOGEN CHLORIDE, STABILISED	2.3	1589
CYANURIC CHLORIDE	8	2670
CYCLOBUTANE	2.1	2601
CYCLOBUTYL CHLOROFORMATE	6.1	2744
1,5,9-CYCLODODECATRIENE	6.1	2518
CYCLOHEPTANE	3	2241
CYCLOHEPTATRIENE	3	2603
1,3,5-Cycloheptatriene, –see	3	2603
CYCLOHEPTENE	3	2242
1,4-Cyclohexadienedione, –see	6.1	2587
CYCLOHEXANE	3	1145
Cyclehexanethiol, –see	3	3054
CYCLOHEXANONE	3	1915
CYCLOHEXENE	3	2256
CYCLOHEXENYLTRI- CHLOROSILANE	8	1762
CYCLOHEXYL ACETATE	3	2243
CYCLOHEXYLAMINE	8	2357
CYCLOHEXYL ISOCYANATE	6.1	2488
CYCLOHEXYL MERCAPTAN	3	3054
CYCLOHEXYLTRICHLOROSILANE	8	1763
CYCLONITE, –see	1.1D 1.1D 1.1D	0072 0391 0483
CYCLOOCTADIENE PHOSPHINES, –see	4.2	2940
CYCLOOCTADIENES	3	2520
CYCLOOCTATETRAENE	3	2358
CYCLOPENTANE	3	1146
CYCLOPENTANOL	3	2244
CYCLOPENTANONE	3	2245
CYCLOPENTENE	3	2246
CYCLOPROPANE	2.1	1027
CYCLOTETRAMETHYLENE- TETRANITRAMINE, DESENSITISED	1.1D	0484
CYCLOTETRAMETHYLENE- TETRANITRAMINE, WETTED with not less than 15% water, by mass	1.1D	0226
CYCLOTRIMETHYLENE TRINITRAMINE AND CYCLOTETRAMETHYLENE- TETRANITRAMINE MIXTURE, DESENSITISED with not less than 10% phlegmatiser, by mass	1.1D	0391

Name & Description	Class	UN No
CYCLOTRIMETHYLENETRI- NITRAMINE AND CYCLOTETRAMETHYLENE- TETRANITRAMINE MIXTURE, WETTED with not less than 15% water, by mass	1.1D	0391
CYCLOTRIMETHYLENE- TRINITRAMINE, DESENSITISED	1.1D	0483
CYCLOTRIMETHYLENE- TRINITRAMINE, WETTED with not less than 15% water, by mass	1.1D	0072
CYMENES	3	2046
Cymol, –see	3	2046
DANGEROUS GOODS IN APPARATUS	9	3363
DANGEROUS GOODS IN MACHINERY	9	3363
DANGEROUS GOODS IN ARTICLES	9	3363
Deanol, –see	8	2051
DECABORANE	4.1	1868
DECAHYDRONAPHTHA-LENE	3	1147
Decalin, –see	3	1147
n-DECANE	3	2247
DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S.	1.3C	0132
Depth charge, –see	1.1D	0056
DESENSITISED EXPLOSIVE, LIQUID, N.O.S.	3	3379
DESENSITISED EXPLOSIVE, SOLID, N.O.S.	4.1	3380
Detonating relays, –see	1.1B 1.1B 1.4B 1.4B 1.4S 1.4S	0029 0360 0267 0361 0455 0500
DETONATOR ASSEMBLIES, NON- ELECTRIC for blasting	1.1B 1.4B 1.4S	0360 0361 0500
DETONATORS FOR AMMUNITION	1.1B 1.2B 1.4B 1.4S	0073 0364 0365 0366
DETONATORS, ELECTRIC for blasting	1.1B 1.4B 1.4S	0030 0255 0456
DETONATORS, ELECTRIC programmable for blasting	1.1B 1.4B 1.4S	0511 0512 0513
DETONATORS, NON-ELECTRIC for blasting	1.1B 1.4B 1.4S	0029 0267 0455
DEUTERIUM, COMPRESSED	2.1	1957
DEVICES, SMALL, HYDROCARBON GAS POWERED with release device	2.1	3150

Name & Description	Class	UN No
DIACETONE ALCOHOL	3	1148
DIALLYLAMINE	3	2359
DIALLYL ETHER	3	2360
4,4'-DIAMINODIPHENYLMETHANE	6.1	2651
1,2-Diaminoethane, –see	8	1604
Diaminopropylamine, –see	8	2269
DI-n-AMYLAMINE	3	2841
DIAZODINITROPHENOL, WETTED with not less than 40% water, or mixture of alcohol and water, by mass	1.1A	0074
Dibenzopyridine, –see	6.1	2713
DIBENZYLDICHLOROSILANE	8	2434
DIBORANE	2.3	1911
1,2-DIBROMOBUTAN-3-ONE	6.1	2648
DIBROMOCHLOROPROPANES	6.1	2872
1,2-Dibromo-3-chloropropane, –see	6.1	2872
DIBROMODIFLUOROMETHANE	9	1941
DIBROMOMETHANE	6.1	2664
DI-n-BUTYLAMINE	8	2248
DIBUTYLAMINOETHANOL	6.1	2873
2-Dibutylaminoethanol, –see	6.1	2873
N,N-Di-n-butylaminoethanol, –see	6.1	2873
DIBUTYL ETHERS	3	1149
DICHLOROACETIC ACID	8	1764
1,3-DICHLOROACETONE	6.1	2649
DICHLOROACETYL CHLORIDE	8	1765
DICHLOROANILINES, LIQUID	6.1	1590
DICHLOROANILINES, SOLID	6.1	3442
o-DICHLOROBENZENE	6.1	1591
2,2'-DICHLORODIETHYL ETHER	6.1	1916
DICHLORODIFLUOROMETHANE	2.2	1028
DICHLORODIFLUOROMETHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane	2.2	2602
Dichlorodifluoromethane and ethylene oxide mixture, –see	2.2	3070
DICHLORODIMETHYL ETHER, SYMMETRICAL	6.1	2249
1,1-DICHLOROETHANE	3	2362
1,2-Dichloroethane, –see	3	1184
1,2-DICHLOROETHYLENE	3	1150
Di(2-chloroethyl) ether, –see	6.1	1916
DICHLOROFLUOROMETHANE	2.2	1029
alpha-Dichlorohydrin, –see	6.1	2750
DICHLOROISOCYANURIC ACID, DRY	5.1	2465
DICHLOROISOCYANURIC ACID SALTS	5.1	2465
DICHLOROISOPROPYL ETHER	6.1	2490
DICHLOROMETHANE	6.1	1593
1,1-DICHLORO-1-NITROETHANE	6.1	2650

Name & Description	Class	UN No
DICHLOROPENTANES	3	1152
Dichlorophenol, –see	6.1 6.1	2020 2021
DICHLOROPHENYL ISOCYANATES	6.1	2250
DICHLOROPHENYLTRICHLORO- SILANE	8	1766
1,2-DICHLOROPROPANE	3	1279
1,3-DICHLOROPROPANOL-2	6.1	2750
1,3-Dichloro-2-propanone, –see	6.1	2649
DICHLOROPROPENES	3	2047
DICHLOROSILANE	2.3	2189
1,2-DICHLORO-1,1,2,2- TETRAFLUOROETHANE	2.2	1958
Dichloro-s-triazine-2,4,6-trione, –see	5.1	2465
1,4-Dicyanobutane, –see	6.1	2205
Dicycloheptadiene, –see	3	2251
DICYCLOHEXYLAMINE	8	2565
Dicyclohexylamine nitrite, –see	4.1	2687
DICYCLOHEXYLAMMONIUM NITRITE	4.1	2687
DICYCLOPENTADIENE	3	2048
1,2-DI-(DIMETHYLAMINO) ETHANE	3	2372
DIDYMIUM NITRATE	5.1	1465
DIESEL FUEL	3	1202
1,1-Diethoxyethane, –see	3	1088
1,2-Diethoxyethane, –see	3	1153
DIETHOXYMETHANE	3	2373
3,3-DIETHOXYPROPENE	3	2374
DIETHYLAMINE	3	1154
2-DIETHYLAMINOETHANOL	8	2686
3-DIETHYLAMINOPROPYLAMINE	3	2684
N,N-DIETHYLANILINE	6.1	2432
DIETHYLBENZENE	3	2049
Diethylcarbinol, –see	3	1105
DIETHYL CARBONATE	3	2366
DIETHYLDICHLOROSILANE	8	1767
Diethylenediamine, –see	8	2579
DIETHYLENEGLYCOL DINITRATE, DESENSITISED with not less than 25% non-volatile, water-insoluble phlegmatiser, by mass	1.1d	0075
DIETHYLENETRIAMINE	8	2079
N,N-Diethylethanolamine, –see	3	2686
DIETHYL ETHER	3	1155
N,N-DIETHYLETHYLENEDIAMINE	8	2685
Di-(2-ethylhexyl) phosphoric acid, –see	8	1902
DIETHYL KETONE	3	1156
DIETHYL SULPHATE	6.1	1594
DIETHYL SULPHIDE	3	2375
DIETHYLTHIOPHOSPHORYL CHLORIDE	8	2751

Name & Description	Class	UN No
2,4-Difluoroaniline, –see	6.1	2941
Difluorochloroethane, –see	2.1	2517
1,1-DIFLUOROETHANE	2.1	1030
1,1-DIFLUOROETHYLENE	2.1	1959
DIFLUOROMETHANE	2.1	3252
Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 23% difluoromethane and 25% pentafluoroethane, –see	2.2	3340
Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 20% difluoromethane and 40% pentafluoroethane, –see	2.2	3338
Difluoromethane, pentafluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 10% difluoromethane and 70% pentafluoroethane, –see	2.2	3339
DIFLUOROPHOSPHORIC ACID, ANHYDROUS	8	1768
2,3-DIHYDROPYRAN	3	2376
DIISOBUTYLAMINE	3	2361
DIISOBUTYLENE, ISOMERIC COMPOUNDS	3	2050
alpha-Diisobutylene, –see	3	2050
beta-Diisobutylene, –see	3	2050
DIISOBUTYL KETONE	3	1157
DIISOOCTYL ACID PHOSPHATE	8	1902
DIISOPROPYLAMINE	3	1158
DIISOPROPYL ETHER	3	1159
DIKETENE, STABILISED	6.1	2521
1,1-DIMETHOXYETHANE	3	2377
1,2-DIMETHOXYETHANE	3	2252
Dimethoxystrychnine, –see	6.1	1570
DIMETHYLAMINE, ANHYDROUS	2.1	1032
DIMETHYLAMINE AQUEOUS SOLUTION	3	1160
2-DIMETHYLAMINO- ACETONITRILE	3	2378
2-DIMETHYLAMINOETHANOL	8	2051
2-DIMETHYLAMINOETHYL ACRYLATE, STABILIZED	6.1	3302
2-DIMETHYLAMINOETHYL METHACRYLATE, STABILIZED	6.1	2522
N,N-DIMETHYLANILINE	6.1	2253
Dimethylarsenic acid, –see	6.1	1572
N,N-Dimethylbenzylamine, –see	8	2619
2,3-DIMETHYLBUTANE	3	2457
1,3-DIMETHYLBUTYLAMINE	3	2379
DIMETHYLCARBAMOYL CHLORIDE	8	2262
DIMETHYL CARBONATE	3	1161
DIMETHYLCYCLOHEXANES	3	2263
N,N-DIMETHYLCYCLO- HEXYLAMINE	8	2264
DIMETHYLDICHLOROSILANE	3	1162

Name & Description	Class	UN No
DIMETHYLDIETHOXYSILANE	3	2380
DIMETHYLDIOXANES	3	2707
DIMETHYL DISULPHIDE	3	2381
Dimethylethanolamine, –see	8	2051
DIMETHYL ETHER	2.1	1033
N,N-DIMETHYLFORMAMIDE	3	2265
DIMETHYLHYDRAZINE, SYMMETRICAL	6.1	2382
DIMETHYLHYDRAZINE, UNSYMMETRICAL	6.1	1163
1,1-Dimethylhydrazine, –see	6.1	1163
N,N-Dimethyl-4-nitrosoaniline, –see	4.2	1369
2,2-DIMETHYLPROPANE	2	2044
DIMETHYL-N-PROPYLAMINE	3	2266
DIMETHYL SULPHATE	6.1	1595
DIMETHYL SULPHIDE	3	1164
DIMETHYL THIOPHOSPHORYL CHLORIDE	6.1	2267
DINGU, –see	1.1D	0489
DINITROANILINES	6.1	1596
DINITROBENZENES, SOLID	6.1	3443
DINITROBENZENES LIQUID	6.1	1597
Dinitrochlorobenzene, –see	6.1	1577
DINITRO-o-CRESOL	6.1	1598
DINITROGEN TETROXIDE	2.3	1067
DINITROGLYCOLURIL	1.1D	0489
DINITROPHENOL, dry or wetted with less than 15% water, by mass	1.1D	0076
DINITROPHENOL SOLUTION	6.1	1599
DINITROPHENOL, WETTED with not less than 15% water, by mass	4.1	1320
DINITROPHENOLATES, alkali metals, dry or wetted with less than 15% water, by mass	1.3C	0077
DINITROPHENOLATES, WETTED with not less than 15% water, by mass	4.1	1321
DINITRORESORCINOL, dry or wetted with less than 15% water, by mass	1.1D	0078
DINITRORESORCINOL, WETTED with not less than 15% water, by mass	4.1	1322
DINITROSOBENZENE	1.3C	0406
Dinitrotoluene mixed with sodium chlorate, –see	1.1D	0083
DINITROTOLUENES, LIQUID	6.1	2038
DINITROTOLUENES, MOLTEN	6.1	1600
DINITROTOLUENES, SOLID	6.1	3454
DIOXANE	3	1165
DIOXOLANE	3	1166
DIPENTENE	3	2052
DIPHENYLAMINE CHLOROARSINE	6.1	1698
DIPHENYLCHLOROARSINE, LIQUID	6.1	1699
DIPHENYLCHLOROARSINE, SOLID	6.1	3450

Name & Description	Class	UN No
DIPHENYLDICHLOROSILANE	8	1769
DIPHENYLMETHYL BROMIDE	8	1770
DIPICRYLAMINE, –see	1.1D	0079
DIPICRYL SULPHIDE, dry or wetted with less than 10% water, by mass	1.1D	0401
DIPICRYL SULPHIDE, WETTED with not less than 10% water, by mass	4.1	2852
DIPROPYLAMINE	3	2383
Dipropylene triamine, –see	8	2269
DI-n-PROPYL ETHER	3	2384
DIPROPYL KETONE	3	2710
DISINFECTANT, LIQUID, CORROSIVE, N.O.S.	8	1903
DISINFECTANT, LIQUID, TOXIC, N.O.S.	6.1	3142
DISINFECTANT, SOLID, TOXIC, N.O.S.	6.1	1601
DISODIUM TRIOXOSILICATE	8	3253
DIVINYL ETHER, STABILISED	3	1167
DODECYLTRICHLOROSILANE	8	1771
DRIERS, PAINT OR VARNISH, LIQUID [AUST.] –see 3.2.5		
Dry ice, –see	9	1845
DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.	8	2801
DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.	6.1	1602
DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.	8	3147
DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.	6.1	3143
Dynamite, –see	1.1D	0081
Electric storage batteries, –see	8 8 8 8	2794 2795 2800 3028
Electrolyte (acid or alkaline) for batteries, –see	8 8	2796 2797
ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100°C and below its flash-point (including molten metals, molten salts, etc.)	9	3257
ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S. with flash-point above 60°C, at or above its flash-point	3	3256
ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240°C	9	3258
ENAMEL [AUST.] –see 3.2.5		
Engine, internal combustion	9	3530
ENGINE, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED	3	3528
ENGINE, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED	2.1	3529
ENGINE, FUEL CELL, FLAMMABLE GAS POWERED	2.1	3529
ENGINE, FUEL CELL, FLAMMABLE LIQUID POWERED	3	3528

Name & Description	Class	UN No
Engines, rocket, –see	1.2L 1.3L	0322 0250
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.	9	3082
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	9	3077
EPIBROMOHYDRIN	6.1	2558
EPICHLOROHYDRIN	6.1	2023
1,2-Epoxybutane, stabilised, –see	3	3022
Epoxyethane, –see	2.3	1040
1,2-EPOXY-3-ETHOXYPROPANE	3	2752
2,3-Epoxy-1-propanal, –see	3	2622
2,3-Epoxypropyl ethyl ether, –see	3	2752
ESTERS, N.O.S.	3	3272
ETHANE	2.1	1035
ETHANE, REFRIGERATED LIQUID	2.1	1961
Ethanethiol, –see	3	2363
ETHANOL	3	1170
ETHANOL AND GASOLINE MIXTURE or ETHANOL AND MOTOR SPIRIT MIXTURE or ETHANOL AND PETROL MIXTURE, with more than 10% ethanol	3	3475
ETHANOL SOLUTION	3	1170
ETHANOLAMINE	8	2491
ETHANOLAMINE SOLUTION	8	2491
Ether, –see	3	1155
ETHERS, N.O.S.	3	3271
2-Ethoxyethanol, –see	3	1171
2-Ethoxyethyl acetate, –see	3	1172
Ethoxy propane-1, –see	3	2615
ETHYL ACETATE	3	1173
ETHYLACETYLENE, STABILISED	2.1	2452
ETHYL ACRYLATE, STABILISED	3	1917
ETHYL ALCOHOL, –see	3	1170
ETHYL ALCOHOL SOLUTION, –see	3	1170
ETHYLAMINE	2.1	1036
ETHYLAMINE, AQUEOUS SOLUTION with not less than 50% but not more than 70% ethylamine	3	2270
ETHYL AMYL KETONE	3	2271
N-ETHYLANILINE	6.1	2272
2-ETHYLANILINE	6.1	2273
ETHYLBENZENE	3	1175
N-ETHYL-N-BENZYLANILINE	6.1	2274
N-ETHYLBENZYLTOLUIDINES, LIQUID	6.1	2753
N-ETHYLBENZYLTOLUIDINES, SOLID	6.1	3460
ETHYL BORATE	3	1176
ETHYL BROMIDE	6.1	1891

Name & Description	Class	UN No
ETHYL BROMOACETATE	6.1	1603
2-ETHYLBUTANOL	3	2275
2-ETHYLBUTYL ACETATE	3	1177
2-Ethylbutyl acetate, –see	3	1177
ETHYL BUTYL ETHER	3	1179
2-ETHYLBUTYRALDEHYDE	3	1178
ETHYL BUTYRATE	3	1180
ETHYL CHLORIDE	2.1	1037
ETHYL CHLOROACETATE	6.1	1181
Ethyl chlorocarbonate, –see	6.1	1182
ETHYL CHLOROFORMATE	6.1	1182
ETHYL 2-CHLOROPROPIONATE	3	2935
Ethyl-alpha-chloropropionate, –see	3	2935
ETHYL CHLOROTHIOFORMATE	8	2826
ETHYL CROTONATE	3	1862
ETHYLDICHLOROARSINE	6.1	1892
ETHYLDICHLOROSILANE	4.3	1183
ETHYLENE, ACETYLENE AND PROPYLENE MIXTURE, REFRIGERATED LIQUID containing at least 71.5% ethylene with not more than 22.5% acetylene and not more than 6% propylene	2.1	3138
ETHYLENE CHLOROHYDRIN	6.1	1135
ETHYLENE	2.1	1962
ETHYLENEDIAMINE	8	1604
ETHYLENE DIBROMIDE	6.1	1605
Ethylene dibromide and methyl bromide, liquid mixture, –see	6.1	1647
ETHYLENE DICHLORIDE	3	1184
ETHYLENE GLYCOL DIETHYL ETHER	3	1153
ETHYLENE GLYCOL DIMETHYLETHER [AUST.], –see 3.2.5		
ETHYLENE GLYCOL MONOETHYL ETHER	3	1171
ETHYLENE GLYCOL MONOETHYL ETHER ACETATE	3	1172
ETHYLENE GLYCOL MONOMETHYL ETHER	3	1188
ETHYLENE GLYCOL MONOMETHYL ETHER ACETATE	3	1189
ETHYLENEIMINE, STABILISED	6.1	1185
ETHYLENE OXIDE	2.3	1040
ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 87% ethylene oxide	2.3	3300
ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% but not more than 87% ethylene oxide	2.1	1041
ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	2.2	1952

Name & Description	**Class**	**UN No**
ETHYLENE OXIDE AND CHLOROTETRAFLUORO-ETHANE MIXTURE with not more than 8.8% ethylene oxide	2.2	3297
ETHYLENE OXIDE AND DICHLORODIFLUOROMETHANE MIXTURE with not more than 12.5% ethylene oxide	2.2	3070
ETHYLENE OXIDE AND PENTAFLUOROETHANE MIXTURE with not more than 7.9% ethylene oxide	2.2	3298
ETHYLENE OXIDE AND PROPYLENE OXIDE MIXTURE, not more than 30% ethylene oxide	3	2983
ETHYLENE OXIDE AND TETRAFLUOROETHANE MIXTURE with not more than 5.6% ethylene oxide	2.2	3299
ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1 MPa (10 bar) at 50°C	2.3	1040
ETHYLENE, REFRIGERATED LIQUID	2.1	1038
ETHYL ETHER, –see	3	1155
ETHYL FLUORIDE	2.1	2453
ETHYL FORMATE	3	1190
2-ETHYLHEXYLAMINE	3	2276
2-ETHYLHEXYL CHLOROFORMATE	6.1	2748
Ethylidene chloride, –see	3	2362
ETHYL ISOBUTYRATE	3	2385
ETHYL ISOCYANATE	3	2481
ETHYL LACTATE	3	1192
ETHYL MERCAPTAN	3	2363
ETHYL METHACRYLATE, stabiliSed	3	2277
ETHYL METHYL ETHER	2.1	1039
ETHYL METHYL KETONE	3	1193
ETHYL NITRITE SOLUTION	3	1194
ETHYL ORTHOFORMATE	3	2524
ETHYL OXALATE	6.1	2525
ETHYLPHENYLDICHLOROSILANE	8	2435
1-ETHYLPIPERIDINE	3	2386
ETHYL PROPIONATE	3	1195
ETHYL PROPYL ETHER	3	2615
Ethyl silicate, –see	3	1292
Ethyl sulphate, –see	6.1	1594
N-ETHYLTOLUIDINES	6.1	2754
ETHYLTRICHLOROSILANE	3	1196
EXPLOSIVE, BLASTING, TYPE A	1.1D	0081
EXPLOSIVE, BLASTING, TYPE B	1.1D 1.5D	0082 0331
EXPLOSIVE, BLASTING, TYPE C	1.1D	0083
EXPLOSIVE, BLASTING, TYPE D	1.1D	0084
EXPLOSIVE, BLASTING, TYPE E	1.1D 1.5D	0241 0332
Explosives, emulsion, –see	1.1D 1.5D	0241 0332

Name & Description	Class	UN No
Explosive, seismic, –see	1.1D 1.1D 1.1D 1.5D	0081 0082 0083 0331
Explosive, slurry, –see	1.1D 1.5D	0241 0332
Explosive, water gel, –see	1.1D 1.5D	0241 0332
EXTRACTS, AROMATIC, LIQUID	3	1169
EXTRACTS, FLAVOURING, LIQUID	3	1197
FABRICS, ANIMAL, N.O.S. with oil	4.2	1373
FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.	4.1	1353
FABRICS, SYNTHETIC, N.O.S. with oil	4.2	1373
FABRICS, VEGETABLE, N.O.S. with oil	4.2	1373
FERRIC ARSENATE	6.1	1606
FERRIC ARSENITE	6.1	1607
FERRIC CHLORIDE, ANHYDROUS	8	1773
FERRIC CHLORIDE SOLUTION	8	2582
FERRIC NITRATE	5.1	1466
FERROCERIUM	4.1	1323
FERROSILICON with 30% or more but less than 90% silicon	4.3	1408
FERROUS ARSENATE	6.1	1608
FERROUS METAL BORINGS in a form liable to self-heating	4.2	2793
FERROUS METAL CUTTINGS in a form liable to self-heating	4.2	2793
FERROUS METAL SHAVINGS in a form liable to self-heating	4.2	2793
FERROUS METAL TURNINGS in a form liable to self-heating	4.2	2793
FERTILISER AMMONIATING SOLUTION with free ammonia	2.2	1043
Fertiliser with ammonium nitrate, n.o.s., –see	5.1	2072
FIBRES, ANIMAL burnt, wet or damp	4.2	1372
FIBRES, ANIMAL, N.O.S. with oil	4.2	1373
FIBRES IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.	4.1	1353
FIBRES, SYNTHETIC, N.O.S. with oil	4.2	1373
FIBRES, VEGETABLE burnt, wet or damp	4.2	1372
FIBRES, VEGETABLE, DRY	4.1	3360
FIBRES, VEGETABLE, N.O.S. with oil	4.2	1373
FILLERS, liquid [AUST.] –see 3.2.5		
Films, nitrocellulose base, from which gelatin has been removed; film scrap, –see	4.2	2002
FILMS, NITROCELLULOSE BASE, gelatin coated, except scrap	4.1	1324

Name & Description	Class	UN No
FIRE EXTINGUISHER CHARGES, corrosive liquid	8	1774
Fire extinguisher charges, expelling, explosive	1.2C	0381
	1.3C	0275
	1.4c	0276
	1.4s	0323
FIRE EXTINGUISHERS with compressed or liquefied gas	2.2	1044
FIRELIGHTERS, SOLID with flammable liquid	4.1	2623
FIREWORKS	1.1G	0333
	1.2G	0334
	1.3G	0335
	1.4G	0336
	1.4S	0337
FIRST AID KIT	9	3316
Fish meal, stabilised	9	2216
FISH MEAL, UNSTABILISED	4.2	1374
Fish scrap, stabilised, –see	9	2216
FISH SCRAP, UNSTABILISED, –see	4.2	1374
Flammable gas in lighters, –see	2.1	1057
FLAMMABLE LIQUID, N.O.S	3	1993
FLAMMABLE LIQUID, CORROSIVE, N.O.S.	3	2924
FLAMMABLE LIQUID, TOXIC, N.O.S.	3	1992
FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.	3	3286
FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.	4.1	3180
FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.	4.1	2925
FLAMMABLE SOLID, INORGANIC, N.O.S.	4.1	3178
FLAMMABLE SOLID, ORGANIC, N.O.S.	4.1	1325
FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.	4.1	3176
FLAMMABLE SOLID, OXIDISING, N.O.S.	4.1	3097
FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.	4.1	3179
FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.	4.1	2926
FLARES, AERIAL	1.1G	0420
	1.2G	0421
	1.3G	0093
	1.4G	0403
	1.4S	0404
Flares, aeroplane, –see	1.1G	0420
	1.2G	0421
	1.3G	0093
	1.4G	0403
	1.4S	0404
Flares, highway,)	1.4G	0191
Flares, distress, small,) –see	1.4S	0373
Flares, railway or highway)		

Name & Description	Class	UN No
FLARES, SURFACE	1.1G 1.2G 1.3G	0418 0419 0092
Flares, water-activated, –see	1.2L 1.3L	0248 0249
FLASH POWDER	1.1G 1.3G	0094 0305
Flue dusts, toxic, –see	6.1	1562
Fluoric acid, –see	8	1790
FLUORINE, COMPRESSED	2.3	1045
FLUOROACETIC ACID	6.1	2642
FLUOROANILINES	6.1	2941
2-Fluoroaniline, –see	6.1	2941
4-Fluoroaniline, –see	6.1	2941
o-Fluoroaniline, –see	6.1	2941
p-Fluoroaniline, –see	6.1	2941
FLUOROBENZENE	3	2387
FLUOROBORIC ACID	8	1775
Fluoroethane, –see	2.1	2453
Fluoroform, –see	2.2	1984
Fluoromethane, –see	2.1	2454
FLUOROPHOSPHORIC ACID, ANHYDROUS	8	1776
FLUOROSILICATES, N.O.S.	6.1	2856
FLUOROSILICIC ACID	8	1778
FLUOROSULPHONIC ACID	8	1777
FLUOROTOLUENES	3	2388
FORMALDEHYDE SOLUTION with not less than 25% formaldehyde	8	2209
FORMALDEHYDE SOLUTION, FLAMMABLE	3	1198
Formalin, –see	3 8	1198 2209
Formamidine sulphinic acid, –see	4.2	3341
FORMIC ACID with more than 85% acid by mass	8	1779
FORMIC ACID with not less than 10% but not more than 85% acid by mass	8	3412
FORMIC ACID with not less than 5% but less than 10% acid by mass	8	3412
Formic aldehyde, –see	3 8	1198 2209
2-Formyl-3,4-dihydro-2H-pyran, –see	3	2607
FRACTURING DEVICES, EXPLOSIVE without detonator, for oil wells	1.1D	0099
FUEL, AVIATION, TURBINE ENGINE	3	1863

Name & Description	Class	UN No
FUEL CELL CARTRIDGES or FUEL CELL CARTRIDGES CONTAINED IN EQUIPMENT or FUEL CELL CARTRIDGES PACKED WITH EQUIPMENT,		
–containing corrosive substances	8	3477
–containing flammable liquids	3	3473
–containing hydrogen in metal hydride	2.1	3479
–containing liquefied flammable gas	2.1	3478
–containing water-reactive substances	4.3	3476
Fumaroyl dichloride, –see	3	1780
FUMARYL CHLORIDE	8	1780
FUMIGATED CARGO TRANSPORT UNIT	9	3359
FURALDEHYDES	6.1	1199
FURAN	3	2389
FURFURYL ALCOHOL	6.1	2874
FURFURYLAMINE	3	2526
Furyl carbinol, –see	6.1	2874
FUSE, DETONATING, metal clad, –see	1.1D	0290
	1.2D	0102
FUSE, DETONATING, MILD EFFECT, metal clad, –see	1.4D	0104
FUSE, IGNITER, tubular, metal clad	1.4G	0103
FUSE, NON-DETONATING	1.3G	0101
FUSEL OIL	3	1201
FUSE, SAFETY	1.4S	0105
Fuse, combination, percussion or time, –see	1.1B	0106
	1.2B	0107
	1.3G	0257
	1.4B	0316
	1.4G	0317
	1.4S	0367
	1.4S	0368
FUSES, DETONATING	1.1B	0106
	1.2B	0107
	1.4B	0257
	1.4S	0367
FUSES, DETONATING with protective features	1.1D	0408
	1.2D	0409
	1.4D	0410
FUSES, IGNITING	1.3G	0316
	1.4G	0317
	1.4S	0368
GALLIUM	8	2803
GAS CARTRIDGES without a release device, non-refillable, –see	2	2037
Gas drips, hydrocarbon, –see	3	3295
GAS OIL	3	1202
GASOLINE	3	1203
Gasoline, casinghead, –see	3	1203

Name & Description	Class	UN No
GAS, REFRIGERATED LIQUID, N.O.S.	2.2	3158
GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.	2.1	3312
GAS, REFRIGERATED LIQUID, OXIDISING, N.O.S.	2.2	3311
GAS SAMPLE, NON-PRESSURISED, FLAMMABLE, N.O.S., not refrigerated liquid	2.1	3167
GAS SAMPLE, NON-PRESSURISED, TOXIC, N.O.S., not refrigerated liquid	2.3	3169
GAS SAMPLE, NON-PRESSURISED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid	2.3	3168
Gelatin, blasting, –see	1.1D	0081
Gelatin, dynamites, –see	1.1D	0081
GENETICALLY MODIFIED MICROORGANISMS	9	3245
GENETICALLY MODIFIED ORGANISMS	9	3245
GERMANE	2.3	2192
GERMANE, ADSORBED	2.3	3523
Germanium hydride, –see	2.3	2192
Glycer-1,3-dichlorohydrin, –see	6.1	2750
GLYCEROL alpha- MONOCHLOROHYDRIN	6.1	2689
Glyceryl trinitrate, –see	1.1D 1.1D 3 3	0143 0144 1204 3064
GLYCIDALDEHYDE	3	2622
GRENADES, hand or rifle, with bursting charge	1.1D 1.1F 1.2D 1.2F	0284 0292 0285 0293
Grenades, illuminating, –see	1.2G 1.3G 1.4G	0171 0254 0297
GRENADES, PRACTICE, hand or rifle	1.2G 1.3G 1.4G 1.4S	0372 0318 0452 0110
Grenades, smoke, –see	1.2G 1.2H 1.3G 1.3H 1.4G	0015 0245 0016 0246 0303
GUANIDINE NITRATE	5.1	1467
GUANYLNITROSAMINO- GUANYLIDENE HYDRAZINE, WETTED with not less than 30% water, by mass	1.1A	0113
GUANYLNITROSAMINO- GUANYLTETRAZENE, WETTED with not less than 30% water, or mixture of alcohol and water, by mass	1.1A	0114
GUNPOWDER, COMPRESSED, –see	1.1D	0028
GUNPOWDER, granular or as a meal, –see	1.1D	0027

Name & Description	Class	UN No
GUNPOWDER, IN PELLETS, –see	1.1D	0028
Gutta percha solution, –see	3	1287
HAFNIUM POWDER, DRY	4.2	2545
HAFNIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present) (a) mechanically produced, particle size less than 53 microns; (b) chemically produced, particle size less than 840 microns	4.1	1326
HALOGENATED MONOMETHYLDIPHENYLMETHANES, LIQUIDS	9	3151
HALOGENATED MONOMETHYLDIPHENYLMETHANES, SOLIDS	9	3152
Hay	4.1	1327
HEATING OIL, LIGHT	3	1202
Heavy hydrogen, –see	2.1	1957
HELIUM, COMPRESSED	2.2	1046
HELIUM, REFRIGERATED LIQUID	2.2	1963
HEPTAFLUOROPROPANE	2.2	3296
n-HEPTALDEHYDE	3	3056
n-Heptanal, –see	3	3056
HEPTANES	3	1206
4-Heptanone, –see	3	2710
n-HEPTENE	3	2278
HEXACHLOROACETONE	6.1	2661
HEXACHLOROBENZENE	6.1	2729
HEXACHLOROBUTADIENE	6.1	2279
Hexachloro-1,3-butadiene, –see	6.1	2279
HEXACHLOROCYCLO- PENTADIENE	6.1	2646
HEXACHLOROPHENE	6.1	2875
Hexachloro-2-propanone, –see	6.1	2661
HEXADECYLTRICHLOROSILANE	8	1781
HEXADIENE	3	2458
HEXAETHYL TETRAPHOSPHATE	6.1	1611
HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	2.3	1612
HEXAFLUOROACETONE	2.3	2420
HEXAFLUOROACETONE HYDRATE, LIQUID	6.1	2552
HEXAFLUOROACETONE HYDRATE, SOLID	6.1	3436
HEXAFLUOROETHANE (REGRIGERANT GAS R116)	2.2	2193
HEXAFLUOROPHOSPHORIC ACID	8	1782
HEXAFLUOROPROPYLENE	2.2	1858
Hexahydrocresol, –see	3	2617
Hexahydromethyl phenol, –see	3	2617
HEXALDEHYDE	3	1207
HEXAMETHYLENEDIAMINE, SOLID	8	2280
HEXAMETHYLENEDIAMINE SOLUTION	8	1783
HEXAMETHYLENE DIISOCYANATE	6.1	2281

Name & Description	Class	UN No
HEXAMETHYLENEIMINE	3	2493
HEXAMETHYLENETETRAMINE	4.1	1328
Hexamine, –see	4.1	1328
HEXANES	3	1208
HEXANITRODIPHENYLAMINE	1.1D	0079
HEXANITROSTILBENE	1.1D	0392
Hexanoic acid, –see	8	2829
HEXANOLS	3	2282
1-HEXENE	3	2370
HEXOGEN, –see	1.1D 1.1D 1.1D	0072 0391 0483
HEXOLITE, dry or wetted with less than 15% water, by mass	1.1D	0118
HEXOTOL, –see	1.1D	0118
HEXOTONAL	1.1D	0393
HEXOTONAL, cast, –see	1.1D	0393
HEXYL, –see	1.1D	0079
HEXYLTRICHLOROSILANE	8	1784
HMX, –see	1.1D 1.1D 1.1D	0226 0391 0484
HYDRAZINE, ANHYDROUS	8	2029
HYDRAZINE, AQUEOUS SOLUTION with more than 37% hydrazine, by mass	8	2030
HYDRAZINE, AQUEOUS SOLUTION with not more than 37% hydrazine, by mass	6.1	3293
HYDRAZINE AQUEOUS SOLUTION, FLAMMABLE, with more than 37% hydrazine, by mass	8	3484
Hydrazine hydrate	8	2030
Hydrides, metal, water-reactive, n.o.s., –see	4.3	1409
Hydriodic acid, anhydrous, –see	2.3	2197
HYDRIODIC ACID	8	1787
HYDROBROMIC ACID	8	1788
HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.	2.1	1964
HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. such as mixtures A, A01, A02, A0, A1, B1, B2, B or C	2.1	1965
HYDROCARBON GAS REFILLS FOR SMALL DEVICES with release device	2.1	3150
HYDROCARBONS, LIQUID, N.O.S.	3	3295
HYDROCHLORIC ACID	8	1789
HYDROCYANIC ACID, AQUEOUS SOLUTION with not more than 20% hydrogen cyanide	6.1	1613
HYDROFLUORIC ACID, with more than 60% hydrogen fluoride	8	1790
HYDROFLUORIC ACID, with not more than 60% hydrogen fluoride	8	1790

Name & Description	Class	UN No
HYDROFLUORIC ACID AND SULPHURIC ACID MIXTURE	8	1786
Hydrofluoroboric acid, –see	8	1775
Hydrofluorosilicic acid, –see	8	1778
HYDROGEN AND METHANE MIXTURE, COMPRESSED	2.1	2034
Hydrogen arsenide, –see	2.3	2188
HYDROGEN BROMIDE, ANHYDROUS	2.3	1048
Hydrogen bromide solution, –see	8	1788
HYDROGEN CHLORIDE, ANHYDROUS	2.3	1050
HYDROGEN CHLORIDE, REFRIGERATED LIQUID	2.3	2186
HYDROGEN, COMPRESSED	2.1	1049
HYDROGEN CYANIDE, AQUEOUS SOLUTION with not more than 20% hydrogen cyanide, –see	6.1	1613
HYDROGEN CYANIDE, SOLUTION IN ALCOHOL with not more than 45% hydrogen cyanide	6.1	3294
HYDROGEN CYANIDE, STABILISED containing less than 3% water	6.1	1051
HYDROGEN CYANIDE, STABILISED, containing less than 3% water and absorbed in a porous inert material	6.1	1614
HYDROGENDIFLUORIDES, SOLID, N.O.S.	8	1740
HYDROGENDIFLUORIDES SOLUTION, N.O.S.	8	3471
HYDROGEN FLUORIDE, ANHYDROUS	8	1052
Hydrogen fluoride solution, –see	8	1790
HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM CONTAINED IN EQUIPMENT or HYDROGEN IN A METAL HYDRIDE STORAGE SYSTEM PACKED WITH EQUIPMENT	2.1	3468
HYDROGEN IODIDE, ANHYDROUS	2.3	2197
Hydrogen iodide solution, –see	8	1787
HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE with acid(s), water and not more than 5% peroxyacetic acid, STABILISED	5.1	3149
HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 8% but less than 20% hydrogen peroxide (stabilised as necessary)	5.1	2984
HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilised as necessary)	5.1	2014
HYDROGEN PEROXIDE, AQUEOUS SOLUTION, STABILISED with more than 60% hydrogen peroxide	5.1	2015
HYDROGEN PEROXIDE, STABILISED	5.1	2015
HYDROGEN, REFRIGERATED LIQUID	2.1	1966
HYDROGEN SELENIDE, ADSORBED	2.3	3526
HYDROGEN SELENIDE, ANHYDROUS	2.3	2202
Hydrogen silicide, –see	2.1	2203
HYDROGEN SULPHIDE	2.3	1053
HYDROQUINONE, SOLID <DELETED>		

Name & Description	Class	UN No
HYDROQUINONE, SOLUTION <DELETED>		
Hydroselenic acid, –see	2.3	2202
Hydrosilicofluoric acid, –see	8	1778
1-HYDROXYBENZOTRIAZOLE, ANHYDROUS, dry or wetted with less than 20% water, by mass	1.3C	0508
1-HYDROXYBENZOTRIAZOLE MONOHYDRATE,	4.1	3474
3-Hydroxybutan-2-one, –see	3	2621
HYDROXYLAMINE SULPHATE	8	2865
1-Hydroxy-3-methyl-2-penten-4-yne, –see	8	2705
3-Hydroxyphenol, –see	6.1	2876
HYPOCHLORITES, INORGANIC, N.O.S.	5.1	3212
HYPOCHLORITE SOLUTION	8	1791
IGNITERS	1.1G 1.2G 1.3G 1.4G 1.4S	0121 0314 0315 0325 0454
3,3'-IMINODIPROPYLAMINE	8	2269
Indiarubber, –see	3	1287
INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only	6.2	2900
INFECTIOUS SUBSTANCE, AFFECTING HUMANS	6.2	2814
Ink, printer's, flammable, –see	3	1210
INSECTICIDE GAS, N.O.S.	2.2	1968
INSECTICIDE GAS, FLAMMABLE, N.O.S.	2.1	3354
INSECTICIDE GAS, TOXIC, N.O.S.	2.3	1967
INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	3355
IODINE	8	3495
IODINE MONOCHLORIDE, SOLID	8	1792
IODINE MONOCHLORIDE, LIQUID	8	3498
IODINE PENTAFLUORIDE	5.1	2495
2-IODOBUTANE	3	2390
Iodomethane, –see	6.1	2644
IODOMETHYLPROPANES	3	2391
IODOPROPANES	3	2392
alpha-Iodotoluene, –see	6.1	2653
I.p.d.i., –see	6.1	2290
Iron chloride, anhydrous, –see	8	1773
Iron (III) chloride, anhydrous, –see	8	1773
Iron chloride solution, –see	8	2582
IRON OXIDE, SPENT obtained from coal gas purification	4.2	1376
IRON PENTACARBONYL	6.1	1994
Iron perchloride, anhydrous, –see	8	1773
Iron powder, pyrophoric, –see	4.2	1383
Iron sesquichloride, anhydrous, –see	8	1773

Name & Description	Class	UN No
IRON SPONGE, SPENT obtained from coal gas purification	4.2	1376
Iron swarf, –see	4.2	2793
ISOBUTANE	2.1	1969
ISOBUTANOL	3	1212
Isobutene, –see	2.1	1055
ISOBUTYL ACETATE	3	1213
ISOBUTYL ACRYLATE, STABILISED	3	2527
ISOBUTYL ALCOHOL, –see	3	1212
ISOBUTYL ALDEHYDE, –see	3	2045
ISOBUTYLAMINE	3	1214
ISOBUTYLENE	2	1055
ISOBUTYL FORMATE	3	2393
ISOBUTYL ISOBUTYRATE	3	2528
ISOBUTYL ISOCYANATE	3	2486
ISOBUTYL METHACRYLATE, STABILISED	3	2283
ISOBUTYL PROPIONATE	3	2394
ISOBUTYRALDEHYDE	3	2045
ISOBUTYRIC ACID	3	2529
ISOBUTYRONITRILE	3	2284
ISOBUTYRYL CHLORIDE	3	2395
ISOCYANATES, FLAMMABLE, TOXIC, N.O.S.	3	2478
ISOCYANATES, TOXIC, N.O.S.	6.1	2206
ISOCYANATES, TOXIC, FLAMMABLE, N.O.S.	6.1	3080
ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.	3	2478
ISOCYANATE SOLUTION, TOXIC, N.O.S.	6.1	2206
ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.	6.1	3080
ISOCYANATOBENZOTRI- FLUORIDES	6.1	2285
3-Isocyanatomethyl-3,5,5-tri- methylcyclohexyl isocyanate, –see	6.1	2290
Isododecane, –see	3	2286
ISOHEPTENES	3	2287
ISOHEXENES	3	2288
Isooctane, –see	3	1262
ISOOCTENES	3	1216
Isopentane, –see	3	1265
ISOPENTENES	3	2371
Isopentylamine, –see	3	1106
Isopentyl nitrite, –see	3	1113
ISOPHORONEDIAMINE	8	2289
ISOPHORONE DIISOCYANATE	6.1	2290
ISOPRENE, STABILISED	3	1218
ISOPROPANOL	3	1219
ISOPROPENYL ACETATE	3	2403
ISOPROPENYLBENZENE	3	2303

Name & Description	Class	UN No
ISOPROPYL ACETATE	3	1220
ISOPROPYL ACID PHOSPHATE	8	1793
ISOPROPYL ALCOHOL, –see	3	1219
ISOPROPYLAMINE	3	1221
ISOPROPYLBENZENE	3	1918
ISOPROPYL BUTYRATE	3	2405
Isopropyl chloride, –see	3	2356
ISOPROPYL CHLOROACETATE	3	2947
ISOPROPYL CHLOROFORMATE	6.1	2407
ISOPROPYL 2- CHLOROPROPIONATE	3	2934
Isopropyl-alpha-chloropropionate, –see	3	2934
Isopropyl ether, –see	3	1159
Isopropylethylene, –see	3	2561
Isopropyl formate, –see	3	1281
ISOPROPYL ISOBUTYRATE	3	2406
ISOPROPYL ISOCYANATE	3	2483
Isopropyl mercaptan, –see	3	2402
ISOPROPYL NITRATE	3	1222
ISOPROPYL PROPIONATE	3	2409
Isolpropyltoluene, –see	3	2046
Isopropyltoluol, –see	3	2046
ISOSORBIDE DINITRATE MIXTURE with not less than 60% lactose, mannose, starch or calcium hydrogen phosphate	4.1	2907
ISOSORBIDE-5-MONONITRATE	4.1	3251
Isovaleraldehyde, –see	3	2058
JET PERFORATING GUNS, CHARGED, oil well, without detonator	1.1d 1.4d	0124 0494
Jet tappers, without detonator, –see	1.1D	0059
KEROSENE	3	1223
KETONES, LIQUID, N.O.S.	3	1224
KRILL MEAL	4.2	3497
KRYPTON, COMPRESSED	2.2	1056
KRYPTON, REFRIGERATED LIQUID	2.2	1970
LACQUER [AUST.], –see 3.2.5		
Lacquer base or lacquer chips, nitrocellulose, dry, –see	4.1	2557
Lacquer base or lacquer chips, plastic, wet with alcohol or solvent, –see	3 3 4.1 4.1	1263 2059 2555 2556
LEAD ACETATE	6.1	1616
Lead (II) acetate, –see	6.1	1616
LEAD ARSENATES	6.1	1617
LEAD ARSENITES	6.1	1618
LEAD AZIDE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1.1A	0129
Lead chloride, solid, –see	6.1	2291

Name & Description	Class	UN No
LEAD COMPOUND, SOLUBLE, N.O.S.	6.1	2291
LEAD CYANIDE	6.1	1620
Lead (II) cyanide	6.1	1620
LEAD DIOXIDE	5.1	1872
LEAD NITRATE	5.1	1469
Lead (II) nitrate	5.1	1469
LEAD PERCHLORATE, SOLID	5.1	1470
Lead (II) perchlorate	5.1 5.1	1470 3408
LEAD PERCHLORATE SOLUTION	5.1	3408
Lead peroxide, –see	5.1	1872
LEAD PHOSPHITE, DIBASIC	4.1	2989
LEAD STYPHNATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1.1A	0130
LEAD SULPHATE with more than 3% free acid	8	1794
Lead tetraethyl, –see	6.1	1649
Lead tetramethyl, –see	6.1	1649
LEAD TRINITRORESORCINATE, WETTED, –see	1.1A	0130
LIFE-SAVING APPLIANCES NOT SELF-INFLATING containing dangerous goods as equipment	9	3072
LIFE-SAVING APPLIANCES, SELF- INFLATING	9	2990
LIGHTER REFILLS containing flammable gas	2.1	1057
LIGHTERS containing flammable gas	2.1	1057
LIGHTERS, FUSE	1.4S	0131
Limonene, inactive, –see	3	2052
LIQUEFIED GAS, N.O.S.	2.2	3163
LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2.2	1058
Liquefied gas, flammable, N.O.S.	2.1	3161
LIQUEFIED GAS, OXIDISING, N.O.S.	2.2	3157
LIQUEFIED GAS, TOXIC, N.O.S.	2.3	3162
LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	3308
LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	3160
LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	3309
LIQUEFIED GAS, TOXIC, OXIDISING, N.O.S.	2.3	3307
LIQUEFIED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	3310
Liquefied petroleum gas, –see	2.1	1075
LITHIUM	4.3	1415
LITHIUM ALUMINIUM HYDRIDE	4.3	1410
LITHIUM ALUMINIUM HYDRIDE, ETHEREAL	4.3	1411
LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT lithium ion batteries or lithium metal batteries	9	3536
LITHIUM ION BATTERIES	9	3480

Name & Description	Class	UN No
LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or PACKED WITH EQUIPMENT	9	3481
LITHIUM METAL BATTERIES	9	3090
LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or PACKED WITH EQUIPMENT	9	3091
LITHIUM BOROHYDRIDE	4.3	1413
LITHIUM FERROSILICON	4.3	2830
LITHIUM HYDRIDE	4.3	1414
LITHIUM HYDRIDE, FUSED SOLID	4.3	2805
LITHIUM HYDROXIDE	8	2680
LITHIUM HYDROXIDE SOLUTION	8	2679
LITHIUM HYPOCHLORITE, DRY	5.1	1471
LITHIUM HYPOCHLORITE MIXTURE	5.1	1471
Lithium in cartouches, –see	4.3	1415
LITHIUM NITRATE	5.1	2722
LITHIUM NITRIDE	4.3	2806
LITHIUM PEROXIDE	5.1	1472
Lithium silicide, –see	4.3	1417
LITHIUM SILICON	4.3	1417
L.n.g., –see	2.1	1972
LONDON PURPLE	6.1	1621
LP GAS [AUST.], –see 3.2.5		
L.p.g., –see	2.1	1075
Lye, –see	8	1823
Lythene, –see	3	1268
MACHINERY, INTERNAL COMBUSION, FLAMMABLE LIQUID POWERED	3	3528
MACHINERY, FUEL CELL, FLAMMABLE LIQUID POWERED	3	3528
MACINERY, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED	2.1	3529
MACHINERY, FUEL CELL, FLAMMABLE GAS POWERED	2.1	3529
MACHINERY, INTERNAL COMBUSTION	9	3530
MAGNESIUM in pellets, turnings or ribbons	4.1	1869
MAGNESIUM ALLOYS with more than 50% magnesium in pellets, turnings or ribbons	4.1	1869
MAGNESIUM ALLOYS POWDER	4.3	1418
MAGNESIUM ALUMINIUM PHOSPHIDE	4.3	1419
MAGNESIUM ARSENATE	6.1	1622
Magnesium bisulphite solution, –see	8	2693
MAGNESIUM BROMATE	5.1	1473
MAGNESIUM CHLORATE	5.1	2723
Magnesium chloride and chlorate mixture, –see	5.1 5.1	1459 3407
MAGNESIUM DIAMIDE	4.2	2004
MAGNESIUM FLUOROSILICATE	6.1	2853

Name & Description	Class	UN No
MAGNESIUM GRANULES, COATED, particle size not less than 149 microns	4.3	2950
MAGNESIUM HYDRIDE	4.3	2010
MAGNESIUM NITRATE	5.1	1474
MAGNESIUM PERCHLORATE	5.1	1475
MAGNESIUM PEROXIDE	5.1	1476
MAGNESIUM PHOSPHIDE	4.3	2011
MAGNESIUM POWDER	4.3	1418
Magnesium scrap, –see	4.1	1869
MAGNESIUM SILICIDE	4.3	2624
Magnesium silicofluoride, –see	6.1	2853
Magnetised material	9	2807
MALEIC ANHYDRIDE	8	2215
MALEIC ANHYDRIDE, MOLTEN	8	2215
Malonic dinitrile, –see	6.1	2647
Malonodinitrile, –see	6.1	2647
MALONONITRILE	6.1	2647
MANEB	4.2	2210
MANEB PREPARATION with not less than 60% maneb	4.2	2210
MANEB PREPARATION, STABILISED against self-heating	4.3	2968
MANEB, STABILISED against self- heating	4.3	2968
Manganese ethylene-di-dithiocarbamate, –see	4.2	2210
Manganese ethylene-1,2- dithiocarbamate, –see	4.2	2210
MANGANESE NITRATE	5.1	2724
Manganese (II) nitrate, –see	5.1	2724
MANGANESE RESINATE	4.1	1330
Manganous nitrate, –see	5.1	2724
MANNITOL HEXANITRATE, WETTED with not less than 40% water, or mixture of alcohol and water, by mass	1.1d	0133
MATCHES, FUSEE	4.1	2254
MATCHES, SAFETY (book, card or strike on box)	4.1	1944
MATCHES, “STRIKE ANYWHERE”	4.1	1331
MATCHES, WAX “VESTA”	4.1	1945
MEDICAL WASTE, N.O.S.	6.2	3291
MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	3248
MEDICINE, LIQUID, TOXIC, N.O.S.	6.1	1851
MEDICINE, SOLID, TOXIC, N.O.S.	6.1	3249
p-Mentha-1,8-diene, –see	8	2052
MERCAPTANS, LIQUID, FLAMMABLE, N.O.S.	3	3336
MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	1228
MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S.	6.1	3071

Name & Description	Class	UN No
MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.	3	3336
MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.	3	1228
MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.	6.1	3071
2-Mercaptoethanol, –see	6.1	2966
2-Mercaptopropionic acid, –see	6.1	2936
5-MERCAPTOTETRAZOL-1-ACETIC ACID	1.4C	0448
MERCURIC ARSENATE	6.1	1623
MERCURIC CHLORIDE	6.1	1624
MERCURIC NITRATE	6.1	1625
MERCURIC POTASSIUM CYANIDE	6.1	1626
Mercuric sulphate, –see	6.1	1645
Mercurol, –see	6.1	1639
Mercurous bisulphate, –see	6.1	1645
Mercurous chloride	6.1	2025
MERCUROUS NITRATE	6.1	1627
Mercurous sulphate, –see	6.1	1645
MERCURY	8	2809
MERCURY ACETATE	6.1	1629
MERCURY AMMONIUM CHLORIDE	6.1	1630
MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2778
MERCURY BASED PESTICIDE, LIQUID, TOXIC	6.1	3012
MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3011
MERCURY BASED PESTICIDE, SOLID, TOXIC	6.1	2777
MERCURY BENZOATE	6.1	1631
Mercury bichloride, –see	6.1	1624
MERCURY BROMIDES	6.1	1634
MERCURY COMPOUND, LIQUID, N.O.S.	6.1	2024
MERCURY COMPOUND, SOLID, N.O.S.	6.1	2025
MERCURY CONTAINED IN MANUFACTURED ARTICLES	8	3506
MERCURY CYANIDE	6.1	1636
MERCURY FULMINATE, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1.1A	0135
MERCURY GLUCONATE	6.1	1637
MERCURY IODIDE	6.1	1638
MERCURY NUCLEATE	6.1	1639
MERCURY OLEATE	6.1	1640
MERCURY OXIDE	6.1	1641
MERCURY OXYCYANIDE, DESENSITISED	6.1	1642
MERCURY POTASSIUM IODIDE	6.1	1643
MERCURY SALICYLATE	6.1	1644
MERCURY SULPHATE	6.1	1645

Name & Description	Class	UN No
MERCURY THIOCYANATE	6.1	1646
Mesitylene, –see	3	2325
MESITYL OXIDE	3	1229
METAL ARYLS, WATER- REACTIVE, N.O.S.	4.2	2003
METAL CARBONYLS, LIQUID, N.O.S.	6.1	3281
METAL CARBONYLS, SOLID, N.O.S.	6.1	3466
METAL CATALYST, DRY	4.2	2881
METAL CATALYST, WETTED with a visible excess of liquid	4.2	1378
METALDEHYDE	4.1	1332
METAL HYDRIDES, FLAMMABLE, N.O.S.	4.1	3182
METAL HYDRIDES, WATER- REACTIVE, N.O.S.	4.3	1409
METALLIC SUBSTANCE, WATER- REACTIVE, N.O.S.	4.3	3208
METALLIC SUBSTANCE, WATER- REACTIVE, SELF-HEATING, N.O.S.	4.3	3209
METAL POWDER, FLAMMABLE, N.O.S.	4.1	3089
METAL POWDER, SELF-HEATING, N.O.S.	4.2	3189
METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.	4.1	3181
METHACRYLALDEHYDE, STABILISED	3	2396
METHACRYLIC ACID, STABILISED	8	2531
METHACRYLONITRILE, STABILISED	3	3079
METHALLYL ALCOHOL	3	2614
Methanal, –see	3 8	1198 2209
Methane and hydrogen mixture, –see	2.1	2034
METHANE, COMPRESSED	2.1	1971
METHANE, REFRIGERATED LIQUID	2.1	1972
METHANESULPHONYL CHLORIDE	6.1	3246
METHANOL	3	1230
2-Methoxyethyl acetate, –see	3	1189
METHOXYMETHYL ISOCYANATE	3	2605
4-METHOXY-4-METHYLPENTAN-2- ONE	3	2293
1-Methoxy-2-nitrobenzene, –see	6.1 6.1	2730 3458
1-Methoxy-3-nitrobenzene, –see	6.1 6.1	2730 3458
1-Methoxy-4-nitrobenzene, –see	6.1 6.1	2730 3458
1-METHOXY-2-PROPANOL	3	3092
METHYL ACETATE	3	1231
METHYLACETYLENE AND PROPADIENE MIXTURE, STABILISED	2.1	1060
beta-Methyl acrolein, –see	6.1	1143
METHYL ACRYLATE, STABILISED	3	1919
METHYLAL	3	1234

Name & Description	Class	UN No
Methyl alcohol, –see	3	1230
Methyl allyl alcohol, –see	3	2614
METHYLALLYL CHLORIDE	3	2554
METHYLAMINE, ANHYDROUS	2.1	1061
METHYLAMINE, AQUEOUS SOLUTION	3	1235
METHYLAMYL ACETATE	3	1233
Methyl amyl alcohol, –see	3	2053
Methyl amyl ketone, –see	3	1110
N-METHYLANILINE	6.1	2294
Methylated spirit, –see	3 3	1986 1987
alpha-METHYLBENZYL ALCOHOL, LIQUID	6.1	2937
alpha-METHYLBENZYL ALCOHOL, SOLID	6.1	3438
METHYL BROMIDE with not more than 2% chloropicrin	2.3	1062
Methyl bromide and chloropicrin mixture, –see	2.3	1581
METHYL BROMIDE AND ETHYLENE DIBROMIDE MIXTURE, LIQUID	6.1	1647
METHYL BROMOACETATE	6.1	2643
2-METHYLBUTANAL	3	3371
3-METHYLBUTAN-2-ONE	3	2397
2-METHYL-1-BUTENE	3	2459
2-METHYL-2-BUTENE	3	2460
3-METHYL-1-BUTENE	3	2561
N-METHYLBUTYLAMINE	3	2945
METHYL tert-BUTYL ETHER	3	2398
METHYL BUTYRATE	3	1237
METHYL CHLORIDE	2.1	1063
Methyl chloride and chloropicrin mixture, –see	2.3	1582
METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2.1	1912
METHYL CHLOROACETATE	6.1	2295
Methyl chlorocarbonate, –see	6.1	1238
Methyl chloroform, –see	6.1	2831
METHYL CHLOROFORMATE	6.1	1238
METHYL CHLOROMETHYL ETHER	6.1	1239
METHYL 2-CHLOROPROPIONATE	3	2933
Methyl alpha-chloropropionate, –see	3	2933
METHYLCHLOROSILANE	2.3	2534
Methyl cyanide, –see	3	1648
METHYLCYCLOHEXANE	3	2296
METHYLCYCLOHEXANOLS, flammable	3	2617
METHYLCYCLOHEXANONE	3	2297
METHYLCYCLOPENTANE	3	2298
METHYL DICHLOROACETATE	6.1	2299
METHYLDICHLOROSILANE	4.3	1242
Methylene bromide, –see	6.1	2664

Name & Description	Class	UN No
METYHLENE CHLORIDE [AUST.], –see 3.2.5		
Methylene chloride, –see	6.1	1593
Methylene chloride and methyl chloride mixture, –see	2.1	1912
Methylene cyanide, –see	6.1	2647
p,p'-Methylene dianiline, –see	6.1	2651
Methylene dibromide, –see	6.1	2664
2,2'-Methylene-di-(3,4,6- trichlorophenol), –see	6.1	2875
Methyl ethyl ether, –see	2.1	1039
METHYL ETHYL KETONE, –see	3	1193
2-METHYL-5-ETHYLPYRIDINE	6.1	2300
METHYL FLUORIDE	2.1	2454
METHYL FORMATE	3	1243
2-METHYLFURAN	3	2301
Methyl glycol, –see	3	1188
Methyl glycol acetate, –see	3	1189
2-METHYL-2-HEPTANETHIOL	6.1	3023
5-METHYLHEXAN-2-ONE	3	2302
METHYLHYDRAZINE	6.1	1244
METHYL IODIDE	6.1	2644
METHYL ISOBUTYL CARBINOL	3	2053
METHYL ISOBUTYL KETONE	3	1245
METHYL ISOCYANATE	6.1	2480
METHYL ISOPROPENYL KETONE, STABILISED	3	1246
METHYL ISOTHIOCYANATE	6.1	2477
METHYL ISOVALERATE	3	2400
METHYL MAGNESIUM BROMIDE IN ETHYL ETHER	4.3	1928
METHYL MERCAPTAN	2.3	1064
Methyl mercaptopropionaldehyde, –see	6.1	2785
METHYL METHACRYLATE MONOMER, STABILISED	3	1247
4-METHYLMORPHOLINE	3	2535
N-METHYLMORPHOLINE, –see	3	2535
METHYL NITRITE	2.2	2455
METHYL ORTHOSILICATE	6.1	2606
METHYLPENTADIENE	3	2461
Methylpentanes, –see	3	1208
2-METHYLPENTAN-2-OL	3	2560
4-Methylpentan-2-ol, –see	3	2053
3-Methyl-2-penten-4ynol, –see	8	2705
METHYLPHENYLDICHLORO- SILANE	8	2437
2-Methyl-2-phenylpropane, –see	3	2709
1-METHYLPIPERIDINE	3	2399
METHYL PROPIONATE	3	1248
Methylpropylbenzene, –see	3	2046
METHYL PROPYL ETHER	3	2612
METHYL PROPYL KETONE	3	1249
Methyl pyridines, –see	3	2313

Name & Description	Class	UN No
Methylstyrene, inhibited, –see	3	2618
alpha-Methylstyrene, –see	3	2303
Methyl sulphate, –see	6.1	1595
Methyl sulphide, –see	3	1164
METHYLTETRAHYDROFURAN	3	2536
METHYL TRICHLOROACETATE	6.1	2533
METHYLTRICHLOROSILANE	3	1250
alpha-METHYLVALERALDEHYDE	3	2367
Methyl vinyl benzene, inhibited, –see	3	2618
METHYL VINYL KETONE, STABILISED	6.1	1251
M.i.b.c., –see	3	2053
MINERAL TURPENTINE [AUST.], –see 3.2.5		
MINES with bursting charge	1.1D 1.1F 1.2D 1.2F	0137 0136 0138 0294
Mirbane oil, –see	6.1	1662
Missiles, guided, –see	1.1E 1.1F 1.1J 1.2C 1.2E 1.2F 1.2J 1.3C 1.3C 1.4C	0181 0180 0397 0436 0182 0295 0398 0183 0437 0438
MOLYBDENUM PENTACHLORIDE	8	2508
Monochloroacetic acid, –see	6.1 6.1	1750 1751
Monochlorobenzene, –see	3	1134
Monochlorodifluoromethane, –see	2.2	1018
Monochlorodifluoromethane and monochloropentafluoroethane mixture, –see	2.2	1973
Monochlorodifluoromono- bromomethane, –see	2.2	1974
Monochloropentafluoroethane and monochlorodifluoromethane mixture, –see	2.2	1973
Monoethylamine, –see	2.1	1036
MONONITROTOLUIDINES, –see	6.1	2660
Monopropylamine, –see	3	1277
MORPHOLINE	8	2054
MOTOR FUEL ANTI-KNOCK MIXTURE	6.1	1649
MOTOR FUEL ANTI-KNOCK MIXTURE, FLAMMABLE	6.1	3483
MOTOR SPIRIT	3	1203
Muriatic acid, –see	8	1789
MUSK XYLENE, –see	4.1	2956
Mysorite, –see	9	2212

Name & Description	Class	UN No
Naphta, –see	3	1268
Naphta, petroleum, –see	3	1268
Naphta, solvent, –see	3	1268
NAPHTHALENE, CRUDE	4.1	1334
NAPHTHALENE, MOLTEN	4.1	2304
NAPHTHALENE, REFINED	4.1	1334
alpha-NAPHTHYLAMINE	6.1	2077
beta-NAPHTHYLAMINE, SOLID	6.1	1650
beta-NAPHTHYLAMINE SOLUTION	6.1	3411
NAPHTHYLTHIOUREA	6.1	1651
1-Naphthylthiourea, –see	6.1	1651
NAPHTHYLUREA	6.1	1652
NATURAL GAS, COMPRESSED with high methane content	2.1	1971
NATURAL GAS, REFRIGERATED LIQUID with high methane content	2.1	1972
Natural gasoline, –see	3	1203
Neohexane, –see	3	1208
NEON, COMPRESSED	2.2	1065
NEON, REFRIGERATED LIQUID	2.2	1913
Neothyl, –see	3	2612
NICKEL CARBONYL	6.1	1259
NICKEL CYANIDE	6.1	1653
Nickel (II) cyanide, –see	6.1	1653
NICKEL NITRATE	5.1	2725
Nickel (II) nitrate, –see	5.1	2725
NICKEL NITRITE	5.1	2726
Nickel (II) nitrite, –see	5.1	2726
Nickelous nitrate, –see	5.1	2725
Nickelous nitrite, –see	5.1	2726
Nickel tetracarbonyl, –see	6.1	1259
NICOTINE	6.1	1654
NICOTINE COMPOUND, LIQUID, N.O.S	6.1	3144
NICOTINE COMPOUND, SOLID, N.O.S	6.1	1655
NICOTINE HYDROCHLORIDE, LIQUID	6.1	1656
NICOTINE HYDROCHLORIDE, SOLID	6.1	3444
NICOTINE HYDROCHLORIDE SOLUTION	6.1	1656
NICOTINE PREPARATION, LIQUID, N.O.S.	6.1	3144
NICOTINE PREPARATION, SOLID, N.O.S.	6.1	1655
NICOTINE SALICYLATE	6.1	1657
NICOTINE SULPHATE, SOLID	6.1	3445
NICOTINE SULPHATE SOLUTION	6.1	1658
NICOTINE TARTRATE	6.1	1659
NITRATES, INORGANIC, N.O.S.	5.1	1477
NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	3218

Name & Description	Class	UN No
NITRATING ACID MIXTURE with more than 50% nitric acid	8	1796
NITRATING ACID MIXTURE with not more than 50% nitric acid	8	1796
NITRATING ACID MIXTURE, SPENT, with more than 50% nitric acid	8	1826
NITRATING ACID MIXTURE, SPENT, with not more than 50% nitric acid	8	1826
NITRIC ACID, other than red fuming	8	2031
NITRIC ACID, RED FUMING	8	2032
NITRIC OXIDE, COMPRESSED	2.3	1660
NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE	2.3	1975
NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE, –see	2.3	1975
NITRILES, FLAMMABLE, TOXIC, N.O.S.	3	3273
NITRILES, LIQUID, TOXIC, N.O.S.	6.1	3276
NITRILES, SOLID, TOXIC, N.O.S.	6.1	3439
NITRILES, TOXIC, FLAMMABLE, N.O.S.	6.1	3275
NITRITES, INORGANIC, N.O.S.	5.1	2627
NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	3219
NITROANILINES (o-, m-, p-)	6.1	1661
NITROANISOLES, LIQUID	6.1	2730
NITROANISOLES, SOLID	6.1	3458
NITROBENZENE	6.1	1662
Nitrobenzene bromide, –see	6.1	2732
NITROBENZENESULPHONIC ACID	8	2305
Nitrobenzol, –see	6.1	1662
5-NITROBENZOTRIAZOL	1.1D	0385
NITROBENZOTRIFLUORIDES, LIQUID	6.1	2306
NITROBENZOTRIFLUORIDES, liquid	6.1	2306
NITROBENZOTRIFLUORIDES, SOLID	6.1	3431
NITROBROMOBENZENES, LIQUID	6.1	2732
NITROBROMOBENZENES, SOLID	6.1	3459
NITROCELLULOSE, dry or wetted with less than 25% water (or alcohol), by mass	1.1D	0340
NITROCELLULOSE, unmodified or plasticised with less than 18% plasticising substance, by mass	1.1D	0341
NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6% nitrogen, by dry mass	4.1	3270
NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH PLASTICISER, WITH PIGMENT	4.1	2557
NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITH PLASTICISER, WITHOUT PIGMENT	4.1	2557

Name & Description	Class	UN No
NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITHOUT PLASTICISER, WITH PIGMENT	4.1	2557
NITROCELLULOSE, with not more than 12.6% nitrogen, by dry mass, MIXTURE WITHOUT PLASTICISER, WITHOUT PIGMENT	4.1	2557
NITROCELLULOSE, PLASTICISED with not less than 18% plasticising substance, by mass	1.3C	0343
NITROCELLULOSE SOLUTION, FLAMMABLE with not more than 12.6% nitrogen, by dry mass, and not more than 55% nitrocellulose	3	2059
NITROCELLULOSE, WETTED with not less than 25% alcohol, by mass	1.3C	0342
NITROCELLULOSE WITH ALCOHOL (not less than 25% alcohol, by mass, and not more than 12.6% nitrogen, by dry mass)	4.1	2556
NITROCELLULOSE WITH WATER (not less than 25% water, by mass)	4.1	2555
Nitrochlorobenzenes, –see	6.1	1578
3-NITRO-4-CHLOROBENZOTRI- FLUORIDE	6.1	2307
NITROCRESOLS, LIQUID	6.1	2446
NITROCRESOLS, LIQUID	6.1	3434
NITROETHANE	3	2842
NITROGEN, COMPRESSED	2.2	1066
NITROGEN DIOXIDE, –see	2.3	1067
NITROGEN, REFRIGERATED LIQUID	2.2	1977
NITROGEN TRIFLUORIDE	2.2	2451
NITROGEN TRIOXIDE	2.3	2421
NITROGLYCERIN, DESENSITISED with not less than 40% non-volatile water-insoluble phlegmatiser, by mass	1.1D	0143
NITROGLYCERIN MIXTURE, DESENSITISED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass	3	3357
NITROGLYCERIN MIXTURE, DESENSITISED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass	3	3343
NITROGLYCERIN MIXTURE, DESENSITISED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass	4.1	3319
NITROGLYCERIN, SOLUTION IN ALCOHOL with more than 1% but not more than 5% nitroglycerin	3	3064
NITROGLYCERIN SOLUTION IN ALCOHOL with more than 1% but not more than 10% nitroglycerin	1.1D	0144
NITROGLYCERIN SOLUTION IN ALCOHOL with not more than 1% nitroglycerin	3	1204
NITROGUANIDINE, dry or wetted with less than 20% water, by mass	1.1D	0282
NITROGUANIDINE, WETTED with not less than 20% water, by mass	4.1	1336

Name & Description	Class	UN No
NITROHYDROCHLORIC ACID	8	1798
NITROMANNITE, WETTED, –see	1.1D	0133
NITROMETHANE	3	1261
Nitromuriatic acid, –see	8	1798
NITRONAPHTHALENE	4.1	2538
NITROPHENOLS (o-, m-, p-)	6.1	1663
4-NITROPHENYLHYDRAZINE, with not less than 30% water, by mass	4.1	3376
NITROPROPANES	3	2608
p-NITROSODIMETHYLANILINE	4.2	1369
NITROSTARCH, dry or wetted with less than 20% water, by mass	1.1D	0146
NITROSTARCH, WETTED with not less than 20% water, by mass	4.1	1337
NITROSYL CHLORIDE	2.3	1069
NITROSYLSULPHURIC ACID, LIQUID	8	2308
NITROSYLSULPHURIC ACID, SOLID	8	3456
NITROTOLUENES, LIQUID	6.1	1664
NITROTOLUENES, SOLID	6.1	3446
NITROTOLUIDINES	6.1	2660
NITROTRIAZOLONE	1.1d	0490
NITRO UREA	1.1d	0147
NITROUS OXIDE	2.2	1070
NITROUS OXIDE, REFRIGERATED LIQUID	2.2	2201
NITROXYLENES, LIQUID	6.1	1665
NITROXYLENES, SOLID	6.1	3447
Non-activated carbon, –see	4.2	1361
Non-activated charcoal, –see	4.2	1361
NONANES	3	1920
NONYLTRICHLOROSILANE	8	1799
2,5-NORBORNADIENE, STABILISED, –see	3	2251
Normal propyl alcohol, –see	3	1274
NTO, –see	1.1D	0490
OCTADECYLTRICHLOROSILANE	8	1800
OCTADIENE	3	2309
OCTAFLUOROBUT-2-ENE	2.2	2422
OCTAFLUOROCYCLOBUTANE	2.2	1976
OCTAFLUOROPROPANE	2.2	2424
OCTANES	3	1262
OCTOGEN, –see	1.1D 1.1D 1.1D	0226 0391 0484
OCTOL, dry or wetted with less than 15% water, by mass, –see	1.1D	0266
OCTOLITE, dry or wetted with less than 15% water, by mass	1.1D	0266
OCTONAL	1.1D	0496

Name & Description	Class	UN No
OCTYL ALDEHYDES	3	1191
tert-Octyl mercaptan, –see	6.1	3023
OCTYLTRICHLOROSILANE	8	1801
Oenanthol, –see	3	3056
OIL GAS, COMPRESSED	2.3	1071
Oleum, –see	8	1831
ORGANIC PEROXIDE TYPE B, LIQUID	5.2	3101
ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED	5.2	3111
ORGANIC PEROXIDE TYPE B, SOLID	5.2	3102
ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED	5.2	3112
ORGANIC PEROXIDE TYPE C, LIQUID	5.2	3103
ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED	5.2	3113
ORGANIC PEROXIDE TYPE C, SOLID	5.2	3104
ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED	5.2	3114
ORGANIC PEROXIDE TYPE D, LIQUID	5.2	3105
ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED	5.2	3115
ORGANIC PEROXIDE TYPE D, SOLID	5.2	3106
ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED	5.2	3116
ORGANIC PEROXIDE TYPE E, LIQUID	5.2	3107
ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED	5.2	3117
ORGANIC PEROXIDE TYPE E, SOLID	5.2	3108
ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED	5.2	3118
ORGANIC PEROXIDE TYPE F, LIQUID	5.2	3109
ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED	5.2	3119
ORGANIC PEROXIDE TYPE F, SOLID	5.2	3110
ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED	5.2	3120
Organic peroxides, –see Table 11.3 for an alphabetical list of currently assigned organic peroxides –and see	5.2	3101 to 3120
ORGANIC PIGMENTS, SELF- HEATING	4.2	3313
ORGANOARSENIC COMPOUND, LIQUID, N.O.S.	6.1	3280
ORGANOARSENIC COMPOUND, SOLID, N.O.S.	6.1	3465
ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2762
ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC	6.1	2996
ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	2995
ORGANOCHLORINE PESTICIDE, SOLID, TOXIC	6.1	2761

Name & Description	Class	UN No
ORGANOMETALLIC COMPOUND, LIQUID, TOXIC, N.O.S.	6.1	3282
ORGANOMETALLIC COMPOUND, SOLID, TOXIC, N.O.S.	6.1	3467
ORGANOMETALLIC COMPOUND SOLUTION, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	3207
ORGANOMETALLIC COMPOUND, WATER-REACTIVE, FLAMMABLE, N.O.S.	4.3	3207
ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC	4.2	3392
ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE	4.2	3394
ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE	4.3	3398
ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE	4.3	3399
ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC	4.2	3391
ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC, WATER-REACTIVE	4.2	3393
ORGANOMETALLIC SUBSTANCE, SOLID, SELF-HEATING	4.2	3400
ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, FLAMMABLE	4.3	3396
ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE	4.3	3395
ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE, SELF-HEATING	4.3	3397
ORGANOPHOSPHORUS COMPOUND, LIQUID, TOXIC, N.O.S.	6.1	3278
ORGANOPHOSPHORUS COMPOUND, SOLID, TOXIC, N.O.S.	6.1	3464
ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.	6.1	3279
ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2784
ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC	6.1	3018
ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23 °C	6.1	3017
ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC	6.1	2783
ORGANOTIN COMPOUND, LIQUID, N.O.S.	6.1	2788
ORGANOTIN COMPOUND, SOLID, N.O.S.	6.1	3146
ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2787
ORGANOTIN PESTICIDE, LIQUID, TOXIC	6.1	3020
ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3019
ORGANOTIN PESTICIDE, SOLID, TOXIC	6.1	2786

Name & Description	Class	UN No
Orthophospohoric acid, –see	8 8	1805 3453
OSMIUM TETROXIDE	6.1	2471
OXIDISING LIQUID, N.O.S.	5.1	3139
OXIDISING LIQUID, CORROSIVE, N.O.S.	5.1	3098
OXIDISING LIQUID, TOXIC, N.O.S.	5.1	3099
OXIDISING SOLID, N.O.S.	5.1	1479
OXIDISING SOLID, CORROSIVE, N.O.S.	5.1	3085
OXIDISING SOLID, FLAMMABLE, N.O.S.	5.1	3137
OXIDISING SOLID, SELF-HEATING, N.O.S.	5.1	3100
OXIDISING SOLID, TOXIC, N.O.S.	5.1	3087
OXIDISING SOLID, WATER- REACTIVE, N.O.S.	5.1	3121
Oxirane, –see	2.3	1040
OXYGEN, COMPRESSED	2.2	1072
OXYGEN DIFLUORIDE, COMPRESSED	2.3	2190
OXYGEN GENERATOR, CHEMICAL	5.1	3356
OXYGEN, REFRIGERATED LIQUID	2	1073
1-Oxy-4-nitrobenzene, –see	6.1	1663
PACKAGING DISCARDED, EMPTY, UNCLEANED	9	3509
PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	3 8	1263 3066
PAINT, CORROSIVE, FLAMMABLE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	8	3470
PAINT, FLAMMABLE, CORROSIVE (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base)	3	3469
PAINT RELATED MATERIAL (including paint thinning and reducing compound)	3 8	1263 3066
PAINT RELATED MATERIAL CORROSIVE, FLAMMABLE (including paint thinning or reducing compound)	8	3470
PAINT RELATED MATERIAL, FLAMMABLE, CORROSIVE (including paint thinning or reducing compound)	3	3469
PAPER, UNSATURATED OIL TREATED, incompletely dried (including carbon paper)	4.2	1379
Paraffin, –see	3	1223
PARAFORMALDEHYDE	4.1	2213
PARALDEHYDE	3	1264
PCBs, –see	9 9	2315 3432
PENTABORANE	4.2	1380
PENTACHLOROETHANE	6.1	1669
PENTACHLOROPHENOL	6.1	3155
PENTAERYTHRITE TETRANITRATE with not less than 7% wax, by mass	1.1D	0411

Name & Description	Class	UN No
PENTAERYTHRITE TETRANITRATE, DESENSITISED with not less than 15% phlegmatiser, by mass	1.1D	0150
PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITISED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass	4.1	3344
PENTAERYTHRITE TETRANITRATE, WETTED with not less than 25% water, by mass	1.1D	0150
PENTAERYTHRITOL TETRANITRATE, –see	1.1D 1.1D	0150 0411
PENTAERYTHRITOL TETRANITRATE; PETN MIXTURE, –see	4.1	3344
PENTAFLUOROETHANE	2.2	3220
Pentafluoroethane, 1,1,1-trifluoroethane, and 1,1,1,2-tetrafluoroethane zeotropic mixture with approximately 44% pentafluoroethane and 52% 1,1,1- trifluoroethane, –	2.2 see	3337
PENTAMETHYLHEPTANE	3	2286
Pentanal, –see	3	2058
PENTANE-2,4-DIONE	3	2310
PENTANES, liquid	3	1265
n-Pentane, –see	3	1265
PENTANOLS	3	1105
3-Pentanol, –see	3	1105
1-PENTENE	3	1108
1-PENTOL	8	2705
PENTOLITE, dry or wetted with less than 15% water, by mass	1.1D	0151
Pentyl nitrite, –see	3	1113
PERCHLORATES, INORGANIC, N.O.S.	5.1	1481
PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	3211
PERCHLORIC ACID with more than 50% but not more than 72% acid, by mass	5.1	1873
PERCHLORIC ACID with not more than 50% acid, by mass	8	1802
Perchlorobenzene, –see	6.1	2729
Perchlorocyclopentadiene, –see	6.1	2646
Perchloroethylene, –see	6.1	1897
PERCHLOROMETHYL MERCAPTAN	6.1	1670
PERCHLORYL FLUORIDE	2.3	3083
Perfluoroacetylchloride, –see	2.3	3057
PERFLUORO(ETHYL VINYL ETHER)	2.1	3154
PERFLUORO(METHYL VINYL ETHER)	2.1	3153
Perfluoropropane, –see	2.2	2424
PERFUMERY PRODUCTS with flammable solvents	3	1266
PERMANGANATES, INORGANIC, N.O.S.	5.1	1482

Name & Description	Class	UN No
PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	3214
PEROXIDES, INORGANIC, N.O.S.	5.1	1483
PERSULPHATES, INORGANIC, N.O.S.	5.1	3215
PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.	5.1	3216
PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash-point less than 23°C	3	3021
PESTICIDE, LIQUID, TOXIC, N.O.S.	6.1	2902
PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash-point not less than 23°C	6.1	2903
PESTICIDE, SOLID, TOXIC, N.O.S.	6.1	2588
Pesticide, toxic, under compressed gas, n.o.s, –see	2	1950
PETN, –see	1.1D 1.1D	0150 0411
PETN/TNT, –see	1.1D	0151
PETROL	3	1203
PETROLEUM CRUDE OIL	3	1267
PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC	3	3494
PETROLEUM DISTILLATES, N.O.S.	3	1268
Petroleum ether, –see	3	1268
PETROLEUM FUEL [AUST.], –see 3.2.5		
PETROLEUM GASES, LIQUEFIED	2.1	1075
Petroleum naphtha, –see	3	1268
Petroleum oil, –see	3	1268
PETROLEUM PRODUCTS, N.O.S.	3	1268
Petroleum raffinate, –see	3	1268
Petroleum spirit, –see	3	1268
PHENACYL BROMIDE	6.1	2645
PHENETIDINES	6.1	2311
PHENOLATES, LIQUID	8	2904
PHENOLATES, SOLID	8	2905
PHENOL, MOLTEN	6.1	2312
PHENOL, SOLID	6.1	1671
PHENOL SOLUTION	6.1	2821
PHENOLSULPHONIC ACID, LIQUID	8	1803
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	3346
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC	6.1	3348
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3347
PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC	6.1	3345
PHENYLACETONITRILE, LIQUID	6.1	2470

Name & Description	Class	UN No
PHENYLACETYL CHLORIDE	8	2577
Phenylamine, –see	6.1	1547
1-Phenylbutane, –see	3	2709
2-Phenylbutane, –see	3	2709
PHENYLCARBYLAMINE CHLORIDE	6.1	1672
PHENYL CHLOROFORMATE	6.1	2746
Phenyl cyanide, –see	6.1	2224
PHENYLENEDIAMINES (o-, m-, p-)	6.1	1673
Phenylethylene, –see	3	2055
PHENYLHYDRAZINE	6.1	2572
PHENYL ISOCYANATE	6.1	2487
Phenylisocyanodichloride, –see	6.1	1672
PHENYL MERCAPTAN	6.1	2337
PHENYLMERCURIC ACETATE	6.1	1674
PHENYLMERCURIC COMPOUND, N.O.S.	6.1	2026
PHENYLMERCURIC HYDROXIDE	6.1	1894
PHENYLMERCURIC NITRATE	6.1	1895
PHENYLPHOSPHORUS DICHLORIDE	8	2798
PHENYLPHOSPHORUS THIODICHLORIDE	8	2799
2-Phenylpropene, –see	3	2303
PHENYLTRICHLOROSILANE	8	1804
PHOSGENE	2.3	1076
9-PHOSPHABICYCLONONANES	4.2	2940
PHOSPHINE	2.3	2199
PHOSPHINE, ADSORBED	2.3	3525
Phosphoretted hydrogen, –see	2.3	2199
PHOSPHORIC ACID, SOLUTION	8	1805
PHOSPHORIC ACID, SOLID	8	3453
Phosphoric acid, anhydrous, –see	8	1807
PHOSPHOROUS ACID	8	2834
PHOSPHORUS, AMORPHOUS	4.1	1338
Phosphorus bromide, –see	8	1808
Phosphorus chloride, –see	6.1	1809
PHOSPHORUS HEPTASULPHIDE, free from yellow and white phosphorus	4.1	1339
PHOSPHORUS OXYBROMIDE	8	1939
PHOSPHORUS OXYBROMIDE, MOLTEN	8	2576
PHOSPHORUS OXYCHLORIDE	8	1810
PHOSPHORUS PENTABROMIDE	8	2691
PHOSPHORUS PENTACHLORIDE	8	1806
PHOSPHORUS PENTAFLUORIDE	2.3	2198
PHOSPHORUS PENTAFLUORIDE, ADSORBED	2.3	3524
PHOSPHORUS PENTASULPHIDE, free from yellow and white phosphorus	4.3	1340
PHOSPHORUS PENTOXIDE	8	1807
PHOSPHORUS SESQUISULPHIDE, free from yellow and white phosphorus	4.1	1341

Name & Description	Class	UN No
Phosphorus (V) sulphide, free from yellow and white phosphorus, –see	4.3	1340
Phosphorus sulphochloride, –see	8	1837
PHOSPHORUS TRIBROMIDE	8	1808
PHOSPHORUS TRICHLORIDE	6.1	1809
PHOSPHORUS TRIOXIDE	8	2578
PHOSPHORUS TRISULPHIDE, free from yellow and white phosphorus	4.1	1343
PHOSPHORUS, WHITE, DRY	4.2	1381
PHOSPHORUS, WHITE IN SOLUTION	4.2	1381
PHOSPHORUS, WHITE, MOLTEN	4.2	2447
PHOSPHORUS, WHITE, UNDER WATER	4.2	1381
PHOSPHORUS, YELLOW, DRY	4.2	1381
PHOSPHORUS, YELLOW, IN SOLUTION	4.2	1381
PHOSPHORUS, YELLOW, UNDER WATER	4.2	1381
Phosphoryl chloride, –see	8	1810
PHTHALIC ANHYDRIDE with more than 0.05% of maleic anhydride	8	2214
PICOLINES	3	2313
PICRAMIDE, –see	1.1D	0153
PICRIC ACID, –see	1.1D	0154
PICRIC ACID, WETTED –see	4.1	1344 3364
PICRITE, –see	1.1D	0282
PICRITE, WETTED, –see	4.1	1336
Picrotoxin, –see	6.1 6.1	3172 3462
PICRYL CHLORIDE, –see	1.1D	0155
PICRYLCHLORIDE, WETTED –see	4.1	3365
alpha-PINENE	3	2368
PINE OIL	3	1272
PIPERAZINE	8	2579
PIPERIDINE	8	2401
Pivaloyl chloride, –see	6.1	2438
Plastic explosives , –see	1.1D	0084
PLASTICS MOULDING COMPOUND in dough, sheet or extruded rope form evolving flammable vapour	9	3314
PLASTICS, NITROCELLULOSE- BASED, SELF-HEATING, N.O.S.	4.2	2006
POLISH [AUST.], –see 3.2.5		
POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.	3	2733
POLYAMINES, LIQUID, CORROSIVE, N.O.S.	8	2735
POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.	8	2734
POLYAMINES, SOLID, CORROSIVE, N.O.S.	8	3259
POLYCHLORINATED BIPHENYLS, LIQUID	9	2315
POLYCHLORINATED BIPHENYLS, SOLID	9	3432

Name & Description	Class	UN No
POLYESTER RESIN KIT, liquid base material	3	3269
POLYESTER RESIN KIT,solid base material	4.1	3527
POLYHALOGENATED BIPHENYLS, LIQUID	9	3151
POLYHALOGENATED BIPHENYLS, SOLID	9	3152
POLYHALOGENATED TERPHENYLS, LIQUID	9	3151
POLYHALOGENATED TERPHENYLS, SOLID	9	3152
POLYMERIC BEADS, EXPANDABLE, evolving flammable vapour	9	2211
POLYMERIZING SUBSTANCE, LIQUID, STABILIZED, N.O.S.	4.1	3532
POLYMERIZING SUBSTANCE, LIQUID, TEMPERATURE CONTROLLED, N.O.S.	4.1	3534
POLYMERIZING SUBSTANCE, SOLID, STABILIZED, N.O.S.	4.1	3531
POLYMERIZING SUBSTANCE, SOLID, TEMPERATURE CONTROLLED, N.O.S.	4.1	3533
Polystyrene beads, expandable, –see	9	2211
POTASSIUM	4.3	2257
POTASSIUM ARSENATE	6.1	1677
POTASSIUM ARSENITE	6.1	1678
Potassium bifluoride, –see	8	1811
Potassium bisulphate, –see	8	2509
Potassium bisulphite solution, –see	8	2693
POTASSIUM BOROHYDRIDE	4.3	1870
POTASSIUM BROMATE	5.1	1484
POTASSIUM CHLORATE	5.1	1485
POTASSIUM CHLORATE, AQUEOUS SOLUTION	5.1	2427
Potassium chlorate mixed with mineral oil, –see	1.1D	0083
POTASSIUM CUPROCYANIDE	6.1	1679
POTASSIUM CYANIDE, SOLID	6.1	1680
POTASSIUM CYANIDE SOLUTION	6.1	3413
Potassium dicyanocuprate (I), –see	6.1	1679
POTASSIUM DITHIONITE	4.2	1929
POTASSIUM FLUORIDE, SOLID	6.1	1812
POTASSIUM FLUORIDE SOLUTION	6.1	3422
POTASSIUM FLUOROACETATE	6.1	2628
POTASSIUM FLUOROSILICATE	6.1	2655
Potassium hexafluorosilicate, –see	6.1	2655
Potassium hydrate, –see	8	1814
POTASSIUM HYDROGENDIFLUORIDE SOLID	8	1811
POTASSIUM HYDROGENDIFLUORIDE SOLUTION	8	3421
POTASSIUM HYDROGEN SULPHATE	8	2509
POTASSIUM HYDROSULPHITE, –see	4.2	1929
Potassium hydroxide, liquid, –see	8	1814
POTASSIUM HYDROXIDE, SOLID	8	1813
POTASSIUM HYDROXIDE SOLUTION	8	1814
POTASSIUM METAL ALLOYS, LIQUID	4.3	1420

Name & Description	Class	UN No
POTASSIUM METAL ALLOYS, SOLID	4.3	3403
POTASSIUM METAVANADATE	6.1	2864
POTASSIUM MONOXIDE	8	2033
POTASSIUM NITRATE	5.1	1486
Potassium nitrate and sodium nitrate mixture, –see	5.1	1499
POTASSIUM NITRATE AND SODIUM NITRITE MIXTURE	5.1	1487
POTASSIUM NITRITE	5.1	1488
POTASSIUM PERCHLORATE	5.1	1489
POTASSIUM PERMANGANATE	5.1	1490
POTASSIUM PEROXIDE	5.1	1491
POTASSIUM PERSULPHATE	5.1	1492
POTASSIUM PHOSPHIDE	4.3	2012
Potassium selenate, –see	6.1	2630
Potassium selenite, –see	6.1	2630
Potassium silicofluoride, –see	6.1	2655
POTASSIUM SODIUM ALLOYS,LIQUID	4.3	1422
Potassium sodium alloys, SOLID	4.3	3404
POTASSIUM SULPHIDE with less than 30% water of crystallisation	4.2	1382
POTASSIUM SULPHIDE, ANHYDROUS	4.2	1382
POTASSIUM SULPHIDE, HYDRATED with not less than 30% water of crystallisation	8	1847
POTASSIUM SUPEROXIDE	5.1	2466
Potassium tetracyanomercurate (II), –see	6.1	1626
POWDER CAKE, WETTED with not less than 17% alcohol, by mass	1.1C	0433
POWDER CAKE, WETTED with not less than 25% water, by mass	1.3C	0159
POWDER PASTE, –see	1.1C 1.3C	0433 0159
POWDER, SMOKELESS	1.1C 1.3C 1.4C	0160016105 09
Power devices, explosive, –see	1.2C 1.3C 1.4C 1.4S	0381 0275 0276 0323
PRIMERS, CAP TYPE	1.1B 1.4B 1.4S	0377 0378 0044
Primers, small arms, –see	1.4S	0044
PRIMERS, TUBULAR	1.3G 1.4G 1.4S	0319 0320 0376

Name & Description	Class	UN No
PRINTING INK, flammable or PRINTING INK RELATED MATERIAL (including printing ink thinning or reducing compound), flammable	3	1210
Projectiles, illuminating, –see	1.2G 1.3G 1.4G	0171 0254 0297
PROJECTILES, inert with tracer	1.3G 1.4G 1.4S	0424 0425 0345
PROJECTILES with burster or expelling charge	1.2D 1.2F 1.2G 1.4D 1.4F 1.4G	0346 0426 0434 0347 0427 0435
PROJECTILES with bursting charge	1.1D 1.1F 1.2D 1.2F 1.4D	0168 0167 0169 0324 0344
PROPADIENE, STABILISED	2.1	2200
Propadiene and methyl acetylene mixture, stabilised, –see	2.1	1060
PROPANE	2.1	1978
PROPANETHIOLS	3	2402
n-PROPANOL	3	1274
PROPELLANT, LIQUID	1.1C 1.3C	0497 0495
PROPELLANT, SOLID	1.1C 1.3C 1.4C	0498 0499 0501
Propellant with a single base,) Propellant with a double base,) –see Propellant with a triple base,)	1.1C 1.3C	0160 0161
Propene, –see	2.1	1077
PROPIONALDEHYDE	3	1275
PROPIONIC ACID with not less than 10% and less than 90% acid by mass	8	1848
PROPIONIC ACID with not less than 90% acid by mass	8	3463
PROPIONIC ANHYDRIDE	8	2496
PROPIONITRILE	3	2404
PROPIONYL CHLORIDE	3	1815
n-PROPYL ACETATE	3	1276
PROPYL ALCOHOL, NORMAL, –see	3	1274
PROPYLAMINE	3	1277
n-PROPYLBENZENE	3	2364
Propyl chloride, –see	3	1278

Name & Description	Class	UN No
n-PROPYL CHLOROFORMATE	6.1	2740
PROPYLENE	2.1	1077
PROPYLENE CHLOROHYDRIN	6.1	2611
1,2-PROPYLENEDIAMINE	8	2258
Propylene dichloride, –see	3	1279
PROPYLENEIMINE, STABILISED	3	1921
PROPYLENE OXIDE	3	1280
PROPYLENE TETRAMER	3	2850
Propylene trimer, –see	3	2057
PROPYL FORMATES	3	1281
n-PROPYL ISOCYANATE	6.1	2482
Propyl mercaptan, –see	3	2402
n-PROPYL NITRATE	3	1865
PROPYLTRICHLOROSILANE	8	1816
Pyrazine hexahydride, –see	8	2579
PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	3350
PYRETHROID PESTICIDE, LIQUID, TOXIC	6.1	3352
PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3351
PYRETHROID PESTICIDE, SOLID, TOXIC	6.1	3349
PYRIDINE	3	1282
PYROPHORIC ALLOY, N.O.S.	4.2	1383
PYROPHORIC LIQUID, INORGANIC, N.O.S.	4.2	3194
PYROPHORIC LIQUID, ORGANIC, N.O.S.	4.2	2845
PYROPHORIC METAL, N.O.S.	4.2	1383
PYROPHORIC SOLID, INORGANIC, N.O.S.	4.2	3200
PYROPHORIC SOLID, ORGANIC, N.O.S.	4.2	2846
PYROSULPHURYL CHLORIDE	8	1817
Pyroxylin solution, –see	3	2059
PYRROLIDINE	3	1922
QUINOLINE	6.1	2656
Quinone, –see	6.1	2587
RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM	7	2909
RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - EMPTY PACKAGING	7	2908
RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - INSTRUMENTS or ARTICLES	7	2911
RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL	7	2910
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted	7	2912
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE	7	3324

Name & Description	Class	UN No
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non fissile or fissile-excepted	7	3321
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY, (LSA-III), FISSILE	7	3325
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non fissile or fissile-excepted	7	3322
RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE	7	3326
RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non fissile or fissile-excepted	7	2913
RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE	7	3331
RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non fissile or fissile-excepted	7	2919
RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form	7	3327
RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non fissile or fissile-excepted	7	2915
RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE	7	3333
RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non fissile or fissile-excepted	7	3332
RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE	7	3329
RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non fissile or fissile-excepted	7	2917
RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE	7	3328
RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non fissile or fissile-excepted	7	2916
RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE	7	3330
RADIOACTIVE MATERIAL, TYPE C PACKAGE, non fissile or fissile- excepted	7	3323
RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, FISSILE	7	2977
RADIOACTIVE MATERIAL, URANIUM HEXAFLUORIDE, non fissile or fissile-excepted	7	2978
Rags, OILY	4.2	1856
RDX, –see	1.1D 1.1D 1.1D	0072 0391 0483
RECEPTACLES, SMALL, CONTAINING GAS without a release device, non-refillable	2	2037
Red phosphorus, –see	4.1	1338
REFRIGERANT GAS, N.O.S.	2.2	1078
REFRIGERANT GAS R 12, –see	2.2	1028

Name & Description	Class	UN No
REFRIGERANT GAS R 12B1, –see	2.2	1974
REFRIGERANT GAS R 13, –see	2.2	1022
REFRIGERANT GAS R 13B1, –see	2.2	1009
REFRIGERANT GAS R 14, –see	2.2	1982
REFRIGERANT GAS R 21, –see	2.2	1029
REFRIGERANT GAS R 22, –see	2.2	1018
REFRIGERANT GAS R 23, –see	2.2	1984
REFRIGERANT GAS R 32, –see	2.1	3252
REFRIGERANT GAS R 40, –see	2.1	1063
REFRIGERANT GAS R 41, –see	2.1	2454
REFRIGERANT GAS R 114, –see	2.2	1958
REFRIGERANT GAS R 115, –see	2.2	1020
REFRIGERANT GAS R 116, –see	2.2	2193
REFRIGERANT GAS R 124, –see	2.2	1021
REFRIGERANT GAS R 125, –see	2.2	3220
REFRIGERANT GAS R 133a, –see	2.2	1983
REFRIGERANT GAS R 134a, –see	2.2	3159
REFRIGERANT GAS R 142b, –see	2.1	2517
REFRIGERANT GAS R 143a, –see	2.1	2035
REFRIGERANT GASR 152a, –see	2.1	1030
REFRIGERANT GAS R 161, –see	2.1	2453
REFRIGERANT GAS R 218, –see	2.2	2424
REFRIGERANT GAS R 227, –see	2.2	3296
REFRIGERANT GAS R 404A	2.2	3337
REFRIGERANT GAS R 407A	2.2	3338
REFRIGERANT GAS R 407B	2.2	3339
REFRIGERANT GAS R 407C	2.2	3340
REFRIGERANT GAS R 500, –see	2.2	2602
REFRIGERANT GAS R 502, –see	2.2	1973
REFRIGERANT GAS R 503, –see	2.2	2599
REFRIGERANT GAS R 1132a, –see	2.2	1959
REFRIGERANT GAS R 1216, –see	2.2	1858
REFRIGERANT GAS R 1318, –see	2.2	2422
REFRIGERANT GAS RC 318, –see	2.2	1976
REFRIGERATING MACHINES containing flammable, non-toxic, liquefied gas	2.1	3358
REFRIGERATING MACHINES containing non-flammable, non-toxic, gases or ammonia solutions (UN 2672)	2.2	2857
REGULATED MEDICAL WASTE, N.O.S.	6.2	3291
RELEASE DEVICES, EXPLOSIVE	1.4S	0173
RESIN SOLUTION, flammable	3	1866
Resorcin, –see	6.1	2876
RESORCINOL	6.1	2876
RIVETS, EXPLOSIVE	1.4S	0174

Name & Description	Class	UN No
ROCKET MOTORS	1.1C	0280
	1.2C	0281
	1.3C	0186
	1.4C	0510
ROCKET MOTORS, LIQUID FUELLED	1.2J	0395
	1.3J	0396
ROCKET MOTORS WITH HYPERGOLIC LIQUIDS with or without expelling charge	1.2L	0322
	1.3L	0250
ROCKETS with bursting charge	1.1E	0181
	1.1F	0180
	1.2E	0182
	1.2F	0295
ROCKETS with expelling charge	1.2C	0436
	13C	0437
	1.4C	0438
ROCKETS with inert head	1.3C	0183
	1.2C	0502
ROCKETS, LINE-THROWING	1.2G	0238
	1.3G	0240
	1.4G	0453
ROCKETS, LIQUID FUELLED with bursting charge	1.1J	0397
	1.2J	0398
ROSIN OIL	3	1286
RUBBER SCRAP, powdered or granulated, not exceeding 840 microns and rubber content exceeding 45%	4.1	1345
RUBBER SHODDY, powdered or granulated, not exceeding 840 microns and rubber content exceeding 45%	4.1	1345
RUBBER SOLUTION	3	1287
RUBIDIUM	4.3	1423
RUBIDIUM HYDROXIDE	8	2678
RUBIDIUM HYDROXIDE SOLUTION	8	2677
SAFETY DEVICES, electrically initiated	9	3268
SAFETY DEVICES, PYROTECHNIC	1.4G	0503
Saltpetre, –see	5.1	1486
SAMPLES, EXPLOSIVE, other than initiating explosive		0190
Sand acid, –see	8	1778
SEAT-BELT PRETENSIONERS		
- see SAFETY DEVICES, PYROTECHNIC or	1.4G	0503
SAFETY DEVICES, electronically initiated	9	3268
SEED CAKE with more than 1.5% oil and not more than 11% moisture	4.2	1386
SEED CAKE with not more than 1.5% oil and not more than 11% moisture	4.2	2217
Seed expellers, –see	4.2	1386
	4.2	2217
SELENATES	6.1	2630

Name & Description	Class	UN No
SELENIC ACID	8	1905
SELENITES	6.1	2630
SELENIUM COMPOUND, N.O.S.	6.1	3283
SELENIUM COMPOUND, LIQUID, N.O.S.	6.1	3440
SELENIUM DISULPHIDE	6.1	2657
SELENIUM HEXAFLUORIDE	2.3	2194
SELENIUM OXYCHLORIDE	8	2879
SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.	4.2	3188
SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.	4.2	3185
SELF-HEATING LIQUID, INORGANIC, N.O.S.	4.2	3186
SELF-HEATING LIQUID, ORGANIC, N.O.S.	4.2	3183
SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.	4.2	3187
SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.	4.2	3184
SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.	4.2	3192
SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.	4.2	3126
SELF-HEATING SOLID, INORGANIC, N.O.S.	4.2	3190
SELF-HEATING SOLID, ORGANIC, N.O.S.	4.2	3088
SELF-HEATING SOLID, OXIDISING, N.O.S	4.2	3127
SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.	4.2	3191
SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.	4.2	3128
SELF-REACTIVE LIQUID TYPE B	4.1	3221
SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED	4.1	3231
SELF-REACTIVE LIQUID TYPE C	4.1	3223
SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED	4.1	3233
SELF-REACTIVE LIQUID TYPE D	4.1	3225
SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED	4.1	3235
SELF-REACTIVE LIQUID TYPE E	4.1	3227
SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED	4.1	3237
SELF-REACTIVE LIQUID TYPE F	4.1	3229
SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED	4.1	3239
SELF-REACTIVE SOLID TYPE B	4.1	3222
SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED	4.1	3232
SELF-REACTIVE SOLID TYPE C	4.1	3224
SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED	4.1	3234
SELF-REACTIVE SOLID TYPE D	4.1	3226
SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED	4.1	3236

Name & Description	Class	UN No
SELF-REACTIVE SOLID TYPE E	4.1	3228
SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED	4.1	3238
SELF-REACTIVE SOLID TYPE F	4.1	3230
SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	4.1	3240
SHALE OIL	3	1288
Shaped charges, –see	1.1D 1.2D 1.4D 1.4S	0059 0439 0440 0441
SIGNAL DEVICES, HAND	1.4G 1.4S	0191 0373
SIGNALS, DISTRESS, ship	1.1G 1.3G 1.4G 1.4S	0194 0195 0506 0507
Signals, distress, ship, water-activated, –see	1.3L	0249
SIGNALS, RAILWAY TRACK, EXPLOSIVE	1.1G 1.3G 1.4G 1.4S	0192 0193 0492 0493
SIGNALS, SMOKE	1.1G 1.2G 1.3G 1.4G	0196 0313 0487 0197
SILANE	2.1	2203
Silicofluoric acid, –see	8	1778
Silicofluorides, n.o.s., –see	6.1	2856
Silicon chloride, –see	8	1818
SILICON POWDER, AMORPHOUS	4.1	1346
SILICON TETRACHLORIDE	8	1818
SILICON TETRAFLUORIDE	2.3	1859
SILICON TETRAFLUORIDE, ADSORBED	2.3	3521
SILVER ARSENITE	6.1	1683
SILVER CYANIDE	6.1	1684
SILVER NITRATE	5.1	1493
SILVER PICRATE, WETTED with not less than 30% water, by mass	4.1	1347
SLUDGE ACID	8	1906
SODA LIME with more than 4% sodium hydroxide	8	1907
SODIUM	4.3	1428
Sodium aluminate, solid	8	2812
SODIUM ALUMINATE SOLUTION	8	1819
SODIUM ALUMINIUM HYDRIDE	4.3	2835
SODIUM AMMONIUM VANADATE	6.1	2863
SODIUM ARSANILATE	6.1	2473
SODIUM ARSENATE	6.1	1685

Name & Description	Class	UN No
SODIUM ARSENITE, AQUEOUS SOLUTION	6.1	1686
SODIUM ARSENITE, SOLID	6.1	2027
SODIUM AZIDE	6.1	1687
Sodium bifluoride, –see	8	2439
Sodium binoxide, –see	5.1	1504
Sodium bisulphite solution, –see	8	2693
SODIUM BOROHYDRIDE	4.3	1426
SODIUM BOROHYDRIDE AND SODIUM HYDROXIDE SOLUTION, with not more than 12% sodium borohydride and not more than 40% sodium hydroxide, by mass	8	3320
SODIUM BROMATE	5.1	1494
SODIUM CACODYLATE	6.1	1688
SODIUM CARBONATE PEROXYHYDRATE	5.1	3378
SODIUM CHLORATE	5.1	1495
SODIUM CHLORATE, AQUEOUS SOLUTION	5.1	2428
Sodium chlorate mixed with dinitrotoluene, –see	1.1D	0083
SODIUM CHLORITE	5.1	1496
SODIUM CHLOROACETATE	6.1	2659
SODIUM CUPROCYANIDE, SOLID	6.1	2316
SODIUM CUPROCYANIDE SOLUTION	6.1	2317
SODIUM CYANIDE, SOLID	6.1	1689
SODIUM CYANIDE SOLUTION	6.1	3414
Sodium dicyanocuprate (I), solid, –see	6.1	2316
Sodium dicyanocuprate (I) solution, –see	6.1	2317
Sodium dimethylarsenate, –see	6.1	1688
SODIUM DINITRO-o-CRESOLATE, dry or wetted with less than 15% water, by mass	1.3C	0234
SODIUM DINITRO-o-CRESOLATE, WETTED, with not less than 10% water, by mass	4.1	3369
SODIUM DINITRO-o-CRESOLATE, WETTED with not less than 15% water, by mass	4.1	1348
Sodium dioxide, –see	5.1	1504
SODIUM DITHIONITE	4.2	1384
SODIUM FLUORIDE, SOLID	6.1	1690
SODIUM FLUORIDE SOLUTION	6.1	3415
SODIUM FLUOROACETATE	6.1	2629
SODIUM FLUOROSILICATE	6.1	2674
Sodium hexafluorosilicate, –see	6.1	2674
Sodium hydrate, –see	8	1824
SODIUM HYDRIDE	4.3	1427
Sodium hydrogen 4-amino- phenylarsenate, –see	6.1	2473
SODIUM HYDROGENDIFLUORIDE	8	2439
SODIUM HYDROSULPHIDE with less than 25% water of crystallisation	4.2	2318
SODIUM HYDROSULPHIDE, HYDRATED with not less than 25% water of crystallisation	8	2949

Name & Description	Class	UN No
SODIUM HYDROSULPHITE, –see	4.2	1384
SODIUM HYDROXIDE, SOLID	8	1823
SODIUM HYDROXIDE SOLUTION	8	1824
Sodium metasilicate pentahydrate, –see	8	3253
SODIUM METHYLATE	4.2	1431
SODIUM METHYLATE SOLUTION in alcohol	3	1289
SODIUM MONOXIDE	8	1825
SODIUM NITRATE	5.1	1498
SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE	5.1	1499
SODIUM NITRITE	5.1	1500
Sodium nitrite and potassium nitrate mixture, –see	5.1	1487
SODIUM PENTACHLOROPHENATE	6.1	2567
SODIUM PERBORATE MONOHYDRATE	5.1	3377
SODIUM PERCHLORATE	5.1	1502
SODIUM PERMANGANATE	5.1	1503
SODIUM PEROXIDE	5.1	1504
SODIUM PEROXOBORATE, ANHYDROUS	5.1	3247
SODIUM PERSULPHATE	5.1	1505
SODIUM PHOSPHIDE	4.3	1432
SODIUM PICRAMATE, dry or wetted with less than 20% water, by mass	1.3C	0235
SODIUM PICRAMATE, WETTED with not less than 20% water, by mass	4.1	1349
Sodium potassium alloys, –see	4.3 4.3	1422 3404
Sodium selenate, –see	6.1	2630
Sodium selenite, –see	6.1	2630
Sodium silicofluoride, –see	6.1	2674
SODIUM SULPHIDE, ANHYDROUS	4.2	1385
SODIUM SULPHIDE with less than 30% water of crystallisation	4.2	1385
SODIUM SULPHIDE, HYDRATED with not less than 30% water	8	1849
SODIUM SUPEROXIDE	5.1	2547
SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.	8	3244
SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.	4.1	3175
SOLIDS CONTAINING TOXIC LIQUID, N.O.S.	6.1	3243
Solvents, flammable, n.o.s., –see	3	1993
Solvents, flammable, toxic, n.o.s., –see	3	1992
SOUNDING DEVICES, EXPLOSIVE	1.1D 1.1F 1.2D 1.2F	0374 0296 0375 0204
Squibs, –see	1.4G 1.4S	0325 0454
STAINS [AUST.], –see 3.2.5		

Name & Description	Class	UN No
STANNIC CHLORIDE, ANHYDROUS	8	1827
STANNIC CHLORIDE PENTAHYDRATE	8	2440
STANNIC PHOSPHIDES	4.3	1433
Steel swarf, –see	4.2	2793
STIBINE	2.3	2676
Straw	4.1	1327
Strontium alloys, pyrophoric, –see	4.2	1383
STRONTIUM ARSENITE	6.1	1691
STRONTIUM CHLORATE	5.1	1506
Strontium dioxide, –see	5.1	1509
STRONTIUM NITRATE	5.1	1507
STRONTIUM PERCHLORATE	5.1	1508
STRONTIUM PEROXIDE	5.1	1509
STRONTIUM PHOSPHIDE	4.3	2013
STRYCHNINE	6.1	1692
STRYCHNINE SALTS	6.1	1692
STYPHNIC ACID, –see	1.1D 1.1D	0219 0394
STYRENE MONOMER, STABILISED	3	2055
SUBSTANCES, EVI, N.O.S., –see	1.5D	0482
SUBSTANCES, EXPLOSIVE, N.O.S.	1.1A 1.1C 1.1D 1.1G 1.1L 1.2L 1.3C 1.3G 1.3L 1.4C 1.4D 1.4G 1.4S	0473 0474 0475 0476 0357 0358 0477 0478 0359 0479 0480 0485 0481
SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE, N.O.S.	1.5D	0482
Substances liable to spontaneous combustion, n.o.s., –see	4.2 4.2 4.2 4.2	2845 2846 3194 3200
SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2780
SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC	6.1	3014
SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3013
SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC	6.1	2779
SULPHAMIC ACID	8	2967

Name & Description	Class	UN No
SULPHUR	4.1	1350
SULPHUR CHLORIDES	8	1828
Sulphur dichloride, –see	8	1828
SULPHUR DIOXIDE	2.3	1079
Sulphuretted hydrogen, –see	2.2	1053
SULPHUR HEXAFLUORIDE	2.2	1080
SULPHURIC ACID with more than 51% acid	8	1830
SULPHURIC ACID with not more than 51% acid	8	2796
SULPHURIC ACID, FUMING	8	1831
SULPHURIC ACID, SPENT	8	1832
Sulphuric and hydrofluoric acid mixture, –see	8	1786
SULPHUR, MOLTEN	4.1	2448
Sulphur monochloride, –see	8	1828
SULPHUROUS ACID	8	1833
SULPHUR TETRAFLUORIDE	2.3	2418
SULPHUR TRIOXIDE, STABILISED	8	1829
SULPHURYL CHLORIDE	8	1834
SULPHURYL FLUORIDE	2.3	2191
Table tennis balls, see	4.1	2000
Talcum with tremolite and/or actinolite, –see	9	2212
TARS, LIQUID, including road oils, and cutback bitumens	3	1999
Tartar emetic, –see	6.1	1551
TEAR GAS CANDLES	6.1	1700
TEAR GAS SUBSTANCE, LIQUID, N.O.S.	6.1	1693
TEAR GAS SUBSTANCE, SOLID, N.O.S.	6.1	3448
TELLURIUM COMPOUND, N.O.S.	6.1	3284
TELLURIUM HEXAFLUORIDE	2.3	2195
TERPENE HYDROCARBONS, N.O.S.	3	2319
TERPINOLENE	3	2541
TETRABROMOETHANE	6.1	2504
1,1,2,2-TETRACHLOROETHANE	6.1	1702
TETRACHLOROETHYLENE	6.1	1897
TETRAETHYL DITHIOPYROPHOSPHATE	6.1	1704
TETRAETHYLENEPENTAMINE	8	2320
Tetraethyl lead, –see	6.1	1649
TETRAETHYL SILICATE	3	1292
Tetraethyoxysilane, –see	3	1292
Tetrafluorodichloroethane, –see	2.2	1958
1,1,1,2-TETRAFLUOROETHANE	2.2	3159
TETRAFLUOROETHYLENE, STABILISED	2.1	1081
TETRAFLUOROMETHANE (REGRIGERANT GAS R14)	2.2	1982
1,2,3,6-TETRAHYDRO- BENZALDEHYDE	3	2498
TETRAHYDROFURAN	3	2056
TETRAHYDROFURFURYLAMINE	3	2943

Name & Description	Class	UN No
Tetrahydro-1,4-oxazine, –see	3	2054
TETRAHYDROPHTHALIC ANHYDRIDES with more than 0.05% of maleic anhydride	8	2698
1,2,3,6-TETRAHYDROPYRIDINE	3	2410
TETRAHYDROTHIOPHENE	3	2412
Tetramethoxysilane, –see	6.1	2606
TETRAMETHYLAMMONIUM HYDROXIDE SOLUTION	8	1835
TETRAMETHYLAMMONIUM HYDROXIDE, SOLID	8	3423
Tetramethylene, –see	2.1	2601
Tetramethylene cyanide, –see	6.1	2205
Tetramethyl lead, –see	6.1	1649
TETRAMETHYLSILANE	3	2749
TETRANITROANILINE	1.1D	0207
TETRANITROMETHANE	5.1	1510
TETRAPROPYL ORTHOTITANATE	3	2413
TETRAZENE, WETTED –see	1.1A	0114
TETRAZOL-1-ACETIC ACID	1.4C	0407
1H-TETRAZOLE	1.1D	0504
TETRYL, –see	1.1D	0208
TEXTILE WASTE, WET	4.2	1857
THALLIUM CHLORATE	5.1	2573
Thallium (I) chlorate, –see	5.1	2573
THALLIUM COMPOUND, N.O.S.	6.1	1707
THALLIUM NITRATE	6.1	2727
Thallium (I) nitrate, –see	6.1	2727
Thallous chlorate, –see	5.1	2573
4-THIAPENTANAL	6.1	2785
Thia-4-pentanal, –see	6.1	2785
THINNERS [AUST.] –see 3.2.5		
THINNING LIQUID [AUST.] –see 3.2.5		
THIOACETIC ACID	3	2436
THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2772
THIOCARBAMATE PESTICIDE, LIQUID, TOXIC	6.1	3006
THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	3005
THIOCARBAMATE PESTICIDE, SOLID, TOXIC	6.1	2771
THIOGLYCOL	6.1	2966
THIOGLYCOLIC ACID	8	1940
THIOLACTIC ACID	6.1	2936
THIONYL CHLORIDE	8	1836
THIOPHENE	3	2414
Thiophenol, –see	6.1	2337
THIOPHOSGENE	6.1	2474
THIOPHOSPHORYL CHLORIDE	8	1837
THIOUREA DIOXIDE	4.2	3341

Name & Description	Class	UN No
Tin (IV) chloride, anhydrous, –see	8	1827
Tin (IV) chloride pentahydrate, –see	8	2440
TINCTURES, MEDICINAL	3	1293
Tin tetrachloride, –see	8	1827
TITANIUM DISULPHIDE	4.2	3174
TITANIUM HYDRIDE	4.1	1871
TITANIUM POWDER, DRY	4.2	2546
TITANIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present)mechanically produced, particle size less than 53 microns;chemically produced, particle size less than 840 microns	4.1	1352
TITANIUM SPONGE GRANULES	4.1	2878
TITANIUM SPONGE POWDERS	4.1	2878
TITANIUM TETRACHLORIDE	8	1838
TITANIUM TRICHLORIDE MIXTURE	8	2869
TITANIUM TRICHLORIDE MIXTURE, PYROPHORIC	4.2	2441
TITANIUM TRICHLORIDE, PYROPHORIC	4.2	2441
TNT, –see	1.1D 1.1D 1.1D	0209 0388 0389
TNT, WETTED, –see	4.1	1356 3366
TNT mixed with aluminium, –see	1.1D	0390
Toe puffs, nitrocellulose base, –see	4.1	1353
TOLUENE	3	1294
TOLUENE DIISOCYANATE	6.1	2078
TOLUIDINES, LIQUID	6.1	1708
TOLUIDINES, SOLID	6.1	3451
Toluol, –see	3	1294
2,4-TOLUYLENEDIAMINE, SOLID	6.1	1709
2,4-TOLUYLENEDIAMINE SOLUTION	6.1	3418
Toluylene diisocyanate, –see	6.1	2078
Tolylene diisocyanate, –see	6.1	2078
Tolylethylene, inhibited, –see	3	2618
TORPEDOES with bursting charge	1.1D 1.1E 1.1F	0451 0329 0330
TORPEDOES, LIQUID FUELLED with inert head	1.3J	0450
TORPEDOES, LIQUID FUELLED with or without bursting charge	1.1J	0449
TOXIC BY INHALATION LIQUID, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3381

Name & Description	Class	UN No
TOXIC BY INHALATION LIQUID, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3382
TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3383
TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3384
TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3488
TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3489
TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3385
TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3386
TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3490
TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3491
TOXIC BY INHALATION LIQUID, OXIDISING, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 or less and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3387
TOXIC BY INHALATION LIQUID, OXIDISING, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 or less and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3388

Name & Description	Class	UN No
TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}	6.1	3389
TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}	6.1	3390
TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.	6.1	3289
TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.	6.1	2927
TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.	6.1	2929
TOXIC LIQUID, INORGANIC, N.O.S.	6.1	3287
TOXIC LIQUID, ORGANIC (CYTOTOXIC DRUG) [AUST.], –see 3.2.5		
TOXIC LIQUID, ORGANIC, N.O.S.	6.1	2810
TOXIC LIQUID, OXIDISING, N.O.S.	6.1	3122
TOXIC LIQUID, WATER-REACTIVE, N.O.S.	6.1	3123
TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.	6.1	3290
TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.	6.1	2928
TOXIC SOLID, FLAMMABLE, INORGANIC, N.O.S.	6.1	3535
TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.	6.1	2930
TOXIC SOLID, INORGANIC, N.O.S.	6.1	3288
TOXIC SOLID, ORGANIC (CYTOTOXIC DRUG) [AUST.], –see 3.2.5		
TOXIC SOLID, ORGANIC, N.O.S.	6.1	2811
TOXIC SOLID, OXIDISING, N.O.S.	6.1	3086
TOXIC SOLID, SELF-HEATING, N.O.S.	6.1	3124
TOXIC SOLID, WATER-REACTIVE, N.O.S.	6.1	3125
TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.	6.1	3172
TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.	6.1	3462
TRACERS FOR AMMUNITION	1.3G 1.4G	0212 0306
Tremolite, –see	9	2212
TRIALLYLAMINE	3	2610
TRIALLYL BORATE	6.1	2609
TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash-point less than 23°C	3	2764
TRIAZINE PESTICIDE, LIQUID, TOXIC	6.1	2998
TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash-point not less than 23°C	6.1	2997
TRIAZINE PESTICIDE, SOLID, TOXIC	6.1	2763
Tribromoborane, –see	8	2692
TRIBUTYLAMINE	6.1	2542
TRIBUTYLPHOSPHANE	4.2	3254
Trichloroacetaldehyde, –see	6.1	2075

Name & Description	Class	UN No
TRICHLOROACETIC ACID	8	1839
TRICHLOROACETIC ACID SOLUTION	8	2564
Trichlororaceticaldehyde, –see	6.1	2075
TRICHLOROACETYL CHLORIDE	8	2442
TRICHLOROBENZENES, LIQUID	6.1	2321
TRICHLOROBUTENE	6.1	2322
1,1,1-TRICHLOROETHANE	6.1	2831
TRICHLOROETHYLENE	6.1	1710
TRICHLOROISOCYANURIC ACID, DRY	5.1	2468
Trichloronitromethane, –see	6.1	1580
TRICHLOROSILANE	4.3	1295
1,3,5-Trichloro-s-triazine-2,4,6-trione, –see	5.1	2468
2,4,6-Trichloro-1,3,5- triazine, –see	8	2670
TRICRESYL PHOSPHATE with more than 3% ortho isomer	6.1	2574
TRIETHYLAMINE	3	1296
Triethyl borate, –see	3	1176
TRIETHYLENETETRAMINE	8	2259
Triethyl orthoformate, –see	3	2524
TRIETHYL PHOSPHITE	3	2323
TRIFLUOROACETIC ACID	8	2699
TRIFLUOROACETYL CHLORIDE	2.3	3057
Trifluorobromomethane, –see	2.2	1009
Trifluorochloroethane, –see	2.2	1983
TRIFLUOROCHLOROETHYLENE, STABILISED REFRIGERANT GAS R113	2.3	1082
Trifluorochloromethane, –see	2.2	1022
1,1,1-TRIFLUOROETHANE	2.1	2035
TRIFLUOROMETHANE	2.2	1984
TRIFLUOROMETHANE, REFRIGERATED LIQUID	2.2	3136
2-TRIFLUOROMETHYLANILINE	6.1	2942
3-TRIFLUOROMETHYLANILINE	6.1	2948
TRIISOBUTYLENE	3	2324
TRIISOPROPYL BORATE	3	2616
TRIMETHYLACETYL CHLORIDE	6.1	2438
TRIMETHYLAMINE, ANHYDROUS	2.1	1083
TRIMETHYLAMINE, AQUEOUS SOLUTION, not more than 50% trimethylamine, by mass	3	1297
1,3,5-TRIMETHYLBENZENE	3	2325
TRIMETHYL BORATE	3	2416
TRIMETHYLCHLOROSILANE	3	1298
TRIMETHYLCYCLOHEXYLAMINE	8	2326
Trimethylene chlorobromide, –see	6.1	2688
TRIMETHYLHEXA- METHYLENEDIAMINES	8	2327
TRIMETHYLHEXAMETHYLENE DIISOCYANATE	6.1	2328
2,4,4-Trimethylpentene-1, –see	3	2050
2,4,4-Trimethylpentene-2, –see	3	2050

Name & Description	Class	UN No
TRIMETHYL PHOSPHITE	3	2329
TRINITROANILINE	1.1D	0153
TRINITROANISOLE	1.1D	0213
TRINITROBENZENE, dry or wetted with less than 30% water, by mass	1.1D	0214
Trinitrobenzene, wetted, with not less than 10% water, by mass	4.1	3367
TRINITROBENZENE, WETTED with not less than 30% water, by mass	4.1	1354
TRINITROBENZENESULPHONIC ACID	1.1D	0386
TRINITROBENZOIC ACID, dry or wetted with less than 30% water, by mass	1.1D	0215
TRINITROBENZOIC ACID, WETTED, with not less than 10% water by mass	4.1	3368
TRINITROBENZOIC ACID, WETTED with not less than 30% water, by mass	4.1	1355
TRINITROCHLOROBENZENE	1.1D	0155
TRINITROCHLOROBENZENE, WETTED, with not less than 10% water by mass	4.1	3365
TRINITRO-m-CRESOL	1.1D	0216
TRINITROFLUORENONE	1.1D	0387
TRINITRONAPHTHALENE	1.1D	0217
TRINITROPHENETOLE	1.1D	0218
TRINITROPHENOL, dry or wetted with less than 30% water, by mass	1.1D	0154
TRINITROPHENOL, WETTED, with not less than 10% water by mass	4.1	3364
TRINITROPHENOL, WETTED with not less than 30% water, by mass	4.1	1344
TRINITROPHENYLMETHYL- NITRAMINE	1.1D	0208
TRINITRORESORCINOL, dry or wetted with less than 20% water, or mixture of alcohol and water, by mass	1.1D	0219
TRINITRORESORCINOL, WETTED with not less than 20% water, or mixture of alcohol and water, by mass	1.1D	0394
TRINITROTOLUENE, dry or wetted with less than 30% water, by mass	1.1D	0209
TRINITROTOLUENE AND HEXA- NITROSTILBENE MIXTURE	1.1D	0388
TRINITROTOLUENE AND TRINITROBENZENE MIXTURE	1.1D	0388
TRINITROTOLUENE MIXTURE CONTAINING TRINITRO- BENZENE AND HEXANITROSTILBENE	1.1D	0389
Trinitrotoluene, wetted, with not less than 10% water by mass	4.1	3366
TRINITROTOLUENE, WETTED with not less than 30% water, by mass	4.1	1356
TRIPROPYLAMINE	3	2260
TRIPROPYLENE	3	2057

Name & Description	Class	UN No
TRIS-(1-AZIRIDINYL) PHOSPHINE OXIDE SOLUTION	6.1	2501
TRITONAL	1.1D	0390
Tropilidene, –see	3	2603
TUNGSTEN HEXAFLUORIDE	2.3	2196
TURPENTINE	3	1299
TURPENTINE SUBSTITUTE	3	1300
UNDECANE	3	2330
URANIUM HEXAFLUORIDE, RADIOACTIVE MATERIAL, EXPECTED PACKAGE, less than 0.1 Kg per package, non-fissile or fissile excepted	8	3507
UREA HYDROGEN PEROXIDE	5.1	1511
UREA NITRATE, dry or wetted with less than 20% water, by mass	1.1D	0220
UREA NITRATE, WETTED with not less than 10% water, by mass	4.1	3370
UREA NITRATE, WETTED with not less than 20% water, by mass	4.1	1357
Valeral, –see	3	2058
VALERALDEHYDE	3	2058
n-Valeraldehyde, –see	3	2058
Valeric aldehyde, –see	3	2058
VALERYL CHLORIDE	8	2502
VANADIUM COMPOUND, N.O.S.	6.1	3285
Vanadium (IV) oxide sulphate, –see	6.1	2931
Vanadium oxysulphate, –see	6.1	2931
VANADIUM OXYTRICHLORIDE	8	2443
VANADIUM PENTOXIDE, non-fused form	6.1	2862
VANADIUM TETRACHLORIDE	8	2444
VANADIUM TRICHLORIDE	8	2475
VANADYL SULPHATE	6.1	2931
VARNISH [AUST.], –see 3.2.5		
VEHICLE, FLAMMABLE GAS POWERED	9	3166
VEHICLE, FLAMMABLE LIQUID POWERED	9	3166
VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED	9	3166
VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED	9	3166
Villiaumite, –see	6.1	1690
VINYL ACETATE, STABILISED	3	1301
Vinylbenzene, –see	3	2055
VINYL BROMIDE, STABILISED	2.1	1085
VINYL BUTYRATE, STABILISED	3	2838
VINYL CHLORIDE, STABILISED	2.1	1086
VINYL CHLOROACETATE	6.1	2589
VINYL ETHYL ETHER, STABILISED	3	1302
VINYL FLUORIDE, STABILISED	2.1	1860

Name & Description	Class	UN No
VINYLIDENE CHLORIDE, STABILISED	3	1303
VINYL ISOBUTYL ETHER, STABILISED	3	1304
VINYL METHYL ETHER, STABILISED	2.1	1087
VINYLPYRIDINES, STABILISED	6.1	3073
VINYLTOLUENES, STABILISED	3	2618
VINYLTRICHLOROSILANE	3	1305
Warheads for guided missiles, –see	1.1D 1.1F 1.2D 1.4D 1.4F	0286 0369 0287 0370 0371
WARHEADS, ROCKET with burster or expelling charge	1.4D 1.4F	0370 0371
WARHEADS, ROCKET with bursting charge	1.1D 1.1F 1.2D	0286 0369 0287
WARHEADS, TORPEDO with bursting charge	1.1D	0221
WATER-REACTIVE LIQUID, N.O.S.	4.3	3148
WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.	4.3	3129
WATER-REACTIVE LIQUID, TOXIC, N.O.S.	4.3	3130
WATER-REACTIVE SOLID, N.O.S.	4.3	2813
WATER-REACTIVE SOLID, CORROSIVE, N.O.S.	4.3	3131
WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.	4.3	3132
WATER-REACTIVE SOLID, OXIDISING, N.O.S.	4.3	3133
WATER-REACTIVE SOLID, SELF- HEATING, N.O.S.	4.3	3135
WATER-REACTIVE SOLID, TOXIC, N.O.S.	4.3	3134
White arsenic, –see	6.1	1561
WHITE SPIRIT [AUST.], –see 3.2.5		
White spirit, –see	3	1300
WOOD PRESERVATIVES, LIQUID	3	1306
Wool waste, wet	4.2	1387
XANTHATES	4.2	3342
XENON	2.2	2036
XENON, REFRIGERATED LIQUID	2.2	2591
XYLENES	3	1307
XYLENOLS, SOLID	6.1	2261
XYLENOLS, LIQUID	6.1	3430
XYLIDINES, LIQUID	6.1	1711
XYLIDINES, SOLID	6.1	3452
Xylols, –see	3	1307
XYLYL BROMIDE, LIQUID	6.1	1701
XYLYL BROMIDE, SOLID	6.1	3417
ZINC AMMONIUM NITRITE	5.1	1512
ZINC ARSENATE	6.1	1712
ZINC ARSENATE AND ZINC ARSENITE MIXTURE	6.1	1712
ZINC ARSENITE	6.1	1712
ZINC ASHES	4.3	1435

Name & Description	Class	UN No
Zinc bisulphite solution, –see	8	2693
ZINC BROMATE	5.1	2469
ZINC CHLORATE	5.1	1513
ZINC CHLORIDE, ANHYDROUS	8	2331
ZINC CHLORIDE SOLUTION	8	1840
ZINC CYANIDE	6.1	1713
ZINC DITHIONITE	9	1931
ZINC DUST	4.3	1436
ZINC FLUOROSILICATE	6.1	2855
Zinc hexafluorosilicate, –see	6.1	2855
ZINC HYDROSULPHITE, –see	9	1931
ZINC NITRATE	5.1	1514
ZINC PERMANGANATE	5.1	1515
ZINC PEROXIDE	5.1	1516
ZINC PHOSPHIDE	4.3	1714
ZINC POWDER	4.3	1436
ZINC RESINATE	4.1	2714
Zinc selenate, –see	4.1	2630
Zinc selenite, –see	4.1	2630
Zinc silicofluoride, –see	6.1	2855
ZIRCONIUM, DRY, coiled wire, finished metal sheets, strip (thinner than 254 microns but not thinner than 18 microns)	4.1	2858
ZIRCONIUM, DRY, finished sheets, strip or coiled wire	4.2	2009
ZIRCONIUM HYDRIDE	4.1	1437
ZIRCONIUM NITRATE	5.1	2728
ZIRCONIUM PICRAMATE, dry or wetted with less than 20% water, by mass	1.3C	0236
ZIRCONIUM PICRAMATE, WETTED with not less than 20% water, by mass	4.1	1517
ZIRCONIUM POWDER, DRY	4.2	2008
ZIRCONIUM POWDER, WETTED with not less than 25% water (a visible excess of water must be present)mechanically produced, particle size less than 53 microns;chemically produced, particle size less than 840 microns	4.1	1358
ZIRCONIUM SCRAP	4.2	1932
ZIRCONIUM SUSPENDED IN A FLAMMABLE LIQUID	3	1308
ZIRCONIUM TETRACHLORIDE	8	2503

3.2.5 AUSTRALIAN SPECIFIC [AUST.] ENTRIES

3.2.5.1 The alternative names listed in Column (1) of Table 3.2 may be used in lieu of the proper shipping name, for land transport purposes within Australia, subject to the conditions and limitations detailed in Notes A - G referenced for the particular entry in Column (3).

3.2.5.2 For each of the [AUST.] entries in Column (1) of Table 3.2, reference must be made to the entry in the principle Dangerous Goods List in 3.2.3 for the UN Number shown below in Column (2) to determine classification, packing and tank requirements and the application of any special provisions.

3.2.5.3 **<DELETED>.**

NOTE: *[AUST.] entries are not acceptable as proper shipping names on transport documentation or package marking for sea or air transport under IMDG, ICAO or IATA requirements.*

3.2.5.4 Use of UN 1270 Petroleum Fuel [AUST.]

3.2.5.4.1 The use of UN Number 1270 Petroleum Fuel has been discontinued internationally. The continued use in Australia is specifically because of the continued use of tankers carrying mixed loads of petroleum fuels. This is less common elsewhere in the world. This [AUST.] entry is therefore restricted to the UN Number and Proper Shipping Name on Mixed Load (refined petroleum product) Emergency Information Panels in accordance with 5.3.1.3.3, when no single entry (such as UN 1203 or UN 1268) is valid for all compartments of a multi-compartmented portable tank or tank vehicle.

3.2.5.4.2 Where the whole load in a multi-compartmented portable tank or tank vehicle is correctly described by a single UN number other than UN 1270, whether or not that other number is included in Table 3.1, then the use of the Mixed Load (refined petroleum product) Emergency Information Panel is not permitted. For such loads, Emergency Information Panels for the particular substance are required in accordance with 5.3.1.3.1 and Section 5.3.4 (portable tanks) or 5.3.6 (tank vehicles). UN 1270 must not be used to describe such a load.

3.2.5.4.3 Where UN 1270 is displayed on the Emergency Information Panel in accordance with this Section, Section 5.3.4 or 5.3.6, and 5.3.1.3.3, the dangerous goods description on the transport documentation in accordance with 11.1.2.2 must nevertheless show the Proper Shipping Name and UN number for each dangerous substance in the portable tank or tank vehicle.

3.2.5.4.4 The refined petroleum products, being dangerous goods of Class 3 and C1 combustible liquids[1], that may form part of the load of a multi-compartmented portable tank or tank vehicle where UN 1270 is displayed in accordance with 5.3.1.3.3, are listed in Table 3.1.

Table 3.1: List of Petroleum Based Products

UN No.	Proper Shipping Name
1145	CYCLOHEXANE

[1] C1 Combustible Liquids are not classified as dangerous goods for transport purposes. No placarding is required by this Code on a portable tank or tank vehicle transporting only C1 liquid. However, industry practice is often to display "Combustible Liquid" in the area normally used for placarding a tanker.

UN No.	Proper Shipping Name
1146	CYCLOPENTANE
1202	DIESEL OIL, or DIESEL FUEL, or GAS OIL, or HEATING OIL, LIGHT flash point ≤ 60°C
1203	MOTOR SPIRIT, or GASOLINE, or PETROL
1206	HEPTANES
1208	HEXANES
1216	ISOOCTENE
1223	KEROSENE
1262	OCTANES
1267	PETROLEUM CRUDE OIL
1268	PETROLEUM DISTILLATES, N.O.S., or PETROLEUM PRODUCTS N.O.S.
1294	TOLUENE
1300	TURPENTINE SUBSTITUTE, or MINERAL TURPENTINE [AUST.], or WHITE SPIRIT [AUST.]
1307	XYLENES
1920	NONANES
2296	METHYLCYCLOHEXANE
2298	METHYLCYCLOPENTANE
2457	2,3-DIMETHYLBUTANE
3475	ETHANOL AND GASOLINE MIXTURE, or ETHANOL AND MOTOR SPIRIT MIXTURE; or ETHANOL AND PETROL MIXTURE, with more than 10% ethanol
	Diesel Oil, Diesel Fuel, Gas Oil, Heating Oil Light or Distillate with a flashpoint > 60°C < 93°C[1]

[1] C1 Combustible Liquids are not classified as dangerous goods for transport purposes. No placarding is required by this Code on a portable tank or tank vehicle transporting only C1 liquid. However, industry practice is often to display "Combustible Liquid" in the area normally used for placarding a tanker.

Table 3.2: Australian Petroleum Based Products

[AUST.] Entry	Relevant UN Number Entry in 3.2.3 for Classification, Packing and Tank Requirements		Usage – see Notes
(1)	(2)		(3)
AVIATION GASOLINE [AUST.]	1203	MOTOR SPIRIT or GASOLINE or PETROL	A, B, C
AVIATION TURBINE FUEL [AUST.]	1863	FUEL, AVIATION, TURBINE ENGINE	A, B, C
LP GAS [AUST.]	1075	PETROLEUM GASES, LIQUEFIED	A, B, C
MINERAL TURPENTINE [AUST.]	1300	TURPENTINE SUBSTITUTE	D
PETROLEUM FUEL [AUST.] UN 1270	–see 3.2.5.4	Determine from the relevant entries in Table 3.1	B, E
TOXIC LIQUID, ORGANIC, (CYTOTOXIC DRUG) [AUST.]	2810	TOXIC LIQUID, ORGANIC, N.O.S.	G
TOXIC SOLID, ORGANIC, (CYTOTOXIC DRUG) [AUST.]	2811	TOXIC SOLID, ORGANIC, N.O.S.	G
WHITE SPIRIT [AUST.]	1300	TURPENTINE SUBSTITUTE	D

***NOTE**:* *These uses are valid only for land transport within Australia:*

A. Use permitted as Proper Shipping Name on package marking

B. Use permitted as Proper Shipping Name on Emergency Information Panels

C. Use permitted as Proper Shipping Name on transport documentation

D. Use permitted as Proper Shipping Name for inner packaging marking

E. For conditions on use of UN 1270, see 3.2.5.4 and 5.3.1.3.3

F. <DELETED>

G. These entries must be used for cytotoxic drugs that meet the criteria for packing group I. Despite the assignment of SP 274 to these two UN numbers in the principal Dangerous Goods List, where either of these [AUST.] entries is shown in full as the Proper Shipping Name, it is not necessary to supplement this with the Technical Name on marking or documentation. UN 1851 (liquid) or UN 3249 (solid) must be used for drugs of packing group II or III".

3.2.6 GENERIC AND N.O.S. PROPER SHIPPING NAMES

***NOTE**:* *This section incorporates, in full, Appendix A of UN20*

3.2.6.1 Substances or articles not mentioned specifically by name in the Dangerous Goods List in 3.2.3 must be classified in accordance with 3.1.1.2. Thus the name in the Dangerous Goods List which most appropriately describes the substance or article must be used as the Proper Shipping Name. The main generic entries and all the N.O.S. entries given in the Dangerous Goods List are listed below. This proper shipping name must be supplemented by the technical name when special provision 274 has been assigned to the entry in Column 6 of the Dangerous Goods List.

3.2.6.2 In this list generic and N.O.S. names are grouped according to their hazard class or division. Within each hazard class or division the names have been placed into three groups as follows:

(a) specific entries covering a group of substances or articles of a particular chemical or technical nature;

(b) pesticide entries, for Class 3 and Division 6.1;

(c) general entries covering a group of substances or articles having one or more general dangerous properties.

3.2.6.3 When assigning generic and N.O.S. Proper Shipping Names:

– THE MOST SPECIFIC APPLICABLE NAME MUST ALWAYS BE USED.

Table 3.3: List of generic and N.O.S proper shipping names

Table 3.3			**LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)**
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
			CLASS 1
1		0190	SAMPLES, EXPLOSIVE, other than initiating explosive
			DIVISION 1.1
1.1A		0473	SUBSTANCES, EXPLOSIVE, N.O.S.
1.1B		0461	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.1C		0462	ARTICLES, EXPLOSIVE, N.O.S.
1.1C		0474	SUBSTANCES, EXPLOSIVE, N.O.S.
1.1C		0497	PROPELLANT, LIQUID
1.1C		0498	PROPELLANT, SOLID
1.1D		0463	ARTICLES, EXPLOSIVE, N.O.S.
1.1D		0475	SUBSTANCES, EXPLOSIVE, N.O.S.
1.1E		0464	ARTICLES, EXPLOSIVE, N.O.S.
1.1F		0465	ARTICLES, EXPLOSIVE, N.O.S.
1.1G		0476	SUBSTANCES, EXPLOSIVE, N.O.S.
1.1L		0354	ARTICLES, EXPLOSIVE, N.O.S.
1.1L		0357	SUBSTANCES, EXPLOSIVE, N.O.S.
			DIVISION 1.2
1.2B		0382	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.2C		0466	ARTICLES, EXPLOSIVE, N.O.S.
1.2D		0467	ARTICLES, EXPLOSIVE, N.O.S.
1.2E		0468	ARTICLES, EXPLOSIVE, N.O.S.
1.2F		0469	ARTICLES, EXPLOSIVE, N.O.S.
1.2K	6.1	0020	AMMUNITION, TOXIC with burster, expelling charge or propelling charge
1.2L		0248	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge
1.2L		0355	ARTICLES, EXPLOSIVE, N.O.S.
1.2L		0358	SUBSTANCES, EXPLOSIVE, N.O.S.
			DIVISION 1.3
1.3C		0132	DEFLAGRATING METAL SALTS OF AROMATIC NITRODERIVATIVES, N.O.S.
1.3C		0470	ARTICLES, EXPLOSIVE, N.O.S.
1.3C		0477	SUBSTANCES, EXPLOSIVE, N.O.S.
1.3C		0495	PROPELLANT, LIQUID

Table 3.3	LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)		
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
1.3C		0499	PROPELLANT, SOLID
1.3G		0478	SUBSTANCES, EXPLOSIVE, N.O.S.
1.3K	6.1	0021	AMMUNITION, TOXIC with burster, expelling charge or propelling charge
1.3L		0249	CONTRIVANCES, WATER-ACTIVATED with burster, expelling charge or propelling charge
1.3L		0356	ARTICLES, EXPLOSIVE, N.O.S.
1.3L		0359	SUBSTANCES, EXPLOSIVE, N.O.S.
DIVISION 1.4			
1.4B		0350	ARTICLES, EXPLOSIVE, N.O.S.
1.4B		0383	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.4C		0351	ARTICLES, EXPLOSIVE, N.O.S.
1.4C		0479	SUBSTANCES, EXPLOSIVE, N.O.S.
1.4C		0501	PROPELLANT, SOLID
1.4D		0352	ARTICLES, EXPLOSIVE, N.O.S.
1.4D		0480	SUBSTANCES, EXPLOSIVE, N.O.S.
1.4E		0471	ARTICLES, EXPLOSIVE, N.O.S.
1.4F		0472	ARTICLES, EXPLOSIVE, N.O.S.
1.4G		0353	ARTICLES, EXPLOSIVE, N.O.S.
1.4G		0485	SUBSTANCES, EXPLOSIVE, N.O.S.
1.4S		0349	ARTICLES, EXPLOSIVE, N.O.S.
1.4S		0384	COMPONENTS, EXPLOSIVE TRAIN, N.O.S.
1.4S		0481	SUBSTANCES, EXPLOSIVE, N.O.S.
DIVISION 1.5			
1.5D		0482	SUBSTANCES, EXPLOSIVE, VERY INSENSITIVE (SUBSTANCES, EVI), N.O.S.
DIVISION 1.6			
1.6N		0486	ARTICLES, EXPLOSIVE, EXTREMELY INSENSITIVE (ARTICLES, EEI)
CLASS 2			
DIVISION 2.1			
Specific entries			
2.1		1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S.
2.1		1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.
2.1		3354	INSECTICIDE GAS, FLAMMABLE, N.O.S.
General entries			
2.1		3510	ADSORBED GAS, FLAMMABLE, N.O.S.
2.1		1954	COMPRESSED GAS, FLAMMABLE, N.O.S.
2.1		3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.
2.1		3167	GAS SAMPLE, NON-PRESSURISED, FLAMMABLE, N.O.S., not refrigerated liquid
2.1		3312	GAS, REFRIGERATED LIQUID, FLAMMABLE, N.O.S.
2.1		3501	CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S.
2.1	6.1	3504	CHEMICAL UNDER PRESSURE, FLAMMABLE, TOXIC, N.O.S.
2.1	8	3505	CHEMICAL UNDER PRESSURE, FLAMMABLE, CORROSIVE, N.O.S.
2.1	See 2.0.5.6	3537	ARTICLES CONTAINING FLAMMABLE GAS, N.O.S.

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)

Class or Division	Subsidiary Hazard	UN No.	Proper Shipping Name
DIVISION 2.2			
Specific entries			
2.2		1078	REFRIGERANT GAS, N.O.S.
2.2		1968	INSECTICIDE GAS, N.O.S.
General entries			
2.2		3511	ADSORBED GAS, N.O.S.
2.2		3513	ADSORBED GAS, OXIDISING, N.O.S.
2.2		1956	COMPRESSED GAS, N.O.S.
2.2		3163	LIQUEFIED GAS, N.O.S.
2.2		3158	GAS, REFRIGERATED LIQUID, N.O.S.
2.2	5.1	3156	COMPRESSED GAS, OXIDISING, N.O.S.
2.2	5.1	3157	LIQUEFIED GAS, OXIDISING, N.O.S.
2.2	5.1	3311	GAS, REFRIGERATED LIQUID, OXIDISING, N.O.S.
2.2	6.1	3502	CHEMICAL UNDER PRESSURE, TOXIC, N.O.S.
2.2	8	3503	CHEMICAL UNDER PRESSURE, CORROSIVE, N.O.S.
2.2	See 2.0.5.6	3538	ARTICLES CONTAINING NON-FLAMMABLE, NON TOXIC GAS, N.O.S.
DIVISION 2.3			
Specific entries			
2.3		1967	INSECTICIDE GAS, TOXIC, N.O.S.
2.3	2.1	3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.
General entries			
2.3		3516	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.
2.3		3517	ADSORBED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
2.3		3514	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.
2.3		3512	ADSORBED GAS, TOXIC N.O.S.
2.3		3518	ADSORBED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.
2.3		3515	ADSORBED GAS, TOXIC, OXIDISING, N.O.S.
2.3		1955	COMPRESSED GAS, TOXIC, N.O.S.
2.3		3162	LIQUEFIED GAS, TOXIC, N.O.S.
2.3		3169	GAS SAMPLE, NON-PRESSURISED, TOXIC, N.O.S., not refrigerated liquid
2.3	2.1	1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.
2.3	2.1	3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.
2.3	2.1	3168	GAS SAMPLE, NON-PRESSURISED, TOXIC, FLAMMABLE, N.O.S., not refrigerated liquid
2.3	2.1 + 8	3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
2.3	2.1 + 8	3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.
2.3	5.1	3303	COMPRESSED GAS, TOXIC, OXIDISING, N.O.S.
2.3	5.1	3307	LIQUEFIED GAS, TOXIC, OXIDISING, N.O.S.
2.3	5.1 + 8	3306	COMPRESSED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.
2.3	5.1 + 8	3310	LIQUEFIED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.
2.3	8	3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.
2.3	8	3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.
2.3	See 2.0.5.6	3539	ARTICLES CONTAINING TOXIC GAS, N.O.S.

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)

Class or Division	Subsidiary Hazard	UN No.	Proper Shipping Name
			CLASS 3
			Specific entries
3		1224	KETONES, LIQUID, N.O.S.
3		1268	PETROLEUM DISTILLATES, N.O.S. or PETROLEUM PRODUCTS, N.O.S.
3		1987	ALCOHOLS, N.O.S.
3		1989	ALDEHYDES, N.O.S.
3		2319	TERPENE HYDROCARBONS, N.O.S.
3		3271	ETHERS, N.O.S.
3		3272	ESTERS, N.O.S.
3		3295	HYDROCARBONS, LIQUID, N.O.S.
3		3336	MERCAPTANS, LIQUID, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.
3		3343	NITROGLYCERIN MIXTURE, DESENSITISED, LIQUID, FLAMMABLE, N.O.S. with not more than 30% nitroglycerin, by mass
3		3357	NITROGLYCERIN MIXTURE, DESENSITISED, LIQUID, N.O.S. with not more than 30% nitroglycerin, by mass
3	6.1	1228	MERCAPTANS, LIQUID, FLAMMABLE, TOXIC, N.O.S. or MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, TOXIC, N.O.S.
3	6.1	1986	ALCOHOLS, FLAMMABLE, TOXIC, N.O.S.
3	6.1	1988	ALDEHYDES, FLAMMABLE, TOXIC, N.O.S.
3	6.1	2478	ISOCYANATES, FLAMMABLE, TOXIC, N.O.S. or ISOCYANATE SOLUTION, FLAMMABLE, TOXIC, N.O.S.
3	6.1	3248	MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S.
3	6.1	3273	NITRILES, FLAMMABLE, TOXIC, N.O.S.
3	8	2733	AMINES, FLAMMABLE, CORROSIVE, N.O.S. or POLYAMINES, FLAMMABLE, CORROSIVE, N.O.S.
3	8	2985	CHLOROSILANES, FLAMMABLE, CORROSIVE, N.O.S.
3	8	3274	ALCOHOLATES SOLUTION, N.O.S., in alcohol
3		3379	DESENSITISED EXPLOSIVE, LIQUID, N.O.S.
			Pesticides
3	6.1	2758	CARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2760	ARSENICAL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2762	ORGANOCHLORINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2764	TRIAZINE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2772	THIOCARBAMATE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2776	COPPER BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2778	MERCURY BASED PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2780	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
3	6.1	2782	BIPYRIDILIUM PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2784	ORGANOPHOSPHORUS PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	2787	ORGANOTIN PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23 °C
3	6.1	3021	PESTICIDE, LIQUID, FLAMMABLE, TOXIC, N.O.S., flash point < 23°C
3	6.1	3024	COUMARIN DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	3346	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
3	6.1	3350	PYRETHROID PESTICIDE, LIQUID, FLAMMABLE, TOXIC, flash point < 23°C
General entries			
3		1993	FLAMMABLE LIQUID, N.O.S.
3		3256	ELEVATED TEMPERATURE LIQUID, FLAMMABLE, N.O.S., with flash point above 60°C, at or above its flash point
3	6.1	1992	FLAMMABLE LIQUID, TOXIC, N.O.S.
3	6.1 + 8	3286	FLAMMABLE LIQUID, TOXIC, CORROSIVE, N.O.S.
3	8	2924	FLAMMABLE LIQUID, CORROSIVE, N.O.S.
3	See 2.0.5.6	3540	ARTICLES CONTAINING FLAMMABLE LIQUID, N.O.S.
CLASS 4			
DIVISION 4.1			
Specific entries			
4.1		1353	FIBRES or FABRICS IMPREGNATED WITH WEAKLY NITRATED NITROCELLULOSE, N.O.S.
4.1		3089	METAL POWDER, FLAMMABLE, N.O.S.
4.1		3182	METAL HYDRIDES, FLAMMABLE, N.O.S.
4.1		3221	SELF-REACTIVE LIQUID TYPE B
4.1		3222	SELF-REACTIVE SOLID TYPE B
4.1		3223	SELF-REACTIVE LIQUID TYPE C
4.1		3224	SELF-REACTIVE SOLID TYPE C
4.1		3225	SELF-REACTIVE LIQUID TYPE D
4.1		3226	SELF-REACTIVE SOLID TYPE D
4.1		3227	SELF-REACTIVE LIQUID TYPE E
4.1		3228	SELF-REACTIVE SOLID TYPE E
4.1		3229	SELF-REACTIVE LIQUID TYPE F
4.1		3230	SELF-REACTIVE SOLID TYPE F
4.1		3231	SELF-REACTIVE LIQUID TYPE B, TEMPERATURE CONTROLLED
4.1		3232	SELF-REACTIVE SOLID TYPE B, TEMPERATURE CONTROLLED
4.1		3233	SELF-REACTIVE LIQUID TYPE C, TEMPERATURE CONTROLLED
4.1		3234	SELF-REACTIVE SOLID TYPE C, TEMPERATURE CONTROLLED
4.1		3235	SELF-REACTIVE LIQUID TYPE D, TEMPERATURE CONTROLLED
4.1		3236	SELF-REACTIVE SOLID TYPE D, TEMPERATURE CONTROLLED

Table 3.3			LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
4.1		3237	SELF-REACTIVE LIQUID TYPE E, TEMPERATURE CONTROLLED
4.1		3238	SELF-REACTIVE SOLID TYPE E, TEMPERATURE CONTROLLED
4.1		3239	SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED
4.1		3240	SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED
4.1		3319	NITROGLYCERIN MIXTURE, DESENSITISED, SOLID, N.O.S. with more than 2% but not more than 10% nitroglycerin, by mass
4.1		3344	PENTAERYTHRITE TETRANITRATE MIXTURE, DESENSITISED, SOLID, N.O.S. with more than 10% but not more than 20% PETN, by mass
4.1		3380	DESENSITISED EXPLOSIVE, SOLID, N.O.S.
			General entries
4.1		1325	FLAMMABLE SOLID, ORGANIC, N.O.S.
4.1		3175	SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S.
4.1		3176	FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S.
4.1		3178	FLAMMABLE SOLID, INORGANIC, N.O.S.
4.1		3181	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S.
4.1	5.1	3097	FLAMMABLE SOLID, OXIDISING, N.O.S.
4.1	6.1	2926	FLAMMABLE SOLID, TOXIC, ORGANIC, N.O.S.
4.1	6.1	3179	FLAMMABLE SOLID, TOXIC, INORGANIC, N.O.S.
4.1	8	2925	FLAMMABLE SOLID, CORROSIVE, ORGANIC, N.O.S.
4.1	8	3180	FLAMMABLE SOLID, CORROSIVE, INORGANIC, N.O.S.
4.1	See 2.0.5.6	3541	ARTICLES CONTAINING FLAMMABLE LIQUID, N.O.S.
			DIVISION 4.2
			Specific entries
4.2		1373	FIBRES or FABRICS, ANIMAL or VEGETABLE or SYNTHETIC, N.O.S., with oil
4.2		1378	METAL CATALYST, WETTED with a visible excess of liquid
4.2		1383	PYROPHORIC METAL, N.O.S. or PYROPHORIC ALLOY, N.O.S.
4.2		2006	PLASTICS, NITROCELLULOSE-BASED, SELF-HEATING, N.O.S.
4.2		2881	METAL CATALYST, DRY
4.2		3189	METAL POWDER, SELF-HEATING, N.O.S.
4.2		3205	ALKALINE EARTH METAL ALCOHOLATES, N.O.S.
4.2		3313	ORGANIC PIGMENTS, SELF-HEATING
4.2		3342	XANTHATES
4.2		3391	ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC
4.2		3392	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC
4.2		3400	ORGANOMETALLIC SUBSTANCE, SOLID, SELF-HEATING
4.2	4.3	3393	ORGANOMETALLIC SUBSTANCE, SOLID, PYROPHORIC, WATER REACTIVE
4.2	4.3	3394	ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER REACTIVE
4.2	8	3206	ALKALI METAL ALCOHOLATES, SELF-HEATING, CORROSIVE, N.O.S.
			General entries
4.2		2845	PYROPHORIC LIQUID, ORGANIC, N.O.S.
4.2		2846	PYROPHORIC SOLID, ORGANIC, N.O.S.
4.2		3088	SELF-HEATING SOLID, ORGANIC, N.O.S.

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
4.2		3183	SELF-HEATING LIQUID, ORGANIC, N.O.S.
4.2		3186	SELF-HEATING LIQUID, INORGANIC, N.O.S.
4.2		3190	SELF-HEATING SOLID, INORGANIC, N.O.S.
4.2		3194	PYROPHORIC LIQUID, INORGANIC, N.O.S.
4.2		3200	PYROPHORIC SOLID, INORGANIC, N.O.S.
4.2	5.1	3127	SELF-HEATING SOLID, OXIDISING, N.O.S.
4.2	6.1	3128	SELF-HEATING SOLID, TOXIC, ORGANIC, N.O.S.
4.2	6.1	3184	SELF-HEATING LIQUID, TOXIC, ORGANIC, N.O.S.
4.2	6.1	3187	SELF-HEATING LIQUID, TOXIC, INORGANIC, N.O.S.
4.2	6.1	3191	SELF-HEATING SOLID, TOXIC, INORGANIC, N.O.S.
4.2	8	3126	SELF-HEATING SOLID, CORROSIVE, ORGANIC, N.O.S.
4.2	8	3185	SELF-HEATING LIQUID, CORROSIVE, ORGANIC, N.O.S.
4.2	8	3188	SELF-HEATING LIQUID, CORROSIVE, INORGANIC, N.O.S.
4.2	8	3192	SELF-HEATING SOLID, CORROSIVE, INORGANIC, N.O.S.
4.2	See 2.0.5.6	3542	ARTICLES CONTAINING A SUBSTANCE LIABLE TO SPONTANEOUS COMBUSTION, N.O.S.
DIVISION 4.3			
Specific entries			
4.3		1389	ALKALI METAL AMALGAM, LIQUID
4.3		1390	ALKALI METAL AMIDES
4.3		1391	ALKALI METAL DISPERSION or ALKALI EARTH METAL DISPERSION
4.3		1392	ALKALINE EARTH METAL AMALGAM, LIQUID
4.3		1393	ALKALINE EARTH METAL ALLOY, N.O.S.
4.3		1409	METAL HYDRIDES, WATER-REACTIVE, N.O.S.
4.3		1421	ALKALI METAL ALLOY, LIQUID, N.O.S.
4.3		3208	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S.
4.3		3395	ORGANOMETALLIC SUBSTANCE, SOLID, WATER REACTIVE
4.3		3398	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE
4.3		3399	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE
4.3		3401	ALKALI METAL AMALGAM, SOLID
4.3		3402	ALKALINE EARTH METAL AMALGAM, SOLID
4.3	3	3399	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER REACTIVE, FLAMMABLE
4.3	3	3482	ALKALI METAL DISPERSIOON, FLAMMABLE or ALKALINE EARTH METAL DISPERSION, FLAMMABLE
4.3	3 + 8	2988	CHLOROSILANES, WATER-REACTIVE, FLAMMABLE, CORROSIVE, N.O.S.
4.3	4.1	3396	ORGANOMETALLIC SUBSTANCE, SOLID, WATER REACTIVE, FLAMMABLE
4.3	4.2	3209	METALLIC SUBSTANCE, WATER-REACTIVE, SELF-HEATING, N.O.S.
4.3	4.2	3397	ORGANOMETALLIC SUBSTANCE, SOLID, WATER REACTIVE, SELF-HEATING
General entries			
4.3		3148	WATER-REACTIVE LIQUID, N.O.S.

Table 3.3	LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)		
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
4.3		2813	WATER-REACTIVE SOLID, N.O.S.
4.3	4.1	3132	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S.
4.3	4.2	3135	WATER-REACTIVE SOLID, SELF-HEATING, N.O.S.
4.3	5.1	3133	WATER-REACTIVE SOLID, OXIDISING, N.O.S.
4.3	6.1	3130	WATER-REACTIVE LIQUID, TOXIC, N.O.S.
4.3	6.1	3134	WATER-REACTIVE SOLID, TOXIC, N.O.S.
4.3	8	3129	WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
4.3	8	3131	WATER-REACTIVE SOLID, CORROSIVE, N.O.S.
4.3	See 2.0.5.6	3543	ARTICLES CONTAINING A SUBSTANCE WHICH IN CONTACT WITH WATER EMITS FLAMMABLE GASES, N.O.S.
CLASS 5			
DIVISION 5.1			
Specific entries			
5.1		1450	BROMATES, INORGANIC, N.O.S.
5.1		1461	CHLORATES, INORGANIC, N.O.S.
5.1		1462	CHLORITES, INORGANIC, N.O.S.
5.1		1477	NITRATES, INORGANIC, N.O.S.
5.1		1481	PERCHLORATES, INORGANIC, N.O.S.
5.1		1482	PERMANGANATES, INORGANIC, N.O.S.
5.1		1483	PEROXIDES, INORGANIC, N.O.S.
5.1		2627	NITRITES, INORGANIC, N.O.S.
5.1		3210	CHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		3211	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		3212	HYPOCHLORITES, INORGANIC, N.O.S.
5.1		3213	BROMATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		3214	PERMANGANATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		3215	PERSULPHATES, INORGANIC, N.O.S.
5.1		3216	PERSULPHATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		3218	NITRATES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		3219	NITRITES, INORGANIC, AQUEOUS SOLUTION, N.O.S.
5.1		1479	OXIDISING SOLID, N.O.S.
5.1		3139	OXIDISING LIQUID, N.O.S.
5.1	4.1	3137	OXIDISING SOLID, FLAMMABLE, N.O.S.
5.1	4.2	3100	OXIDISING SOLID, SELF-HEATING, N.O.S.
5.1	4.3	3121	OXIDISING SOLID, WATER-REACTIVE, N.O.S.
5.1	6.1	3087	OXIDISING SOLID, TOXIC, N.O.S.
5.1	6.1	3099	OXIDISING LIQUID, TOXIC, N.O.S.
5.1	8	3085	OXIDISING SOLID, CORROSIVE, N.O.S.
5.1	8	3098	OXIDISING LIQUID, CORROSIVE, N.O.S.
5.1	See 2.0.5.6	3544	ARTICLES CONTAINING OXIDIZING SUBSTANCE, N.O.S.
DIVISION 5.2			
Specific entries			
5.2		3101	ORGANIC PEROXIDE TYPE B, LIQUID
5.2		3102	ORGANIC PEROXIDE TYPE B, SOLID

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
5.2		3103	ORGANIC PEROXIDE TYPE C, LIQUID
5.2		3104	ORGANIC PEROXIDE TYPE C, SOLID
5.2		3105	ORGANIC PEROXIDE TYPE D, LIQUID
5.2		3106	ORGANIC PEROXIDE TYPE D, SOLID
5.2		3107	ORGANIC PEROXIDE TYPE E, LIQUID
5.2		3108	ORGANIC PEROXIDE TYPE E, SOLID
5.2		3109	ORGANIC PEROXIDE TYPE F, LIQUID
5.2		3110	ORGANIC PEROXIDE TYPE F, SOLID
5.2		3111	ORGANIC PEROXIDE TYPE B, LIQUID, TEMPERATURE CONTROLLED
5.2		3112	ORGANIC PEROXIDE TYPE B, SOLID, TEMPERATURE CONTROLLED
5.2		3113	ORGANIC PEROXIDE TYPE C, LIQUID, TEMPERATURE CONTROLLED
5.2		3114	ORGANIC PEROXIDE TYPE C, SOLID, TEMPERATURE CONTROLLED
5.2		3115	ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED
5.2		3116	ORGANIC PEROXIDE TYPE D, SOLID, TEMPERATURE CONTROLLED
5.2		3117	ORGANIC PEROXIDE TYPE E, LIQUID, TEMPERATURE CONTROLLED
5.2		3118	ORGANIC PEROXIDE TYPE E, SOLID, TEMPERATURE CONTROLLED
5.2		3119	ORGANIC PEROXIDE TYPE F, LIQUID, TEMPERATURE CONTROLLED
5.2		3120	ORGANIC PEROXIDE TYPE F, SOLID, TEMPERATURE CONTROLLED
			General entries
5.2	See 2.0.5.6	3545	ARTICLES CONTAINING ORGANIC PEROXIDE, N.O.S.
CLASS 6			
DIVISION 6.1			
Specific entries			
6.1		1544	ALKALOIDS, SOLID, N.O.S. or ALKALOID SALTS, SOLID, N.O.S.
6.1		1549	ANTIMONY COMPOUND, INORGANIC, SOLID, N.O.S.
6.1		1556	ARSENIC COMPOUND, LIQUID, N.O.S.
6.1		1557	ARSENIC COMPOUND, SOLID, N.O.S.
6.1		1564	BARIUM COMPOUND, N.O.S.
6.1		1566	BERYLLIUM COMPOUND, N.O.S.
6.1		1583	CHLOROPICRIN MIXTURE, N.O.S.
6.1		1588	CYANIDES, INORGANIC, SOLID, N.O.S.
6.1		1601	DISINFECTANT, SOLID, TOXIC, N.O.S.
6.1		1602	DYE, LIQUID, TOXIC, N.O.S. or DYE INTERMEDIATE, LIQUID, TOXIC, N.O.S.
6.1		1655	NICOTINE COMPOUND, SOLID, N.O.S. or NICOTINE PREPARATION, SOLID, N.O.S.
6.1		1693	TEAR GAS SUBSTANCE, LIQUID, N.O.S.
6.1		1707	THALLIUM COMPOUND, N.O.S.
6.1		1851	MEDICINE, LIQUID, TOXIC, N.O.S.
6.1		1935	CYANIDE SOLUTION, N.O.S.
6.1		2024	MERCURY COMPOUND, LIQUID, N.O.S.
6.1		2025	MERCURY COMPOUND, SOLID, N.O.S.
6.1		2026	PHENYLMERCURIC COMPOUND, N.O.S.

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)

Class or Division	Subsidiary Hazard	UN No.	Proper Shipping Name
6.1		2206	ISOCYANATES, TOXIC, N.O.S. or ISOCYANATE SOLUTION, TOXIC, N.O.S.
6.1		2291	LEAD COMPOUND, SOLUBLE, N.O.S.
6.1		2570	CADMIUM COMPOUND
6.1		2788	ORGANOTIN COMPOUND, LIQUID, N.O.S.
6.1		2856	FLUOROSILICATES, N.O.S.
6.1		3140	ALKALOIDS, LIQUID, N.O.S. or ALKALOID SALTS, LIQUID, N.O.S.
6.1		3141	ANTIMONY COMPOUND, INORGANIC, LIQUID, N.O.S.
6.1		3142	DISINFECTANT, LIQUID, TOXIC, N.O.S.
6.1		3143	DYE, SOLID, TOXIC, N.O.S. or DYE INTERMEDIATE, SOLID, TOXIC, N.O.S.
6.1		3144	NICOTINE COMPOUND, LIQUID, N.O.S. or NICOTINE PREPARATION, LIQUID, N.O.S.
6.1		3146	ORGANOTIN COMPOUND, SOLID, N.O.S.
6.1		3249	MEDICINE, SOLID, TOXIC, N.O.S.
6.1		3276	NITRILES, TOXIC, LIQUID, N.O.S.
6.1		3278	ORGANOPHOSPHORUS COMPOUND, TOXIC, LIQUID, N.O.S.
6.1		3280	ORGANOARSENIC COMPOUND LIQUID, N.O.S.
6.1		3281	METAL CARBONYLS LIQUID, N.O.S.
6.1		3282	ORGANOMETALLIC COMPOUND, TOXIC, LIQUID, N.O.S.
6.1		3283	SELENIUM COMPOUND, SOLID, N.O.S.
6.1		3284	TELLURIUM COMPOUND, N.O.S.
6.1		3285	VANADIUM COMPOUND, N.O.S.
6.1		3439	NITRILES, TOXIC, SOLID, N.O.S.
6.1		3440	SELENIUM COMPOUND, LIQUID, N.O.S.
6.1		3448	TEAR GAS SUBSTANCE, SOLID, N.O.S.
6.1		3464	ORGANOPHOSPHORUS COMPOUND, TOXIC, SOLID, N.O.S.
6.1		3465	ORGANOARSENIC COMPOUND SOLID, N.O.S.
6.1		3466	METAL CARBONYLS LIQUID, N.O.S.
6.1		3467	ORGANOMETALLIC COMPOUND, TOXIC, SOLID, N.O.S.
6.1	3	3071	MERCAPTANS, LIQUID, TOXIC, FLAMMABLE, N.O.S. or MERCAPTAN MIXTURE, LIQUID, TOXIC, FLAMMABLE, N.O.S.
6.1	3	3080	ISOCYANATES, TOXIC, FLAMMABLE, N.O.S. or ISOCYANATE SOLUTION, TOXIC, FLAMMABLE, N.O.S.
6.1	3	3275	NITRILES, TOXIC, FLAMMABLE, N.O.S.
6.1	3	3279	ORGANOPHOSPHORUS COMPOUND, TOXIC, FLAMMABLE, N.O.S.
6.1	3 + 8	2742	CHLOROFORMATES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.
6.1	3 + 8	3362	CLOROSILANES, TOXIC, CORROSIVE, FLAMMABLE, N.O.S.
6.1	8	3277	CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S.
6.1	8	3361	CLOROSILANES, TOXIC, CORROSIVE, N.O.S.
Pesticides (a) Solid			
6.1		2588	PESTICIDE, SOLID, TOXIC, N.O.S.
6.1		2757	CARBAMATE PESTICIDE, SOLID, TOXIC
6.1		2759	ARSENICAL PESTICIDE, SOLID, TOXIC
6.1		2761	ORGANOCHLORINE PESTICIDE, SOLID, TOXIC

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
6.1		2763	TRIAZINE PESTICIDE, SOLID, TOXIC
6.1		2771	THIOCARBAMATE PESTICIDE, SOLID, TOXIC
6.1		2775	COPPER BASED PESTICIDE, SOLID, TOXIC
6.1		2777	MERCURY BASED PESTICIDE, SOLID, TOXIC
6.1		2779	SUBSTITUTED NITROPHENOL PESTICIDE, SOLID, TOXIC
6.1		2781	BIPYRIDILIUM PESTICIDE, SOLID, TOXIC
6.1		2783	ORGANOPHOSPHORUS PESTICIDE, SOLID, TOXIC
6.1		2786	ORGANOTIN PESTICIDE, SOLID, TOXIC
6.1		3027	COUMARIN DERIVATIVE PESTICIDE, SOLID, TOXIC
6.1		3345	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, SOLID, TOXIC
6.1		3349	PYRETHROID PESTICIDE, SOLID, TOXIC
Pesticides (b) Liquid			
6.1		2902	PESTICIDE, LIQUID, TOXIC, N.O.S.
6.1		2992	CARBAMATE PESTICIDE, LIQUID, TOXIC
6.1		2994	ARSENICAL PESTICIDE, LIQUID, TOXIC
6.1		2996	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC
6.1		2998	TRIAZINE PESTICIDE, LIQUID, TOXIC
6.1		3006	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC
6.1		3010	COPPER BASED PESTICIDE, LIQUID, TOXIC
6.1		3012	MERCURY BASED PESTICIDE, LIQUID, TOXIC
6.1		3014	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC
6.1		3016	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC
6.1		3018	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC
6.1		3020	ORGANOTIN PESTICIDE, LIQUID, TOXIC
6.1		3026	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC
6.1		3348	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC
6.1		3352	PYRETHROID PESTICIDE, LIQUID, TOXIC
6.1	3	2903	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S., flash point ≥ 23°C
6.1	3	2991	CARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	2993	ARSENICAL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	2995	ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	2997	TRIAZINE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3005	THIOCARBAMATE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3009	COPPER BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3011	MERCURY BASED PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3013	SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3015	BIPYRIDILIUM PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
6.1	3	3017	ORGANOPHOSPHORUS PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3019	ORGANOTIN PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3025	COUMARIN DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1	3	3347	PHENOXYACETIC ACID DERIVATIVE PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23°C
6.1		3351	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, flash point ≥ 23 °C
General entries			
6.1		2810	TOXIC LIQUID, ORGANIC, N.O.S.
6.1		2811	TOXIC SOLID, ORGANIC, N.O.S.
6.1		3172	TOXINS, EXTRACTED FROM LIVING SOURCES, LIQUID, N.O.S.
6.1		3243	SOLIDS CONTAINING TOXIC LIQUID, N.O.S.
6.1		3287	TOXIC LIQUID, INORGANIC, N.O.S.
6.1		3288	TOXIC SOLID, INORGANIC, N.O.S.
6.1		3315	CHEMICAL SAMPLE, TOXIC
6.1		3381	TOXIC BY INHALATION LIQUID, N.O.S. with an inhalation toxicity lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}
6.1		3382	TOXIC BY INHALATION LIQUID, N.O.S. with an inhalation toxicity lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}
6.1		3462	TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.
6.1	3	2929	TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.
6.1	3	3383	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}
6.1	3	3384	TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}
6.1	3 + 8	3488	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}
6.1	3 + 8	3489	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}
6.1	4.1	2930	TOXIC SOLID, FLAMMABLE, ORGANIC, N.O.S.
6.1	4.1	3535	TOXIC SOLID, FLAMMABLE, INORGANIC, N.O.S.
6.1	4.2	3124	TOXIC SOLID, SELF-HEATING, N.O.S.
6.1	4.3	3123	TOXIC LIQUID, WATER-REACTIVE, N.O.S.

Table 3.3	LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)		
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
6.1	4.3	3125	TOXIC SOLID, WATER-REACTIVE, N.O.S.
6.1	4.3	3385	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}
6.1	4.3	3386	TOXIC BY INHALATION LIQUID, WATER-REACTIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}
6.1	5.1	3122	TOXIC LIQUID, OXIDISING, N.O.S.
6.1	5.1	3086	TOXIC SOLID, OXIDISING, N.O.S.
6.1	5.1	3387	TOXIC BY INHALATION LIQUID, OXIDISING, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}
6.1	5.1	3388	TOXIC BY INHALATION LIQUID, OXIDISING, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}
6.1	8	2927	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.
6.1	8	2928	TOXIC SOLID, CORROSIVE, ORGANIC, N.O.S.
6.1	8	3289	TOXIC LIQUID, CORROSIVE, INORGANIC, N.O.S.
6.1	8	3290	TOXIC SOLID, CORROSIVE, INORGANIC, N.O.S.
6.1	8	3389	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 200 ml/m^3 and saturated vapour concentration greater than or equal to 500 LC_{50}
6.1	8	3390	TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC_{50} lower than or equal to 1000 ml/m^3 and saturated vapour concentration greater than or equal to 10 LC_{50}
6.1	See 2.0.5.6	3546	ARTICLES CONTAINING TOXIC SUBSTANCE, N.O.S.
DIVISION 6.2			
Specific entries			
6.2		3291	CLINICAL WASTE, UNSPECIFIED, N.O.S. or (BIO) MEDICAL WASTE, N.O.S. or REGULATED MEDICAL WASTE, N.O.S.
6.2		3373	BIOLOGICAL SUBSTANCE, CATEGORY B
6.2		3549	MEDICAL WASTE, CATEGORY A, AFFECTING HUMANS, solid
6.2		3549	MEDICAL WASTE, CATEGORY A, AFFECTING ANIMALS only, solid
General entries			
6.2		2814	INFECTIOUS SUBSTANCE, AFFECTING HUMANS
6.2		2900	INFECTIOUS SUBSTANCE, AFFECTING ANIMALS only
CLASS 7			
General entries			
7		2908	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – EMPTY PACKAGING

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
7		2909	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – ARTICLES MANUFACTURED FROM NATURAL URANIUM or DEPLETED URANIUM or NATURAL THORIUM
7		2910	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE – LIMITED QUANTITY OF MATERIAL
7		2911	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE -INSTRUMENTS or ARTICLES
7		2912	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non-fissile or fissile-excepted
7		2913	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), non-fissile or fissile-excepted
7		2915	RADIOACTIVE MATERIAL, TYPE A PACKAGE, non-special form, non-fissile or fissile-excepted
7		2916	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, non-fissile or fissile-excepted
7		2917	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, non-fissile or fissile-excepted
7		2919	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, non-fissile or fissile-excepted
7		3321	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), non-fissile or fissile-excepted
7		3322	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), non-fissile or fissile-excepted
7		3323	RADIOACTIVE MATERIAL, TYPE C PACKAGE, non-fissile or fissile-excepted
7		3324	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), FISSILE
7		3325	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-III), FISSILE
7		3326	RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I or SCO-II), FISSILE
7		3327	RADIOACTIVE MATERIAL, TYPE A PACKAGE, FISSILE, non-special form
7		3328	RADIOACTIVE MATERIAL, TYPE B(U) PACKAGE, FISSILE
7		3329	RADIOACTIVE MATERIAL, TYPE B(M) PACKAGE, FISSILE
7		3330	RADIOACTIVE MATERIAL, TYPE C PACKAGE, FISSILE
7		3331	RADIOACTIVE MATERIAL, TRANSPORTED UNDER SPECIAL ARRANGEMENT, FISSILE
7		3332	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, non-fissile or fissile-excepted
7		3333	RADIOACTIVE MATERIAL, TYPE A PACKAGE, SPECIAL FORM, FISSILE

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES *(cont.)* (see 3.2.6.3)

Class or Division	Subsidiary Hazard	UN No.	Proper Shipping Name
			CLASS 8
			Specific entries
8		1719	CAUSTIC ALKALI LIQUID, N.O.S.
8		1740	HYDROGENDIFLUORIDES, N.O.S.
8		1903	DISINFECTANT, LIQUID, CORROSIVE, N.O.S.
8		2430	ALKYLPHENOLS, SOLID, N.O.S. (including C_2-C_{12} homologues)
8		2693	BISULPHITES, AQUEOUS SOLUTION, N.O.S.
8		2735	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
8		2801	DYE, LIQUID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, LIQUID, CORROSIVE, N.O.S.
8		2837	BISULPHATES, AQUEOUS SOLUTION
8		2987	CHLOROSILANES, CORROSIVE, N.O.S.
8		3145	ALKYLPHENOLS, LIQUID, N.O.S. (including C_2-C_{12} homologues)
8		3147	DYE, SOLID, CORROSIVE, N.O.S. or DYE INTERMEDIATE, SOLID, CORROSIVE, N.O.S.
8		3259	AMINES, SOLID, CORROSIVE, N.O.S. or POLYAMINES, SOLID, CORROSIVE, N.O.S.
8	3	2734	AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.
8	3	2986	CHLOROSILANES, CORROSIVE, FLAMMABLE, N.O.S.
8	6.1	3471	HYDROGENDIFLUORIDES SOLUTION, N.O.S.
			General entries
8		1759	CORROSIVE SOLID, N.O.S.
8		1760	CORROSIVE LIQUID, N.O.S.
8		3244	SOLIDS CONTAINING CORROSIVE LIQUID, N.O.S.
8		3260	CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
8		3261	CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S.
8		3262	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.
8		3263	CORROSIVE SOLID, BASIC, ORGANIC, N.O.S.
8		3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
8		3265	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
8		3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.
8		3267	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
8	3	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
8	4.1	2921	CORROSIVE SOLID, FLAMMABLE, N.O.S.
8	4.2	3095	CORROSIVE SOLID, SELF-HEATING, N.O.S.
8	4.2	3301	CORROSIVE LIQUID, SELF-HEATING, N.O.S.
8	4.3	3094	CORROSIVE LIQUID, WATER-REACTIVE, N.O.S.
8	4.3	3096	CORROSIVE SOLID, WATER-REACTIVE, N.O.S.
8	5.1	3084	CORROSIVE SOLID, OXIDISING, N.O.S.
8	5.1	3093	CORROSIVE LIQUID, OXIDISING, N.O.S.
8	6.1	2922	CORROSIVE LIQUID, TOXIC, N.O.S.
8	6.1	2923	CORROSIVE SOLID, TOXIC, N.O.S.
8	See 2.0.5.6	3547	ARTICLES CONTAINING CORROSIVE SUBSTANCE, N.O.S.

Table 3.3 LIST OF GENERIC AND N.O.S. PROPER SHIPPING NAMES *(cont.)* (see 3.2.6.3)			
Class or Division	**Subsidiary Hazard**	**UN No.**	**Proper Shipping Name**
CLASS 9			
General entries			
9		3077	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
9		3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
9		3245	GENETICALLY MODIFIED MICROORGANISMS or GENETICALLY MODIFIED ORGANISMS
9		3257	ELEVATED TEMPERATURE LIQUID, N.O.S., at or above 100°C and below its flash point (including molten metals, molten salts, etc.)
9		3258	ELEVATED TEMPERATURE SOLID, N.O.S., at or above 240°C
9		3334	AVIATION REGULATED LIQUID, N.O.S.
9		3335	AVIATION REGULATED SOLID, N.O.S.
9	See 2.0.5.6	3548	ARTICLES CONTAINING MISCELLANEOUS DANGEROUS GOODS, N.O.S.

CHAPTER 3.3 - SPECIAL PROVISIONS APPLICABLE TO CERTAIN ARTICLES OR SUBSTANCES

3.3.1 INTRODUCTION

When Column 6 of the Dangerous Goods List indicates that a special provision is relevant to a substance or article, the meaning and requirements of that special provision are as set forth below. Where a special provision includes a requirement for package marking, the provisions of 5.2.1.2 (a) to (d) shall be met. If the required mark is in the form of specific wording indicated in quotation marks, such as 'LITHIUM BATTERIES FOR DISPOSAL, the size of the mark shall be at least 12 mm, unless otherwise indicated in the special provision or elsewhere in this Code.

3.3.2 UN SPECIAL PROVISIONS

The Special Provisions in this Section 3.3.2 are sourced from UN15 (as amended by UN16, UN17, UN18, UN19 and UN20) and, except as otherwise indicated, are therefore applicable to international transport as well as transport within Australia.

SP No.

16 Samples of new or existing explosive substances or articles may be transported as directed by the competent authorities for purposes including: testing, classification, research and development, quality control, or as a commercial sample. Explosive samples which are not wetted or desensitised must be limited to 10 kg in small packages as specified by the competent authorities. Explosive samples which are wetted or desensitised must be limited to 25 kg.

23 Even though this substance has a flammability hazard, it only exhibits such hazard under extreme fire conditions in confined areas.

26 This substance is not permitted for transport in portable tanks, or intermediate bulk containers with a capacity exceeding 450 litres, due to potential initiation of explosion when transported in large volumes.

28 This substance may be transported under the provisions of Division 4.1 only if it is so packed that the percentage of diluent will not fall below that stated, at any time during transport (see 2.4.2.4).

29 This substance is exempt from labelling, but must be marked with the appropriate Class or division.

32 This substance is not subject to this Code when in any other form.

37 This substance is not subject to this Code when coated.

38 This substance is not subject to this Code when it contains not more than 0.1% calcium carbide.

39 This substance is not subject to this Code when it contains less than 30% or not less than 90% silicon.

43 When offered for carriage as pesticides, these substances must be carried under the relevant pesticide entry and in accordance with the relevant pesticide provisions (see 2.6.2.3 and 2.6.2.4).

45 Antimony sulphides and oxides which contain not more than 0.5% of arsenic calculated on the total weight are not subject to this Code.

47 Ferricyanides and ferrocyanides are not subject to this Code.

48 The transport of this substance, when it contains more than 20% hydrocyanic acid, is prohibited except with special authorisation granted by the competent authorities.

59 These substances are not subject to this Code when they contain not more than 50% magnesium.

60 If the concentration is more than 72%, the transport of this substance is prohibited except with special authorisation granted by the competent authorities.

61 The technical name which must supplement the proper shipping name must be the ISO common name, other name listed in the WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification or the name of the active substance (see also 3.1.2.8.1.1).

62 This substance is not subject to this Code when it contains not more than 4% sodium hydroxide.

63 The division of Class 2 and the subsidiary hazards depend on the nature of the contents of the aerosol dispenser. The following provisions apply:

(a) Division 2.1 applies if the contents include 85% by mass or more flammable components and the chemical heat of combustion is 30 kJ/g or more;

(b) Division 2.2 applies if the contents contain 1% by mass or less flammable components and the heat of combustion is less than 20 J/g;

(c) Otherwise the product must be classified as tested by the tests described in the Manual of Tests and Criteria, Part III, section 31. Extremely flammable and flammable aerosols must be classified in Division 2.1; non-flammable in Division 2.2;

(d) Gases of Division 2.3 must not be used as a propellant in an aerosol dispenser;

(e) Where the contents other than the propellant of aerosol dispensers to be ejected are classified as Division 6.1 packing groups II or III or Class 8 packing groups II or III, the aerosol will have a subsidiary hazard of Division 6.1 or Class 8;

(f) Aerosols with contents meeting the criteria for packing group I for toxicity or corrosivity are prohibited from transport;

(g) Subsidiary hazard labels may be required for air transport. Flammable components are flammable liquids, flammable solids or flammable gases and gas mixtures as defined in Notes 1 to 3 of sub-section 31.1.3 of Part III of the Manual of Tests and Criteria. This designation does not cover pyrophoric, self-heating or water-reactive substances. The chemical heat of combustion must be determined by one of the following methods ASTM D 240, ISO/FDIS 13943: 1999 (E/F) 86.1 to 86.3 or NFPA 30B.

65 Hydrogen peroxide aqueous solutions with less than 8% hydrogen peroxide are not subject to this Code.

66 Cinnabar is not subject to this Code.

103 Ammonium nitrites and mixtures of an inorganic nitrite with an ammonium salt are prohibited.

105 Nitrocellulose meeting the descriptions of UN 2556 or UN 2557 may be classified in Division 4.1.

106 Not subject to this Code. Dangerous Goods only when transported by air.

113 The carriage of chemically unstable mixtures is prohibited.

117 Not subject to this Code. Dangerous Goods only when transported by sea.

119 Refrigerating machines include machines or other appliances which have been designed for the specific purpose of keeping food or other items at a low temperature in an internal compartment, and air conditioning units. Refrigerating machines and refrigerating machine components are not subject to this Code if they contain less than 12 kg of gas in Division 2.2 or less than 12 litres ammonia solution (UN 2672).

122 The subsidiary hazard, control and emergency temperatures if any, and the generic entry number for each of the currently assigned organic peroxide formulations are given in 2.5.3.2.4, 4.1.4.2 packing instruction IBC520 and 4.2.5.2.6 portable tank instruction T23.

123 Not subject to this Code. This entry in the Dangerous Goods List applies only when transported by air or sea.

127 Other inert material or inert material mixture may be used at the discretion of the competent authority, provided this inert material has identical phlegmatising properties.

131 The phlegmatised substance must be significantly less sensitive than dry PETN.

132 During the course of transport, this substance must be protected from direct sunshine and stored (or kept) in a cool and well-ventilated place, away from all sources of heat.

133 If over-confined in packagings, this substance may exhibit explosive behaviour. Packagings authorised under packing instruction P409 are intended to prevent over-confinement. When a packaging other than those prescribed under packing instruction P409 is authorised by the competent authority of the country/state of origin in accordance with 4.1.3.7, the package must bear an “EXPLOSIVE” subsidiary hazard label (Model No.1, see 5.2.2.2.2) unless the competent authority of the country/state of origin has permitted this label to be dispensed with for the specific packaging employed because test data have proved that the substance in this packaging does not exhibit explosive behaviour (see 11.1.2.3.4.1). The provisions of 7.1.3.1 of UN20 must also be then considered.

135 The dihydrated sodium salt of dichloroisocyanuric acid does not meet the criteria for inclusion in Division 5.1 and is not subject to this Code unless meeting the criteria for inclusion in another Class or Division.

138 p Bromobenzyl cyanide is not subject to this Code.

141 Products which have undergone sufficient heat treatment so that they present no hazard during transport are not subject to this Code.

142 Solvent extracted soya bean meal containing not more than 1.5% oil and 11% moisture, which is substantially free of flammable solvent, is not subject to this Code.

144 An aqueous solution containing not more than 24% alcohol by volume is not subject to this Code.

145 Other than for air transport, alcoholic beverages of packing group III, when carried in receptacles of 250 litres or less, are not subject to this Code.

146 Other than for air and sea transport, alcoholic beverages of packing group II, when carried in receptacles of 5 litres or less, are not subject to this Code.

152 The classification of this substance will vary with particle size and packaging, but borderlines have not been experimentally determined. Appropriate classifications must be made as required by 2.1.3.

153 This entry applies only if it is demonstrated, on the basis of tests, that the substances, when in contact with water are not combustible nor show a tendency to auto-ignition and that the mixture of gases evolved is not flammable.

163 A substance specifically listed by name in the list of dangerous goods must not be transported under this entry. Materials transported under this entry may contain 20% or less nitrocellulose provided the nitrocellulose contains not more than 12.6% nitrogen (by dry mass).

168 Asbestos which is immersed or fixed in a natural or artificial binder (such as cement, plastics, asphalt, resins or mineral ore) in such a way that no escape of hazardous quantities of respirable asbestos fibres can occur during transport is not subject to this Code. Manufactured articles containing asbestos and not meeting this provision are nevertheless not subject to this Code when packed so that no escape of hazardous quantities of respirable asbestos fibres can occur during transport.

169 Phthalic anhydride in the solid state and tetrahydrophthalic anhydrides, with not more than 0.05% maleic anhydride, are not subject to this Code. Phthalic anhydride molten at a temperature above its flash point, with not more than 0.05% maleic anhydride, must be classified under UN 3256.

172 Where a radioactive material has a subsidiary hazard(s):

(a) The substance must be allocated to Packing Group I, II or III, if appropriate, by application of the packing group criteria provided in Part 2 corresponding to the nature of the predominant subsidiary hazard;

(b) Packages must be labelled with subsidiary hazard labels corresponding to each subsidiary hazard exhibited by the material; corresponding placards must be affixed to cargo transport units in accordance with the relevant provisions of 5.3.1;

(c) For the purposes of documentation and package marking, the proper shipping name must be supplemented with the name of the constituents which most predominantly contribute to this (these) subsidiary hazard(s) and which must be enclosed in parenthesis;

(d) The dangerous goods transport document must indicate the class or division of the subsidiary hazard and packing group where applicable.

For packing, see also 4.1.9.1.5.

177 Barium sulphate is not subject to this Code.

178 This designation must be used only when no other appropriate designation exists in the list, and only with the approval of the competent authority of the country of origin or in accordance with a competent authority determination in accordance with Regulation 1.5.1(1).

179 Deleted

181 Packages containing this type of substance must bear the “EXPLOSIVE” subsidiary hazard label (Model No.1, see 5.2.2.2.2) unless the competent authority of the country or state of origin has permitted this label to be dispensed with for the specific packaging employed because test data have proved that the substance in this packaging does not exhibit explosive behaviour (see 11.1.2.3.4.1). The provisions of 7.1.3.1 of UN20 must also be considered.

182 The group of alkali metals includes lithium, sodium, potassium, rubidium and caesium.

183 The group of alkaline earth metals includes magnesium, calcium, strontium and barium.

186 Deleted

188 Cells and batteries offered for transport are not subject to other provisions of this Code if they meet the following:

(a) For a lithium metal or lithium alloy cell, the lithium content is not more than 1 g, and for a lithium ion cell, the Watt-hour rating is not more than 20 Wh; and

(b) For a lithium metal or lithium alloy battery the aggregate lithium content is not more than 2 g, and for a lithium ion battery, the Watt-hour rating is not more than 100 Wh. Lithium ion batteries subject to this provision must be marked with the Watt-hour rating on the outside case, except those manufactured before 1 January 2009;

and

(c) Each cell or battery meets the provisions of 2.9.4 (a), (e), (f) if applicable and (g); and

(d) Cells and batteries, except when installed in equipment, must be packed in inner packagings that completely enclose the cell or battery. Cells and batteries must be protected so as to prevent short circuits. This includes protection against contact with electrically conductive material within the same packaging that could lead to a short circuit. The inner packagings must be packed in strong outer packagings which conform to the provisions of 4.1.1.1, 4.1.1.2, and 4.1.1.5; and

(e) Cells and batteries when installed in equipment must be protected from damage and short circuit, and the equipment must be equipped with an effective means of preventing accidental activation. This requirement does not apply to devices which are intentionally active in transport (radio frequency identification (RFID) transmitters, watches, sensors, etc.) and which are not capable of generating a dangerous evolution of heat; and

(f) Each package shall be marked with the appropriate lithium battery mark, as illustrated at 5.2.1.9;

***NOTE 1**: Packages containing lithium batteries packed in conformity with the provisions of Part 4, Chapter 11, packing instructions 965 or 968, Section IB of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air that bear the mark as shown in 5.2.1.9 (lithium battery mark) and the label shown in 5.2.2.1.9, Model No.9A shall be deemed to meet the provisions of this special provision.*

This requirement does not apply to:

(i) packages containing only button cell batteries installed in equipment (including circuit boards); and

(ii) packages containing no more than four cells or two batteries installed in equipment, where there are not more than two packages in the consignment.

When packages are placed in an overpack, the lithium battery mark shall either be clearly visible or be reproduced on the outside of the overpack and the overpack shall be marked with the word “OVERPACK”. The lettering of the “OVERPACK” mark shall be at least 12 mm high.

(g) Except when lithium cells or batteries are installed in equipment, each package must be capable of withstanding a 1.2 m drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (or cell to cell) contact and without release of contents; and

(h) Except when lithium cells or batteries are installed in or packed with equipment, packages must not exceed 30 kg gross mass.

As used above and elsewhere in this Code, “lithium content” means the mass of lithium in the anode of a lithium metal or lithium alloy cell. As used in this special provision “equipment” means apparatus for which the lithium cells or batteries will provide electrical power for its operation.

Separate entries exist for lithium metal batteries and lithium ion batteries to facilitate the transport of these batteries for specific modes of transport and to enable the application of different emergency response actions.

A single cell battery as defined in Part III, sub-section 38.3.2.3 of the Manual of Tests and Criteria is considered a “cell” and shall be transported according to the requirements for “cells” for the purpose of this special provision.

190 Aerosol dispensers must be provided with protection against inadvertent discharge. Aerosols with a capacity not exceeding 50 ml containing only non-toxic constituents are not subject to this Code.

191 Receptacles, small, containing gas are not fitted with a release device. Receptacles with a capacity not exceeding 50 ml containing only non-toxic constituents are not subject to this Code.

193 This entry may only be used for ammonium nitrate based compound fertilizers. They shall be classified in accordance with the procedure as set out in the Manual of Tests and Criteria, Part III, Section 39. Fertilizers meeting the criteria for this UN number are not subject to this Code. Dangerous Goods only when transported by air or sea.

194 The control and emergency temperatures, if any, and the generic entry number for each of the currently assigned self-reactive substances are given in 2.4.2.3.2.3.

195 For certain organic peroxides types B or C, a smaller packaging than that allowed by packing methods OP5 or OP6 respectively has to be used (see 4.1.7 and 2.5.3.2.4).

196 Formulations which in laboratory testing neither detonate in the cavitated state nor deflagrate, which show no effect when heated under confinement and which exhibit no explosive power may be transported under this entry. The formulation must also be thermally stable (i.e. the SADT is 60 °C or higher for a 50 kg package). Formulations not meeting these criteria must be transported under the provisions of Division 5.2; see 2.5.3.2.4.

198 Nitrocellulose solutions containing not more than 20% nitrocellulose may be transported as paint, perfumery products or printing ink, as applicable. See UN Nos. 1210, 1263, 1266, 3066, 3469 and 3470.

199 Lead compounds which, when mixed in a ratio of 1:1000 with 0.07M hydrochloric acid and stirred for one hour at a temperature of 23 °C $\pm$ 2 °C, exhibit a solubility of 5% or less (see ISO 3711:1990 “Lead chromate pigments and lead chromate-molybdate pigments – Specifications and methods of test”) are considered insoluble and are not subject to this Code unless they meet the criteria for inclusion in another hazard class or division.

201 Lighters and lighter refills must comply with the provisions of the country/state in which they were filled. They must be provided with protection against inadvertent discharge. The liquid portion of the gas must not exceed 85% of the capacity of the receptacle at 15 °C. The receptacles, including the closures, must be capable of withstanding an internal pressure of twice the pressure of the liquefied petroleum gas at 55 °C. The valve mechanisms and ignition devices must be securely sealed, taped or otherwise fastened or designed to prevent operation or leakage of the contents during transport. Lighters must not contain more than 10 g of liquefied petroleum gas. Lighter refills must not contain more than 65 g of liquefied petroleum gas.

203 This entry must not be used for polychlorinated biphenyls, UN 2315.

204 Articles containing smoke producing substance(s) corrosive according to the criteria for Class 8 must be labelled with a “CORROSIVE” subsidiary hazard label (Model No.8, see 5.2.2.2.2).

Articles containing smoke-producing substance(s) toxic by inhalation according to the criteria for Division 6.1 shall be labelled with a "TOXIC" subsidiary hazard label (Model No 6.1, see 5.2.2.2.2), except that those manufactured before 31 December 2016 may be transported until 1 January 2019 without a "TOXIC" subsidiary hazard label.

205 This entry must not be used for UN 3155 PENTACHLOROPHENOL.

206 This entry is not intended to include ammonium permanganate, the transport of which is prohibited except with special authorisation granted by the competent authorities.

207 Plastics moulding compounds may be made from polystyrene, poly (methyl methacrylate) or other polymeric material.

208 The commercial grade of calcium nitrate fertiliser, when consisting mainly of a double salt (calcium nitrate and ammonium nitrate) containing not more than 10% ammonium nitrate and at least 12% water of crystallisation, is not subject to this Code.

209 The gas must be at a pressure corresponding to ambient atmospheric pressure at the time the containment system is closed and this must not exceed 105 kPa absolute.

210 Toxins from plant, animal or bacterial sources which contain infectious substances, or toxins that are contained in infectious substances, must be classified in Division 6.2.

215 This entry only applies to the technically pure substance or to formulations derived from it having an SADT higher than 75 °C and therefore does not apply to formulations which are self-reactive substances. (For self-reactive substances, see 2.4.2.3.2.3). Homogeneous mixtures containing not more than 35 % by mass of azocarbonamide and at least 65 % of inert substance are not subject to this Code unless criteria of other classes or divisions are met.

216 Mixtures of solids which are not subject to this Code and flammable liquids may be transported under this entry without first applying the classification criteria of Division 4.1, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or cargo transport unit is closed. Each cargo transport unit must be leakproof when used as a bulk packaging. Sealed packets and articles containing less than 10 ml of a packing group II or III flammable liquid absorbed into a solid material are not subject to this Code provided there is no free liquid in the packet or article.

217 Mixtures of solids which are not subject to this Code and toxic liquids may be transported under this entry without first applying the classification criteria of Division 6.1, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or cargo transport unit is closed. Each cargo transport unit must be leakproof when used as a bulk packaging. This entry must not be used for solids containing a packing group I liquid.

218 Mixtures of solids which are not subject to this Code and corrosive liquids may be transported under this entry without first applying the classification criteria of Class 8, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or cargo transport unit is closed. Each cargo transport unit must be leakproof when used as a bulk packaging.

219 Genetically modified microorganisms (GMMOs) and genetically modified organisms (GMOs) packed and marked in accordance with packing instruction P904 are not subject to any other requirements in this Code.

If GMMOs or GMOs meet the definition in Chapter 2.6 of a toxic substance or an infectious substance and the criteria for inclusion in Division 6.1 or 6.2 the requirements in this Code for transporting toxic substances or infectious substances apply.

220 The technical name of the flammable liquid component only of this solution or mixture must be shown in parentheses immediately following the proper shipping name.

221 Substances included under this entry must not be of packing group I.

223 If the chemical or physical properties of a substance covered by this description are such that when tested it does not meet the established defining criteria for the Class or division listed in column (3), or any other Class or division, it is not subject to this Code.

224 Unless it can be demonstrated by testing that the sensitivity of the substance in its frozen state is no greater than in its liquid state, the substance must remain liquid during normal transport conditions. It must not freeze at temperatures above -15 °C.

225 Fire extinguishers under this entry may include installed actuating cartridges (cartridges, power device of Division 1.4C or 1.4S), without changing the classification of Division 2.2 provided the total quantity of deflagrating (propellant) explosives does not exceed 3.2 g per extinguishing unit.

Fire extinguishers must be manufactured, tested, approved and labelled according to the provisions applied in the country of manufacture.

NOTE: *"Provisions applied in the country of manufacture" means the provisions applicable in the country of manufacture or those applicable in the country of use.*

Fire extinguishers under this entry include:

(a) portable fire extinguishers for manual handling and operation;

(b) fire extinguishers for installation in aircraft;

(c) fire extinguishers mounted on wheels for manual handling;

(d) fire extinguishing equipment or machinery mounted on wheels or wheeled platforms or units transported similar to (small) trailers, and

(e) fire extinguishers composed of a non-rollable pressure drum and equipment, and handled e.g. by fork lift or crane when loaded or unloaded.

NOTE*: Pressure receptacles which contain gases for use in the above-mentioned extinguishers or for use in stationary fire-fighting installations shall meet the requirements in Chapter 6.2 and all requirements* *applicable to the relevant dangerous goods when these pressure receptacles are transported separately.*

226 Formulations of these substances containing not less than 30% non-volatile, non-flammable phlegmatiser are not subject to this Code.

227 When phlegmatised with water and inorganic inert material the content of urea nitrate may not exceed 75% by mass and the mixture must not be capable of being detonated by the Series 1, type (a), test in the Manual of Tests and Criteria, Part I.

228 Mixtures not meeting the criteria for flammable gases (Division 2.1) must be transported under UN 3163.

230 Lithium cells and batteries may be transported under this entry if they meet the provisions of 2.9.4.

232 This designation may only be used when the substance does not meet the criteria of any other class. Transport in cargo transport units other than in multimodal tanks must be in accordance with standards specified by the competent authorities of the country or state of origin.

235 This entry applies to articles which contain Class 1 explosive substances and which may also contain dangerous goods of other classes. These articles are used to enhance safety in vehicles, vessels or aircraft – e.g. air bag inflators, air bag modules, seat-belt pretensioners, and pyromechanical devices.

236 Polyester resin kits consist of two components: a base material (either Class 3 or Division 4.1, packing group II or III) and an activator (organic peroxide). The organic peroxide shall be type D, E, or F, not requiring temperature control. The packing group shall be II or III, according to the criteria of either Class 3 or Division 4.1, as appropriate, applied to the base material. The quantity limit shown in column 7a of the Dangerous Goods List of Chapter 3.2 applies to the base material.

237 The membrane filters, including paper separators, coating or backing materials, etc., that are present in transport, must not be liable to propagate a detonation as tested by one of the tests described in the Manual of Tests and Criteria, Part I, Test series 1(a).

In addition, the competent authority may determine, on the basis of the results of suitable burning rate tests taking account of the standard tests in the Manual of Tests and Criteria, Part III, sub-section 33.2.1, that nitrocellulose membrane filters in the form in which they are to be transported are not subject to the provisions of this Code applicable to flammable solids in Division 4.1.

238

(a) Batteries can be considered as non-spillable provided that they are capable of withstanding the vibration and pressure differential tests given below, without leakage of battery fluid.

Vibration test: The battery is rigidly clamped to the platform of a vibration machine and a simple harmonic motion having an amplitude of 0.8 mm (1.6 mm maximum total excursion) is applied. The frequency is varied at the rate of 1 Hz/min between the limits of 10 Hz and 55 Hz.

The entire range of frequencies and return is traversed in 95 ± 5 minutes for each mounting position (direction of vibration) of the battery. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.

Pressure differential test: Following the vibration test, the battery is stored for six hours at 24°C ± 4°C while subjected to a pressure differential of at least 88 kPa. The battery is tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.

***NOTE**: Non-spillable type batteries which are an integral part of and necessary for the operation of mechanical or electronic equipment, must be securely fastened in the battery holder on the equipment and protected in such a manner as to prevent damage and short circuits.*

(b) Non-spillable batteries are not subject to this Code if, at a temperature of 55 °C, the electrolyte will not flow from a ruptured or cracked case and there is no free liquid to flow and if, when packaged for transport, the terminals are protected from short circuit.

239 Batteries or cells must not contain dangerous goods other than sodium, sulphur or sodium compounds (e.g. sodium polysulphides and sodium tetrachloroaluminate). Batteries or cells must not be offered for transport at a temperature such that liquid elemental sodium is present in the battery or cell unless exempted and under the conditions established by the competent authority.

Cells must consist of hermetically sealed metal casings which fully enclose the dangerous goods and which are so constructed and closed as to prevent the release of the dangerous goods under normal conditions of transport.

Batteries must consist of cells secured within and fully enclosed by a metal casing so constructed and closed as to prevent the release of the dangerous goods under normal conditions of transport.**240** Deleted.

241 The formulation must be prepared so that it remains homogeneous and does not separate during transport. Formulations with low nitrocellulose contents and not showing dangerous properties when tested for their liability to detonate, deflagrate or explode when heated under defined confinement by tests of Test series 1 (a), 2 (b) and 2 (c) respectively in the Manual of Tests and Criteria, Part I and not being a flammable solid when tested in accordance with test N.1 in the Manual of Tests and Criteria, Part III, sub-section 33.2.1.4 (chips, if necessary, crushed and sieved to a particle size of less than 1.25 mm) are not subject to this Code.

242 Sulphur is not subject to this Code when it has been formed to a specific shape (e.g. prills, granules, pellets, pastilles or flakes).

243 Gasoline, motor spirit and petrol for use in spark-ignition engines (e.g. in automobiles, stationary engines and other engines) must be assigned to this entry regardless of variations in volatility.

244 This entry includes e.g. aluminium dross, aluminium skimmings, spent cathodes, spent potliner, and aluminium salt slags.

Before loading, these by-products shall be cooled to ambient temperature, unless they have been calcined to remove moisture. Cargo transport units containing bulk loads shall be adequately ventilated and protected against ingress of water throughout the journey.

Notwithstanding the provisions of 4.3.2.2, sheeted bulk containers (BK1) may be used for inland transport.

246 This substance must be packed in accordance with packing method OP6 (see applicable packing instruction). During transport, it must be protected from direct sunshine and stored (or kept) in a cool and well-ventilated place, away from all sources of heat.

247 Alcoholic beverages containing more than 24% alcohol but not more than 70% by volume, when transported as part of the manufacturing process, may be transported in wooden barrels with a capacity of more than 250 litres and not more than 500 litres meeting the general requirements of 4.1.1, as appropriate, on the following conditions:

(a) The wooden barrels must be checked and tightened before filling; and

(b) Sufficient ullage (not less than 3%) must be left to allow for the expansion of the liquid; and

(c) The wooden barrels must be transported with the bungholes pointing upwards; and

(d) The wooden barrels must be transported in containers meeting the requirements of the International Convention for Safe Containers (CSC), 1972, as amended. Each wooden barrel must be secured in custom-made cradles and be wedged by appropriate means to prevent it from being displaced in any way during transport.

249 Ferrocerium, stabilised against corrosion, with a minimum iron content of 10% is not subject to this Code.

250 This entry may only be used for samples of chemicals taken for analysis in connection with the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction. The transport of substances under this entry must be in accordance with the chain of custody and security procedures specified by the Organisation for the Prohibition of Chemical Weapons.

The chemical sample may only be transported providing prior approval has been granted by the competent authority or the Director General of the Organisation for the Prohibition of Chemical Weapons and providing the sample complies with the following provisions:

(a) It must be packed according to Packing Instruction 623 in the International Civil Aviation Organisation's Technical Instructions for the Safe Transport of Dangerous Goods by Air; and

(b) During transport it must be accompanied by a copy of the document of approval for transport, showing the quantity limitations and the packing provisions.

251 The entry CHEMICAL KIT or FIRST AID KIT is intended to apply to boxes, cases etc. containing small quantities of various dangerous goods which are used for example for medical, analytical or testing or repair purposes.

Such kits shall only contain dangerous goods that are permitted as:

(a) Excepted quantities not exceeding the quantity indicated by the code in column (7b) of the Dangerous Goods List of Chapter 3.2, provided that the net quantity per inner packaging and net quantity per package are as prescribed in 3.5.1.2 and 3.5.1.3; or;

(b) Limited quantities as indicated in column (7a) of the Dangerous Goods List of Chapter 3.2, provided that the net quantity per inner packaging does not exceed 250 ml or 250 g.

Components must not react dangerously (see 4.1.1.6). The total quantity of dangerous goods in any one kit must not exceed either 1 L or 1 kg. The packing group assigned to the kit as a whole will be the most stringent packing group assigned to any individual substance in the kit.

Where the kit contains only dangerous goods to which no packing group is assigned, no packing group need be indicated on the dangerous goods transport document.

Kits which are carried on board vehicles for first-aid or operating purposes are not subject to this Code

Chemical kits and first aid kits containing dangerous goods in inner packagings which do not exceed the quantity limits applicable to individual substances as specified in column 7 of the Dangerous Goods List may be transported in accordance with Chapter 3.4.

252 Provided the ammonium nitrate remains in solution under all conditions of transport, aqueous solutions of ammonium nitrate, with not more than 0.2% combustible material, in a concentration not exceeding 80%, are not subject to this Code.

266 This substance, when containing less alcohol, water or phlegmatise than specified, must not be transported unless specifically authorised by the competent authority.

267 Any explosives, blasting, type C containing chlorates must be segregated from explosives containing ammonium nitrate or other ammonium salts.

270 Aqueous solutions of Division 5.1 inorganic solid nitrate substances are considered as not meeting the criteria of Division 5.1 if the concentration of the substances in solution at the minimum temperature encountered in transport is not greater than 80% of the saturation limit.

271 Lactose or glucose or similar materials, may be used as a phlegmatiser provided that the substance contains not less than 90%, by mass, of phlegmatiser. The competent authority may authorise these mixtures to be classified in Division 4.1 on the basis of a test Series 6(c) of Section 16 of Part I of the Manual of Tests and Criteria on at least three packages as prepared for transport.

Mixtures containing at least 98%, by mass, of phlegmatiser are not subject to this Code. Packages containing mixtures with not less than 90%, by mass, of phlegmatiser need not bear a TOXIC subsidiary hazard label.

272 This substance must not be transported under the provisions of Division 4.1 unless specifically authorised by the competent authority (see UN 0143 or UN 0150 as appropriate).

273 Maneb and maneb preparations stabilised against self-heating need not be classified in Division 4.2 when it can be demonstrated by testing that a cubic volume of 1 m^3 of substance does not self-ignite and that the temperature at the centre of the sample does not exceed 200 °C, when the sample is maintained at a temperature of not less than 75 °C °± 2 °C for a period of 24 hours.

274 For the purposes of documentation and package marking, the proper shipping name must be supplemented with the technical name (see 3.1.2.8).

For UN 3077 and UN 3082 only, the technical name may be a name shown in capital letters in column 2 of the Dangerous Goods List, provided that this name does not include "N.O.S." and that special provision 274 is not assigned. The name which most appropriately describes the substance or mixture shall be used, e.g.:

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (PAINT)

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (PERFUMERY PRODUCTS)

276 This includes any substance which is not covered by any of the other classes but which has narcotic, noxious or other properties such that, in the event of spillage or leakage on an aircraft, annoyance or discomfort could be caused to crew members so as to prevent the correct performance of assigned duties.

277 For aerosols or receptacles containing toxic substances the limited quantity value is 120 ml. For all other aerosols or receptacles the limited quantity value is 1000 ml.

278 These substances must not be classified and transported unless authorised by the competent authority on the basis of results from Series 2 tests and a Series 6(c) test of Part I of the Manual of Tests and Criteria on packages as prepared for transport (see 2.1.3.1). The competent authority will assign the packing group on the basis of the Chapter 2.3 criteria and the package type used for the Series 6(c) test.

279 The substance is assigned to this classification or packing group based on human experience rather than the strict application of classification criteria set out in this Code.

280 This entry applies to safety devices for vehicles, vessels or aircraft, e.g. air bag inflators, air bag modules, seat-belt pretensioners, and pyromechanical devices, which contain dangerous goods of Class 1 or of other classes, when transported as component parts and if these articles as presented for transport have been tested in accordance with Test Series 6(c) of Part 1 of the Manual of Tests and Criteria, with no explosion of the device, no fragmentation of device casing or pressure receptacle, and no projection hazard nor thermal effect which would significantly hinder fire-fighting or emergency response efforts in the immediate vicinity. This entry does not apply to life saving appliances described in special provision 296 (UN Nos. 2990 and 3072).

281 The transport by sea of hay, straw or bhusa, wet, damp or contaminated with oil is prohibited. Transport by other modes is also prohibited except with special authorisation by the competent authorities.

Hay, straw and bhusa, when not wet, damp or contaminated with oil, are not subject to this Code and are thus Dangerous Goods only when transported by sea.

283 Articles, containing gas, intended to function as shock absorbers, including impact energy-absorbing devices, or pneumatic springs are not subject to this Code provided:

(a) each article has a gas space capacity not exceeding 1.6 litres and a charge pressure not exceeding 280 bar where the product of the capacity (litres) and charge pressure (bars) does not exceed 80 (i.e. 0.5 litre gas space and 160 bar charge pressure, 1 litre gas space and 80 bar charge pressure, 1.6 litre gas space and 50 bar charge pressure, 0.28 litre gas space and 280 bar charge pressure); and

(b) each article has a minimum burst pressure of 4 times the charge pressure at 20°C for products not exceeding 0.5 litre gas space capacity and 5 times charge pressure for products greater than 0.5 litre gas space capacity; and

(c) each article is manufactured from material which will not fragment upon rupture; and

(d) each article is manufactured in accordance with a quality assurance standard acceptable to the competent authority; and

(e) the design type has been subjected to a fire test demonstrating that pressure in the article is relieved by means of a fire degradable seal or other pressure relief device, such that the article will not fragment and that the article does not rocket.

284 An oxygen generator, chemical, containing oxidising substances must meet the following conditions:

(a) The generator when containing an explosive actuating device must only be transported under this entry when excluded from Class 1 in accordance with 2.1.1.1 (b) of this Code; and

(b) The generator, without its packaging, must be capable of withstanding a 1.8 m drop test onto a rigid, non-resilient, flat and horizontal surface, in the position most likely to cause damage, without loss of its contents and without actuation; and

(c) When a generator is equipped with an actuating device, it must have at least two positive means of preventing unintentional actuation.

286 Nitrocellulose membrane filters covered by this entry, each with a mass not exceeding 0.5 g, are not subject to this Code when contained individually in an article or a sealed packet.

288 These substances must not be classified and transported unless authorised by the competent authority on the basis of results from Series 2 tests and a Series 6(c) test of the Manual of Tests and Criteria on packages as prepared for transport (see 2.1.3.1).

289 Safety devices, electrically initiated and safety devices, pyrotechnic installed in vehicles, vessels or aircraft or in completed components such as steering columns, door panels, seats, etc. are not subject to this Code.

290 When this radioactive material meets the definitions and criteria of other classes or divisions as defined in Part 2, it must be classified in accordance with the following:

(a) Where the substance meets the criteria for dangerous goods in excepted quantities as set out in Chapter 3.5, the packagings must be in accordance with 3.5.2 and meet the testing requirements of 3.5.3. All other requirements applicable to radioactive material, excepted packages as set out in 1.5.1.5 of must apply without reference to the other class or division;

(b) Where the quantity exceeds the limits specified in 3.5.1.2 the substance must be classified in accordance with the predominant subsidiary hazard. The dangerous goods transport document must describe the substance with the UN number and proper shipping name applicable to the other class supplemented with the name applicable to the radioactive excepted package according to Column 2 in the Dangerous Goods List of Chapter 3.2, and the substance must be transported in accordance with the provisions applicable to that UN number. An example of the information shown on the dangerous goods transport document is:

UN 1993, Flammable liquid, N.O.S. (ethanol and toluene mixture), Radioactive material, excepted package - limited quantity of material, Class 3, PG II.

In addition, the requirements of 2.7.2.4.1 apply.

(c) The provisions of Chapter 3.4 for the transport of dangerous goods packed in limited quantities must not apply to substances classified in accordance with sub-paragraph (b);

(d) When the substance meets a special provision that exempts this substance from all dangerous goods provisions of the other classes it must be classified in accordance with the applicable UN number of class 7 and all requirements specified in 1.5.1.5 of UN20 apply.

291 Flammable liquefied gases must be contained within refrigerating machine components. Components must be designed and tested to at least three times the pressure of the machinery. The refrigerating machines must be designed and constructed to contain the liquefied gas and preclude the risk of bursting or cracking of the pressure retaining components during normal conditions of transport. Refrigerating machines and refrigerating-machine components are considered not subject to this Code if they contain less than 12 kg of gas.

292 <Deleted>

293 The following definitions apply to matches:

(a) Fusee matches are matches the heads of which are prepared with a friction-sensitive igniter composition and a pyrotechnic composition which burns with little or no flame, but with intense heat;

(b) Safety matches are matches that combined with or attached to the box, book or card that can be ignited by friction only on a prepared surface;

(c) Strike anywhere matches are matches that can be ignited by friction on a solid surface;

(d) Wax Vesta matches are matches that can be ignited by friction either on a prepared surface or on a solid surface.

294 Safety matches and wax "Vesta" matches in outer packagings not exceeding 25 kg net mass are not subject to any other requirement (except marking) of this Code when packaged in accordance with packing instruction P407.

295 Batteries need not be individually marked and labelled if the pallet bears the appropriate mark and label.

296 These entries apply for life-saving appliances such as life rafts, personal flotation devices and self-inflating slides. UN 2990 applies for self-inflating appliances and UN 3072 applies for life-saving appliances that are not self-inflating. Life-saving appliances may contain:

(a) Signal devices (Class 1) which may include smoke and illumination signal flares packed in packagings that prevent them from being inadvertently activated;
(b) for UN 2990 only, cartridges, power device of Division 1.4, compatibility group S, may be contained for purposes of the self-inflating mechanism and provided that the quantity of explosives per appliance does not exceed 3.2 g;
(c) Division 2.2 compressed or liquefied gases;
(d) Electric storage batteries (Class 8) and lithium batteries (Class 9);
(e) First aid kits or repair kits containing small quantities of dangerous goods (e.g.: Class 3, Division 4.1, Division 5.2, Class 8 or Class 9 substances); or
(f) "Strike anywhere" matches packed in packagings that prevent them from being inadvertently activated.

Life-saving appliances packed in strong rigid outer packagings with a total maximum gross mass of 40 kg, containing no dangerous goods other than Division 2.2 compressed or liquefied gases with no subsidiary hazard in receptacles with a capacity not exceeding 120 ml, installed solely for the purpose of the activation of the appliance, are not subject to this Code.

297 <Deleted>

299 Consignments of COTTON, DRY having a density not less than 360 kg/m3 according to ISO 8115:1986 "Cotton bales- Dimensions and density" are not subject to this Code when transported in closed cargo transport units.

300 Fish meal, fish scrap and krill meal must not be transported if the temperature at the time of loading exceeds 35 °C or 5 °C above the ambient temperature whichever is higher.

301 This entry only applies to articles such as machinery, apparatus or devices containing dangerous goods as a residue or an integral element of the machinery or apparatus. It must not be used for articles for which a proper shipping name already exists in the Dangerous Goods List. Articles transported under this entry may only contain dangerous goods which are authorised to be transported in accordance with the provisions of Chapter 3.4 (Limited quantities). The quantity of dangerous goods in articles must not exceed the quantity specified in Column 7a of the Dangerous Goods

List for each item of dangerous goods contained. If the articles contain more than one item of dangerous goods, the individual dangerous goods shall be enclosed to prevent them reacting dangerously with one another during transport (see 4.1.1.6). When it is required to ensure liquid dangerous goods remain in their intended orientation, orientation labels must be affixed on at least two opposite vertical sides with the arrows pointing in the correct direction in accordance with 5.2.1.7.1.

The competent authority may exempt from the Code, machinery or apparatus which would otherwise be transported under this entry.

302 Fumigated cargo transport units containing no other dangerous goods are only subject to the provisions of 5.5.2.

303 Receptacles must be assigned to the division and, if any, subsidiary hazard of the gas or mixture of gases contained therein determined in accordance with the provisions of Chapter 2.2.

304 This entry may only be used for the transport of non-activated batteries which contain dry potassium hydroxide and which are intended to be activated prior to use by the addition of an appropriate amount of water to the individual cells.

305 These substances are not subject to this Code when in concentrations of not more than 50 mg/kg.

306 This entry may only be used for substances that are too insensitive for acceptance into Class 1 when tested in accordance to Test Series 2 (see Manual of Tests and Criteria, Part I).

307 This entry may only be used for ammonium nitrate based fertilizers. They shall be classified in accordance with the procedure as set out in the Manual of Tests and Criteria, Part III, Section 39.

308 Stabilization of fishmeal shall be achieved to prevent spontaneous combustion by effective application of ethoxyquin, BHT (butylated hydroxytoluene) or tocopherols (also used in a blend with rosemary extract) at the time of production. The said application shall occur within twelve months prior to shipment. Fish scrap or fish meal shall contain at least 50 ppm (mg/kg) of ethoxyquin, 100 ppm (mg/kg) of BHT or 250 ppm (mg/kg) of tocopherol based antioxidant at the time of consignment.

309 This entry applies to non sensitised emulsions, suspensions and gels consisting primarily of a mixture of ammonium nitrate and fuel, intended to produce a Type E blasting explosive only after further processing prior to use.

The mixture for emulsions typically has the following composition: 60–85% ammonium nitrate; 5–30% water; 2–8% fuel; 0.5–4 % emulsifier agent; 0–10% soluble flame suppressants and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate.

The mixture for suspensions and gels typically has the following composition: 60–85% ammonium nitrate, 0–5% sodium or potassium perchlorate, 0–17% hexamine nitrate or monomethylamine nitrate, 5–30% water, 2–15% fuel, 0.5–4% thickening agent, 0–10% soluble flame suppressants, and trace additives. Other inorganic nitrate salts may replace part of the ammonium nitrate.

Substances must satisfy the criteria for classification as an ANE of Test Series 8 of the Manual of Tests and Criteria, Part I, Section 18 and be approved by the competent authority.

310 The testing requirements in the Manual of Tests and Criteria, part III sub-section 38.3 do not apply to production runs, consisting of not more than 100 cells or batteries, or to pre-production prototypes of cells or batteries when these prototypes are transported for testing when packaged in accordance with packing instruction P910 of 4.1.4.1 or LP905 of 4.1.4.3, as applicable.

The transport document shall include the following statement: “Transport in accordance with special provision 310”.

Damaged or defective cells, batteries, or cells and batteries contained in equipment shall be transported in accordance with special provision 376 and packaged in accordance with packing instructions P908 of 4.1.4.1 or LP904 of 4.1.4.3, as applicable.

Cells, batteries or cells and batteries contained in equipment transported for disposal or recycling may be packaged in accordance with special provision 377 and packing instruction P909 of 4.1.4.1.

311 Substances must not be transported under this entry unless determined by the competent authority on the basis of the results of appropriate tests according to Part I of the Manual of Tests and Criteria. Packaging must ensure that the percentage of diluent does not fall below that stated in the competent authority determination, at any time during transport.

312 <Deleted>

313 <Deleted>

314 (a) These substances are liable to exothermic decomposition at elevated temperatures. Decomposition can be initiated by heat or by impurities (e.g. powdered metals (iron, manganese, cobalt, magnesium) and their compounds);

(b) During the course of transport, these substances must be shaded from direct sunlight and all sources of heat and be placed in adequately ventilated areas.

315 This entry must not be used for Division 6.1 substances which meet the inhalation toxicity criteria for packing group I described in 2.6.2.2.4.3.

316 This entry applies only to calcium hypochlorite, dry, when transported in non-friable tablet form.

317 Fissile-excepted” applies only to those fissile material and packages containing fissile material which are excepted in accordance with 2.7.2.3.5.“Fissile-excepted” applies only to those packages complying with 6.4.11.2.

318 For the purposes of documentation, the proper shipping name must be supplemented with the technical name (see 3.1.2.8). Technical names need not be shown on the package. When the infectious substances to be transported are unknown, but suspected of meeting the criteria for inclusion in category A and assignment to UN 2814 or UN 2900, the words “suspected category A infectious substance” must be shown, in parentheses, following the proper shipping name on the transport document, but not on the outer packagings.

319 Substances packed and marked in accordance with packing instruction P650 are not subject to any other requirements in this Code.

320 <deleted>

321 These storage systems must always be considered as containing hydrogen.

322 When transported in non-friable tablet form, these goods are assigned to packing group III.

323 <deleted>

324 This substance needs to be stabilised when in concentrations of not more than 99%.

325 In the case of non-fissile or fissile excepted uranium hexafluoride, the material must be classified under UN No 2978.

326 In the case of fissile uranium hexafluoride, the material must be classified under UN No. 2977.

327 Waste aerosols or waste gas cartridges consigned in accordance with 11.1.1.4.3(c) may be transported under UN 1950 or UN 2037, as appropriate, for the purposes of reprocessing or disposal. They need not be protected against movement and inadvertent discharge provided that measures to prevent dangerous build up of pressure and dangerous atmospheres are addressed. Waste aerosols, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P207 and special provision PP87, or packing instruction LP200 and special packing provision L2. Waste gas cartridges, other than those leaking or severely deformed, shall be packed in accordance with packing instruction P003 and special packing provisions PP17 an PP96, or packing instruction LP200 and special packing provision L2. Leaking or severely deformed aerosols and gas cartridges shall be transported in salvage pressure receptacles or salvage packagings provided appropriate measures are taken to ensure there is no dangerous build up of pressure. Waste aerosols and waste gas cartridges shall not be transported in closed freight containers.

Waste gas cartridges that were filled with gases of Division 2.2 and have been pierced are not subject to the requirements of the Code.

328 This entry applies to fuel cell cartridges including when contained in equipment or packed with equipment. Fuel cell cartridges installed in or integral to a fuel cell system are regarded as contained in equipment. Fuel cell cartridge means an article that stores fuel for discharge into the fuel cell through a valve(s) that controls the discharge of fuel into the fuel cell. Fuel cell cartridges, including when contained in equipment, must be designed and constructed to prevent fuel leakage under normal conditions of transport.

Fuel cell cartridge design types using liquids as fuels must pass an internal pressure test at a pressure of 100 kPa (gauge) without leakage.

Except for fuel cell cartridges containing hydrogen in metal hydride which must be in compliance with Special Provision 339, each fuel cell cartridge design type must be shown to pass a 1.2 meter drop test onto an unyielding surface in the orientation most likely to result in failure of the containment system with no loss of contents.

When lithium metal or lithium ion batteries are contained in the fuel cell system, the consignment must be consigned under this entry and under the appropriate entries for UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT.

329 <Deleted>

331 For environmentally hazardous substances meeting the criteria of 2.9.3, an additional mark as specified in 5.2.1.6 and 5.3.2.3 must be applied, subject to Special Provision AU01 in 3.3.3.

332 Magnesium nitrate hexahydrate is not subject to this Code

333 Ethanol and gasoline, motor spirit or petrol mixtures (with more than 10 % Ethanol) for use in spark-ignition engines (e.g. in automobiles, stationary engines and other engines) must be assigned to this entry regardless of variations in volatility.

334 A fuel cell cartridge may contain an activator provided it is fitted with two independent means of preventing unintended mixing with the fuel during transport.

335 Mixtures of solids which are not subject to this Code and environmentally hazardous liquids or solids must be classified as UN 3077 and may be transported under this entry, provided there is no free liquid visible at the time the substance is loaded or at the time the packaging or cargo transport unit is closed. Each cargo transport unit must be leakproof when used as a bulk packaging. Sealed packets and articles containing less than 10 ml of an environmentally hazardous liquid, absorbed into a solid material but with no free liquid in the packet or article, or containing less than 10 g of an environmentally hazardous solid, are not subject to this Code.

(See also SP AU01)

336 A single package of non-combustible solid LSA-II or LSA-III material, if carried by air, must not contain an activity greater than 3000 A2.

337 Type B(U) and Type B(M) packages, if transported by air, must not contain activities greater than the following:

(a) For low dispersible radioactive material: as authorised for the package design as specified in the certificate of approval;
(b) For special form radioactive material: 3000 A1 or 100 000 A2, whichever is the lower; or
(c) For all other radioactive material: 3000 A2.

338 Each fuel cell cartridge transported under this entry and designed to contain a liquefied flammable gas must:

(a) Be capable of withstanding, without leakage or bursting, a pressure of at least two times the equilibrium pressure of the contents at 55 °C;

(b) Not contain more than 200 ml liquefied flammable gas, the vapour pressure of which must not exceed 1 000 kPa at 55 °C; and

(c) Pass the hot water bath test prescribed in 6.2.4.1 of Chapter 6.2.

339 Fuel cell cartridges containing hydrogen in a metal hydride transported under this entry must have a water capacity less than or equal to 120 ml.

The pressure in the fuel cell cartridge must not exceed 5 MPa at 55 °C. The design type must withstand, without leaking or bursting, a pressure of two (2) times the design pressure of the cartridge at 55 °C or 200 kPa more than the design pressure of the cartridge at 55 °C, whichever is greater. The pressure at which this test is conducted is referred to in the Drop Test and the Hydrogen Cycling Test as the “minimum shell burst pressure”.

Fuel cell cartridges must be filled in accordance with procedures provided by the manufacturer. The manufacturer must provide the following information with each fuel cell cartridge:

(a) Inspection procedures to be carried out before initial filling and before refilling of the fuel cell cartridge;

(b) Safety precautions and potential hazards to be aware of;

(c) Method for determining when the rated capacity has been achieved;

(d) Minimum and maximum pressure range;

(e) Minimum and maximum temperature range; and

(f) Any other requirements to be met for initial filling and refilling including the type of equipment to be used for initial filling and refilling.

The fuel cell cartridges must be designed and constructed to prevent fuel leakage under normal conditions of transport. Each cartridge design type, including cartridges integral to a fuel cell, must be subjected to and must pass the following tests:

Drop test

A 1.8 metre drop test onto an unyielding surface in four different orientations:

(a) Vertically, on the end containing the shut-off valve assembly;

(b) Vertically, on the end opposite to the shut-off valve assembly;

(c) Horizontally, onto a 38 mm steel apex, with the steel apex in the upward position; and

(d) At a 45° angle on the end containing the shut-off valve assembly.

There must be no leakage, determined by using a soap bubble solution or other equivalent means on all possible leak locations, when the cartridge is charged to its rated charging pressure. The fuel cell cartridge must then be hydrostatically pressurised to destruction. The recorded burst pressure must exceed 85% of the minimum shell burst pressure.

Fire test

A fuel cell cartridge filled to rated capacity with hydrogen must be subjected to a fire engulfment test. The cartridge design, which may include a vent feature integral to it, is deemed to have passed the fire test if:

(a) The internal pressure vents to zero gauge pressure without rupture of the cartridge; or

(b) The cartridge withstands the fire for a minimum of 20 minutes without rupture.

Hydrogen cycling test

This test is intended to ensure that a fuel cell cartridge design stress limits are not exceeded during use.

The fuel cell cartridge must be cycled from not more than 5% rated hydrogen capacity to not less than 95% rated hydrogen capacity and back to not more than 5% rated hydrogen capacity. The rated charging pressure must be used for charging and temperatures must be held within the operating temperature range. The cycling must be continued for at least 100 cycles.

Following the cycling test, the fuel cell cartridge must be charged and the water volume displaced by the cartridge must be measured. The cartridge design is deemed to have passed the hydrogen cycling test if the water volume displaced by the cycled cartridge does not exceed the water volume displaced by an uncycled cartridge charged to 95% rated capacity and pressurised to 75% of its minimum shell burst pressure.

Production leak test

Each fuel cell cartridge must be tested for leaks at 15 °C ± 5 °C, while pressurised to its rated charging pressure. There must be no leakage, determined by using a soap bubble solution or other equivalent means on all possible leak locations.

Each fuel cell cartridge must be permanently marked with the following information:

(a) The rated charging pressure in megapascals (MPa);

(b) The manufacturer's serial number of the fuel cell cartridges or unique identification number; and

(c) The date of expiry based on the maximum service life (year in four digits; month in two digits).

340 Chemical kits, first aid kits and polyester resin kits containing dangerous substances in inner packagings which do not exceed the quantity limits for excepted quantities applicable to individual substances as specified in column 7b of the Dangerous Goods List of Chapter 3.2 may be transported in accordance with Chapter 3.5. Division 5.2 substances, although not individually authorized as excepted quantities in the Dangerous Goods List of Chapter 3.2, are authorized in such kits and are assigned Code E2 (see 3.5.1.2).

341 Bulk transport of infectious substances in BK1 and BK2 bulk containers is only permitted for infectious substances contained in animal material as defined in 1.2.1 (See 4.3.2.4.1).

342 Glass inner receptacles (such as ampoules or capsules) intended only for use in sterilization devices, when containing less than 30 ml of ethylene oxide per inner packaging with not more than 300 ml per outer packaging, may be transported in accordance with the provisions in Chapter 3.5, irrespective of the indication of “E0” in column 7b of the Dangerous Goods List provided that:

(a) After filling, each glass inner receptacle has been determined to be leak-tight by placing the glass inner receptacle in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55 °C is achieved. Any glass inner receptacle showing evidence of leakage, distortion or other defect under this test shall not be transported under the terms of this special provision;

(b) In addition to the packaging required by 3.5.2, each glass inner receptacle is placed in a sealed plastics bag compatible with ethylene oxide and capable of containing the contents in the event of breakage or leakage of the glass inner receptacle; and

(c) Each glass inner receptacle is protected by a means of preventing puncture of the plastics bag (e.g. sleeves or cushioning) in the event of damage to the packaging (e.g. by crushing).

343 This entry applies to crude oil containing hydrogen sulphide in sufficient concentration that vapours evolved from the crude oil can present an inhalation hazard. The packing group assigned must be determined by the flammability hazard and inhalation hazard, in accordance with the degree of danger presented.

344 The provisions of 6.2.4 must be met.

345 This gas contained in open cryogenic receptacles with a maximum capacity of 1 litre constructed with glass double walls having the space between the inner and outer wall evacuated (vacuum insulated) is not subject to this Code provided each receptacle is transported in an outer packaging with suitable cushioning or absorbent materials to protect it from impact damage.

346 Open cryogenic receptacles conforming to the requirements of packing instruction P203 and containing no dangerous goods except for UN 1977, nitrogen, refrigerated liquid, which is fully absorbed in a porous material are not subject to any other requirements of this Code.

347 This entry is only to be used if the results of Test series 6 (d) of Part I of the Manual of Tests and Criteria have demonstrated that any hazardous effects arising from functioning are confined within the package.

348 Batteries manufactured after 31 December 2011 must be marked with the Watt hour rating on the outside case.

349 Mixtures of a hypochlorite with an ammonium salt are not to be accepted for transport. UN No. 1791 hypochlorite solution is a substance of Class 8.

350 Ammonium bromate and its aqueous solutions and mixtures of a bromate with an ammonium salt are not to be accepted for transport.

351 Ammonium chlorate and its aqueous solutions and mixtures of a chlorate with an ammonium salt are not to be accepted for transport.

352 Ammonium chlorite and its aqueous solutions and mixtures of a chlorite with an ammonium salt are not to be accepted for transport.

353 Ammonium permanganate and its aqueous solutions and mixtures of a permanganate with an ammonium salt are not to be accepted for transport.

354 This substance is toxic by inhalation.

355 Oxygen cylinders for emergency use transported under this entry may include installed actuating cartridges (cartridges, power device of Division 1.4, Compatibility Group C or S), without changing the classification of Division 2.2 provided the total quantity of deflagrating (propellant) explosives does not exceed 3.2 g per oxygen cylinder. The cylinders with the installed actuating cartridges as prepared for transport must have an effective means of preventing inadvertent activation.

356 Metal hydride storage systems installed in vehicles, vessels, machinery, engines or aircraft or in completed components or intended to be installed in vehicles, vessels, machinery, engines or aircraft must be approved by the competent authority before acceptance for transport. The transport document must include an indication that the package was approved by the competent authority or a copy of the competent authority approval must accompany each consignment.

357 Petroleum crude oil containing hydrogen sulphide in sufficient concentration that vapours evolved from the crude oil can present an inhalation hazard must be consigned under the entry UN 3494 PETROLEUM SOUR CRUDE OIL, FLAMMABLE, TOXIC.

358 Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin may be classified in Class 3 and assigned to UN 3064 provided all the requirements of packing instruction P300 are complied with.

359 Nitroglycerin solution in alcohol with more than 1% but not more than 5% nitroglycerin is to be classified in Class 1 and assigned to UN 0144 if not all the requirements of packing instruction P300 are complied with.

360 Vehicles only powered by lithium metal batteries or lithium ion batteries must be assigned to the entry UN 3171 BATTERY POWERED VEHICLE. Lithium batteries installed in cargo transport units, designed only to provide power external to the transport unit shall be assigned to entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT.

361 This entry applies to electric double layer capacitors with an energy storage capacity greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to this Code. Energy storage capacity means the energy held by a capacitor, as calculated using the nominal voltage and capacitance. All capacitors to which this entry applies, including capacitors containing an electrolyte that does not meet the classification criteria of any class or division of dangerous goods, must meet the following conditions:

(a) Capacitors not installed in equipment must be transported in an uncharged state. Capacitors installed in equipment must be transported either in an uncharged state or protected against short circuit;

(b) Each capacitor must be protected against a potential short circuit hazard in transport as follows:

(i) When a capacitor's energy storage capacity is less than or equal to 10Wh or when the energy storage capacity of each capacitor in a module is less than or equal to 10 Wh , the capacitor or module must be protected against short circuit or be fitted with a metal strap connecting the terminals; and

(ii) When the energy storage capacity of a capacitor or a capacitor in a module is more than 10 Wh, the capacitor or module must be fitted with a metal strap connecting the terminals;

(c) Capacitors containing dangerous goods must be designed to withstand a 95 kPa pressure differential;

(d) Capacitors must be designed and constructed to safely relieve pressure that may build-up in use, through a vent or a weak point in the capacitor casing. Any liquid which is released upon venting must be contained by the packaging or by the equipment in which a capacitor is installed; and

(e) Capacitors manufactured after 31 December 2013 shall be marked with the energy storage capacity in Wh.

Capacitors containing an electrolyte not meeting the classification criteria of any class or division of dangerous goods, including when installed in equipment, are not subject to other provisions of this Code.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, with an energy storage capacity of 10 Wh or less are not subject to other provisions of this Code when they are capable of withstanding a 1.2 metre drop test unpackaged on an unyielding surface without loss of contents.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods that are not installed in equipment and with an energy storage capacity of more than 10 Wh are subject to this Code.

Capacitors installed in equipment and containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, are not subject to other provisions of this Code provided the equipment is packaged in a strong outer packaging constructed of suitable material and of adequate strength and design, in relation to the packaging's intended use and in such a manner as to prevent accidental functioning of capacitors during transport. Large robust equipment containing capacitors may be offered for transport unpackaged or on pallets when capacitors are afforded equivalent protection by the equipment in which they are contained.

***NOTE**: Capacitors which by design maintain a terminal voltage (e.g. asymmetrical capacitors) do not belong to this entry.*

362 This entry applies to liquids, pastes or powders, pressurised with a propellant which meets the definition of a gas in 2.2.1.1 and 2.2.1.2 (a) or (b).

***NOTE:** A chemical under pressure in an aerosol dispenser must be transported under UN 1950.*

The following provisions apply:

(a) The chemical under pressure must be classified based on the hazard characteristics of the components in the different states:
- The propellant;
- The liquid; or
- The solid.

If one of these components, which can be a pure substance or a mixture, needs to be classified as flammable, the chemical under pressure must be classified as flammable in Division 2.1. Flammable components are flammable liquids and liquid mixtures, flammable solids and solid mixtures or flammable gases and gas mixtures meeting the following criteria:

(i) A flammable liquid is a liquid having a flashpoint of not more than 93 °C;

(ii) A flammable solid is a solid which meets the criteria in 2.4.2.2 of this Code;

(iii) A flammable gas is a gas which meets the criteria in 2.2.2.1 of this Code;

(b) Gases of Division 2.3 and gases with a subsidiary hazard of 5.1 must not be used as a propellant in a chemical under pressure;

(c) Where the liquid or solid components are classified as dangerous goods of Division 6.1, packing groups II or III, or Class 8, packing groups II or III, the chemical under pressure must be assigned a subsidiary hazard of Division 6.1 or Class 8 and the appropriate UN number must be assigned. Components classified in Division 6.1, packing group I, or Class 8, packing group I, must not be used for transport under this proper shipping name;

(d) In addition, chemicals under pressure with components meeting the properties of: Class , explosives; Class 3, liquid desensitised explosives; Division 4.1, self-reactive substances and solid desensitised explosives; Division 4.2, substances liable to spontaneous combustion; Division 4.3, substances which, in contact with water, emit flammable gases; Division 5.1 oxidising substances; Division 5.2, organic peroxides; Division 6.2, Infectious substances or Class 7, Radioactive material, must not be used for transport under this proper shipping name;

(e) Substances to which PP86 or TP7 are assigned in Column 9 and Column 11 of the Dangerous Goods List in Chapter 3.2 and therefore require air to be eliminated from the vapour space, must not be used for transport under this UN number but must be transported under their respective UN numbers as listed in the Dangerous Goods List of Chapter 3.2.

363 This entry may only be used when the conditions of this special provision are met. No other requirements of this Code applies.

(a) This entry applies to engines or machinery, powered by fuels classified as dangerous goods via internal combustion systems or fuel cells (e.g. combustion engines, generators, compressors, turbines, heating units, etc.), except those which are assigned under UN No. 3166 or UN No. 3363.

(b) Engines or machinery which are empty of liquid or gaseous fuels and which do not contain other dangerous goods, are not subject to this Code.

NOTE 1: *An engine or machinery is considered to be empty of liquid fuel when the liquid fuel tank has been drained and the engine or machinery cannot be operated due to a lack of fuel. Engine or machinery components such as fuel lines, fuel filters and injectors do not need to be cleaned, drained or purged to be considered empty of liquid fuels. In addition, the liquid fuel tank does not need to be cleaned or purged.*

NOTE 2: *An engine or machinery is considered to be empty of gaseous fuels when the gaseous fuel tanks are empty of liquid (for liquefied gases), the positive pressure in the tanks does not exceed 2 bar and the fuel shut-off or isolation valve is closed and secured.*

(c) Engines and machinery containing fuels meeting the classification criteria of Class 3, shall be consigned under the entries UN No. 3528 ENGINE, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED or UN No. 3528 ENGINE, FUEL CELL, FLAMMABLE LIQUID POWERED or UN No. 3528 MACHINERY, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED or UN No. 3528 MACHINERY, FUEL CELL, FLAMMABLE LIQUID POWERED, as appropriate.

(d) Engines and machinery containing fuels meeting the classification criteria of Division 2.1, shall be consigned under the entries UN No. 3529 ENGINE, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED or UN No. 3529 ENGINE, FUEL CELL, FLAMMABLE GAS POWERED or UN No. 3529 MACHINERY, INTERNAL COMBUSTION, FLAMMABLE GAS POWERED or UN No. 3529 MACHINERY, FUEL CELL, FLAMMABLE GAS POWERED, as appropriate. Engines and machinery powered by both a flammable gas and a flammable liquid shall be consigned under the appropriate UN No. 3529 entry.

(e) Engines and machinery containing liquid fuels meeting the classification criteria of 2.9.3 for environmentally hazardous substances and not meeting the classification criteria of any other Class or Division, shall be consigned under the entries UN No. 3530 ENGINE, INTERNAL COMBUSTION or UN No. 3530 MACHINERY, INTERNAL COMBUSTION, as appropriate.

(f) Engines or machinery may contain other dangerous goods than fuels (e.g. batteries, fire extinguishers, compressed gas accumulators or safety devices) required for their functioning or safe operation without being subject to any additional requirements for these other dangerous goods, unless otherwise specified in this Code. However, lithium batteries shall meet the provisions of 2.9.4, except that 2.9.4 (a) does not apply when pre-production prototype batteries or batteries of a small production run, consisting of not more than 100 batteries, are installed in machinery or engines.

Where a lithium battery installed in a machinery or an engine is damaged or defective, the machinery or engine shall be transported as defined by the competent authority;

(g) The engine or machinery, including the means of containment containing dangerous goods, shall be in compliance with the construction requirements specified by the competent authority;

(h) Any valves or openings (e.g. venting devices) shall be closed during transport;

(i) The engines or machinery shall be oriented to prevent inadvertent leakage of dangerous goods and secured by means capable of restraining the engines or machinery to prevent any movement during transport which would change the orientation or cause them to be damaged;

(j) For UN No. 3528 and UN No. 3530:

Where the engine or machinery contains more than 60 l of liquid fuel and has a capacity of not more than 450 l, the labelling requirements of 5.2.2 must apply.

Where the engine or machinery contains more than 60 l of liquid fuel and has a capacity of more than 450 l but not more than 3 000 l, it must be labelled on two opposing sides in accordance with 5.2.2.

Where the engine or machinery contains more than 60 l of liquid fuel and has a capacity of more than 3 000 l, it shall be placarded on two opposing sides. Placards shall correspond to the class indicated in Column 3 of the Dangerous Goods List of Chapter 3.2 and shall conform to the specifications given in 5.3.1.2.1;

(k) For UN No. 3529:

Where the fuel tank of the engine or machinery has a water capacity of not more than 450 l, the labelling requirements of 5.2.2 shall apply.

Where the fuel tank of the engine or machinery has a water capacity of more than 450 l but not more than 1 000 l, it shall be labelled on two opposing sides in accordance with 5.2.2.

Where the fuel tank of the engine or machinery has a water capacity of more than 1 000 l, it shall be placarded on two opposing sides. Placards shall correspond to the class indicated in Column 3 of the Dangerous Goods List in Chapter 3.2 and shall conform to the specifications given in 5.3.1.2.1;

(l) A transport document in accordance with 5.4 is required, except for UN No. 3528 and UN No. 3530, where a transport document is only required when the engine or machinery contains more than 60 l of liquid fuels. This transport document shall contain the following additional statement "Transport in accordance with special provision 363";

(m) The requirements specified in packing instruction P005 of 4.1.4.1 shall be met.

364 This article may only be transported under the provisions of Chapter 3.4 if, as presented for transport, the package is capable of passing the test in accordance with Test Series 6(d) of Part I of the Manual of Tests and Criteria as determined by the competent authority.

365 For manufactured instruments and articles containing mercury, see UN 3506.

366 For land and sea transport, manufactured instruments and articles containing not more than 1 kg of mercury are not subject to this Code. For air transport, articles containing not more than 15 g of mercury are not subject to this Code.

367 For the purposes of documentation and package marking:

The proper shipping name “Paint related material” may be used for consignments of packages containing “Paint” and “Paint related material” in the same package;

The proper shipping name “Paint related material, corrosive, flammable” may be used for consignments of packages containing “Paint, corrosive, flammable” and “Paint related material, corrosive, flammable” in the same package;

The proper shipping name “Paint related material, flammable, corrosive” may be used for consignments of packages containing “Paint, flammable, corrosive” and “Paint related material, flammable, corrosive” in the same package; and

The proper shipping name “Printing ink related material” may be used for consignments of packages containing “Printing Ink” and “Printing ink related material” in the same package.

368 In the case of non-fissile or fissile-excepted uranium hexafluoride, the material must be classified under UN 3507 or UN 2978.

369 In accordance with 2.0.3.2, this radioactive material in an excepted package possessing toxic and corrosive properties is classified in Division 6.1 with radioactivity and corrosivity subsidiary hazards.

In addition to the provisions applicable to the transport of Division 6.1 substances with a corrosivity subsidiary hazards, the provisions of 5.1.3.2, 5.1.5.2.2, 5.1.5.4.1(b), 7.1.8.5.1 to 7.1.8.5.4 and 7.1.8.6.1 must apply.

No Class 7 label is required to be displayed.

370 This entry only applies to ammonium nitrate that meets one of the following criteria:

(a) ammonium nitrate with more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance; or

(b) ammonium nitrate with not more than 0.2% combustible substances, including any organic substance calculated as carbon, to the exclusion of any added substance, that gives a positive result when tested in accordance with Test Series 2 (see Manual of Tests and Criteria, Part I). See also UN No. 1942.

This entry shall not be used for ammonium nitrate for which a proper shipping name already exists in the Dangerous Goods List of Chapter 3.2 including ammonium nitrate mixed with fuel oil (ANFO) or any of the commercial grades of ammonium nitrate.

371 (1) This entry also applies to articles, containing a small pressure receptacle with a release device. Such articles must comply with the following requirements:

(a) The water capacity of the pressure receptacle must not exceed 0.5 litres and the working pressure must not exceed 25 bar at 15 °C;

(b) The minimum burst pressure of the pressure receptacle must be at least four times the pressure of the gas at 15 °C;

(c) Each article must be manufactured in such a way that unintentional firing or release is avoided under normal conditions of handling, packing, transport and use. This may be fulfilled by an additional locking device linked to the activator;

(d) Each article must be manufactured in such a way as to prevent hazardous projections of the pressure receptacle or parts of the pressure receptacle;

(e) Each pressure receptacle must be manufactured from material which will not fragment upon rupture;

(f) The design type of the article must be subjected to a fire test. For this test, the provisions of paragraphs 16.6.1.2 except letter g, 16.6.1.3.1 to 16.6.1.3.6, 16.6.1.3.7 (b) and 16.6.1.3.8 of the Manual of Tests and Criteria must be applied. It must be demonstrated that the article relieves its pressure by means of a fire degradable seal or other pressure relief device, in such a way that the pressure receptacle will not fragment and that the article or fragments of the article do not rocket more than 10 metres;

(g) The design type of the article must be subjected to the following test. A stimulating mechanism must be used to initiate one article in the middle of the packaging. There must be no hazardous effects outside the package such as disruption of the package, metal fragments or a receptacle which passes through the packaging.

(2) The manufacturer must produce technical documentation of the design type, manufacture as well as the tests and their results. The manufacturer must apply procedures to ensure that articles produced in series are made of good quality, conform to the design type and are able to meet the requirements in (1). The manufacturer must provide such information to the Competent Authority on request.

372 This entry applies to asymmetric capacitors with an energy storage capacity greater than 0.3 Wh. Capacitors with an energy storage capacity of 0.3 Wh or less are not subject to this Code.

Energy storage capacity means the energy stored in a capacitor, as calculated according to the following equation:

$Wh = ½C_N(U_R^2-U_L^2) \times (1/3600)$,

using the nominal capacitance (C_N), rated voltage (U_R) and rated lower limit voltage (U_L).

All asymmetric capacitors to which this entry applies must meet the following conditions:

(a) Capacitors or modules must be protected against short circuit;

(b) Capacitors must be designed and constructed to safely relieve pressure that may build-up in use, through a vent or a weak point in the capacitor casing. Any liquid which is released upon venting must be contained by packaging or by equipment in which a capacitor is installed;

(c) Capacitors manufactured after 31 December 2015, must be marked with the energy storage capacity in Wh; and

(d) Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods must be designed to withstand a 95 kPa pressure differential;

Capacitors containing an electrolyte not meeting the classification criteria of any class or division of dangerous goods, including when configured in a module or when installed in equipment are not subject to other provisions of this Code.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, with an energy storage capacity of 20 Wh or less, including when configured in a module, are not subject to other provisions of this Code when the capacitors are capable of withstanding a 1.2 metre drop test unpackaged on an unyielding surface without loss of contents.

Capacitors containing an electrolyte meeting the classification criteria of any class or division of dangerous goods that are not installed in equipment and with an energy storage capacity of more than 20 Wh are subject to this Code.

Capacitors installed in equipment and containing an electrolyte meeting the classification criteria of any class or division of dangerous goods, are not subject to other provisions of this Code provided that the equipment is packaged in a strong outer packaging constructed of suitable material, and of adequate strength and design, in relation to the packaging's intended use and in such a manner as to prevent accidental functioning of capacitors during transport. Large robust equipment containing capacitors may be offered for transport unpackaged or on pallets when capacitors are afforded equivalent protection by the equipment in which they are contained.

***NOTE**: Notwithstanding the provisions of this special provision, nickel-carbon asymmetric capacitors containing Class 8 alkaline electrolytes must be transported as UN 2795, BATTERIES, WET, FILLED WITH ALKALI, electric storage.*

373 Neutron radiation detectors containing non-pressurized boron trifluoride gas may be transported under this entry provided that the following conditions are met.

(a) Each radiation detector must meet the following conditions.

- (i) The pressure in each detector must not exceed 105 kPa absolute at 20°C;
- (ii) The amount of gas must not exceed 13 g per detector;
- (iii) Each detector must be manufactured under a registered quality assurance programme;

  ***NOTE**: The application of ISO 9001:2008 may be considered acceptable for this purpose.*

- (iv) Each neutron radiation detector must be of welded metal construction with brazed metal to ceramic feed through assemblies. These detectors must have a minimum burst pressure of 1800 kPa as demonstrated by design type qualification testing; and
- (v) Each detector must be tested to a 1 x 10^{-10} cm^3/s leaktightness standard before filling.

(b) Radiation detectors transported as individual components must be transported as follows:
   - (i) Detectors must be packed in a sealed intermediate plastics liner with sufficient absorbent or adsorbant material to absorb or adsorb the entire gas contents;
   - (ii) (ii) They must be packed in strong outer packaging. The completed package must be capable of withstanding a 1.8 m drop test without leakage of gas contents from detectors;
   - (iii) (iii) The total amount of gas from all detectors per outer packaging must not exceed 52 g.

(c) Completed neutron radiation detection systems containing detectors meeting the conditions of paragraph (a) must be transported as follows:
   - (i) The detectors must be contained in a strong sealed outer casing;
   - (ii) The casing must contain sufficient absorbent material to absorb the entire gas contents;
   - (iii) The completed systems must be packed in strong outer packagings capable of withstanding a 1.8 m drop test without leakage unless a system's outer casing affords equivalent protection.

Packing instruction P200 of 4.1.4.1 is not applicable.

The transport document must include the following statement "Transport in accordance with special provision 373".

Neutron radiation detectors containing not more than 1 g of boron trifluoride, including those with solder glass joints, are not subject to this Code provided they meet the requirements in paragraph (a) and are packed in accordance with paragraph (b). Radiation detection systems containing such detectors are not subject to this Code provided they are packed in accordance with paragraph

374 This entry may only be used, as authorised by the competent authority, for packagings, large packagings or intermediate bulk containers (IBC), or parts thereof, which have contained dangerous goods, other than radioactive material, which are transported for disposal, recycling or recovery of their material, other than reconditioning, repair, routine maintenance, remanufacturing or reuse, and which have been emptied to the extent that only residues of dangerous goods adhering to the packaging parts are present when they are handed over for transport.

375 These substances when transported in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids, are not subject to any other provisions of this Code provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

376 Lithium ion cells or batteries and lithium metal cells or batteries identified as being damaged or defective such that they do not conform to the type tested according to the applicable provisions of the Manual of Tests and Criteria must comply with the requirements of this special provision.

For the purposes of this special provision, these may include, but are not limited to:

- Cells or batteries identified as being defective for safety reasons;
- Cells or batteries that have leaked or vented;
- Cells or batteries that cannot be diagnosed prior to transport; or
- Cells or batteries that have sustained physical or mechanical damage.

NOTE: *In assessing a cell or battery as damaged or defective, an assessment or evaluation should be performed based on safety criteria from the cell, battery or product manufacturer or by a technical expert with knowledge of the cell's or battery's safety features. An assessment or evaluation may include, but is not limited to, the following criteria:*

(a) Acute hazard, such as gas, fire, or electrolyte leaking;

(b) The use or misuse of the cell or battery;

(c) Signs of physical damage, such as deformation to cell or battery casing, or colours on the casing;

(d) External and internal short circuit protection, such as voltage or isolation measures;

(e) The condition of the cell or battery safety features; or

(f) Damage to any internal safety components, such as the battery management system.

Cells and batteries must be transported according to the provisions applicable to UN 3090, UN 3091, UN 3480 and UN 3481, except special provision 230 and as otherwise stated in this special provision.

Cells and batteries must be packed in accordance with packing instructions P908 of 4.1.4.1 or LP904 of 4.1.4.3, as applicable.

Cells and batteries identified as damaged or defective and liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of transport shall be packed and transported in accordance with packing instruction P911 of 4.1.4.1 or LP906 of 4.1.4.3, as applicable. Alternative packing and/or transport conditions may be authorized by the competent authority.

Packages shall be marked "DAMAGED/DEFECTIVE" in addition to the proper shipping name, as stated in 5.2.1.

The transport document shall include the following statement "Transport in accordance with special provision 376".

377 Lithium ion and lithium metal cells and batteries and equipment containing such cells and batteries transported for disposal or recycling, either packed together with or packed without non-lithium batteries, may be packaged in accordance with packing instruction P909 of 4.1.4.1.

These cells and batteries are not subject to the requirements of section 2.9.4. Additional exemptions may be provided under the conditions defined by modal transport regulations.

Packages must be marked "LITHIUM BATTERIES FOR DISPOSAL" or "LITHIUM BATTERIES FOR RECYCLING".

Identified damaged or defective batteries must be transported in accordance with special provision 376 and packaged in accordance with P908 of 4.1.4.1 or LP904 of 4.1.4.3, as applicable.

378 Radiation detectors containing this gas in non-refillable pressure receptacles not meeting the requirements of Chapter 6.2 and packing instruction P200 of 4.1.4.1 may be transported under this entry provided:

(a) The working pressure in each receptacle does not exceed 50 bar;

(b) The receptacle capacity does not exceed 12 litres;

(c) Each receptacle has a minimum burst pressure of at least 3 times the working pressure when a relief device is fitted and at least 4 times the working pressure when no relief device is fitted;

(d) Each receptacle is manufactured from material which will not fragment upon rupture;

(e) Each detector is manufactured under a registered quality assurance programme;

NOTE: *ISO 9001:2008 may be used for this purpose.*

(f) Detectors are transported in strong outer packagings. The complete package shall be capable of withstanding a 1.2 metre drop test without breakage of the detector or rupture of the outer packaging. Equipment that includes a detector shall be packed in a strong outer packaging unless the detector is afforded equivalent protection by the equipment in which it is contained; and

(g) The transport document includes the following statement “Transport in accordance with special provision 378”. Radiation detectors, including detectors in radiation detection systems, are not subject to any other requirements of this Code if the detectors meet the requirements in (a) to (f) above and the capacity of detector receptacles does not exceed 50 ml.

379 Anhydrous ammonia adsorbed or absorbed on a solid contained in ammonia dispensing systems or receptacles intended to form part of such systems are not subject to the other provisions of this Code if the following conditions are observed:

(a) The adsorption or absorption presents the following properties:
  (i) The pressure at a temperature of 20 °C in the receptacle is less than 0.6 bar;
  (ii) The pressure at a temperature of 35 °C in the receptacle is less than 1 bar;
  (iii) The pressure at a temperature of 85 °C in the receptacle is less than 12 bar.
(b) The adsorbent or absorbent material shall not have dangerous properties listed in Classes 1 to 8;
(c) The maximum contents of a receptacle shall be 10 kg of ammonia; and
(d) Receptacles containing adsorbed or absorbed ammonia must meet the following conditions:
  (i) Receptacles shall be made of a material compatible with ammonia as specified in ISO 11114-1:2012 + Amd 1:2017;
  (ii) Receptacles and their means of closure must be hermetically sealed and able to contain the generated ammonia;

(iii) Each receptacle must be able to withstand the pressure generated at 85 °C with a volumetric expansion no greater than 0.1%;
(iv) Each receptacle shall be fitted with a device that allows for gas evacuation once pressure exceeds 15 bar without violent rupture, explosion or projection; and
(v) Each receptacle must be able to withstand a pressure of 20 bar without leakage when the pressure relief device is deactivated. When transported in an ammonia dispenser, the receptacles must be connected to the dispenser in such a way that the assembly is guaranteed to have the same strength as a single receptacle. The properties of mechanical strength mentioned in this special provision must be tested using a prototype of a receptacle and/or dispenser filled to nominal capacity, by increasing the temperature until the specified pressures are reached. The test results must be documented, must be traceable and must be communicated to the relevant authorities upon request.

380 <Deleted>

381 Large packagings conforming to the packing group III performance level used in accordance with packing instruction LP02 of 4.1.4.3, as prescribed in the 18th revised edition of the United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations, may be used until 31 December 2022.

382 Polymeric beads may be made from polystyrene, poly (methyl methacrylate) or other polymeric material. When it can be demonstrated that no flammable vapour, resulting in a flammable atmosphere, is evolved according to test U1 (Test method for substances liable to evolve flammable vapours) of Part III, sub-section 38.4.4 of the Manual of Tests and Criteria, polymeric beads, expandable need not be classified under this UN number. This test should only be performed when de-classification of a substance is considered.

383 Table tennis balls manufactured from celluloid are not subject to this Code where the net mass of each table tennis ball does not exceed 3.0 g and the total net mass of table tennis balls does not exceed 500 g per package.

384 The label to be used is Model No 9A, see 5.2.2.2.2. However, for placarding of cargo transport units, the placard shall correspond to Model No 9.

NOTE: *The Class 9 label (Model No 9) may continue to be used until 31 December 2018.*

385 **<Deleted>**

386 When substances are stabilized by temperature control, the provisions of 7.1.6 apply. When chemical stabilization is employed, the person offering the packaging, IBC or tank for transport must ensure that the level of stabilization is sufficient to prevent the substance in the packaging, IBC or tank from dangerous polymerization at a bulk mean temperature of 50 °C, or, in the case of a portable tank, 45 °C. Where chemical stabilization becomes ineffective at lower temperatures within the anticipated duration of transport, temperature control is required. In making this determination factors to be taken into consideration include, but are not limited to, the capacity and geometry of the packaging, IBC or tank and the effect of any insulation present, the temperature of the substance when offered for transport, the duration of the journey and the ambient temperature conditions typically encountered in the journey (considering also the season of year), the effectiveness and other properties of the stabilizer employed, applicable operational controls imposed by regulation (e.g. requirements to protect from sources of heat, including other cargo transported at a temperature above ambient) and any other relevant factors.

387 Lithium batteries in conformity with 2.9.4 (f) containing both primary lithium metal cells and rechargeable lithium ion cells shall be assigned to UN Nos. 3090 or 3091 as appropriate. When such batteries are transported in accordance with special provision 188, the total lithium content of all lithium metal cells contained in the battery shall not exceed 1.5 g and the total capacity of all lithium ion cells contained in the battery shall not exceed 10 Wh.

388 UN No. 3166 entries apply to vehicles powered by flammable liquid or gas internal combustion engines or fuel cells.

Vehicles powered by a fuel cell engine shall be assigned to the entries UN 3166 VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED, as appropriate. These entries include hybrid electric vehicles powered by both a fuel cell and an internal combustion engine with wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed.

Other vehicles which contain an internal combustion engine shall be consigned under the entries UN 3166 VEHICLE, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FLAMMABLE LIQUID POWERED, as appropriate. These entries include hybrid electric vehicles powered by both an internal combustion engine and wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed.

If a vehicle is powered by a flammable liquid and a flammable gas internal combustion engine, it shall be assigned to UN 3166 VEHICLE, FLAMMABLE GAS POWERED

Entry UN 3171 only applies to vehicles powered by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries transported with these batteries installed.

For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods. Examples of such vehicles are cars, motorcycles, scooters, three- and four-wheeled vehicles or motorcycles, trucks, locomotives, bicycles (pedal cycles with a motor) and other vehicles of this type (e.g. self-balancing vehicles or vehicles not equipped with at least one seating position), wheelchairs, lawn tractors, self-propelled farming and construction equipment, boats and aircraft. This includes vehicles transported in a packaging. In this case some parts of the vehicle may be detached from its frame to fit into the packaging.

Examples of equipment are lawnmowers, cleaning machines or model boats and model aircraft. Equipment powered by lithium metal batteries or lithium ion batteries shall be consigned under the entries UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT or UN 3091 LITHIUM METAL BATTERIES PACKED WITH EQUIPMENT or UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT or UN 3481 LITHIUM ION BATTERIES PACKED WITH EQUIPMENT, as appropriate. Lithium ion batteries or lithium metal batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit shall be assigned to the entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT lithium ion batteries or lithium metal batteries.

Dangerous goods, such as batteries, airbags, fire extinguishers, compressed gas accumulators, safety devices and other integral components of the vehicle that are necessary for the operation of the vehicle or for the safety of its operator or passengers, shall be securely installed in the vehicle and are not otherwise subject to this Code. However, lithium batteries shall meet the provisions of 2.9.4, except that 2.9.4 (a) does not apply when pre-production prototype batteries or batteries of a small production run, consisting of not more than 100 batteries, are installed in vehicles or equipment.

Where a lithium battery installed in a vehicle or equipment is damaged or defective, the vehicle or equipment shall be transported as defined by the competent authority.

389 This entry only applies to lithium ion batteries or lithium metal batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit. The lithium batteries shall meet the requirements of 2.9.4 (a) to (g) and contain the necessary systems to prevent overcharge and over discharge between the batteries.

The batteries shall be securely attached to the interior structure of the cargo transport unit (e.g., by means of placement in racks, cabinets, etc.) in such a manner as to prevent short circuits, accidental operation, and significant movement relative to the cargo transport unit under the shocks, loadings and vibrations normally incident to transport. Dangerous goods necessary for the safe and proper operation of the cargo transport unit (e.g., fire extinguishing systems and air conditioning systems), shall be properly secured to or installed in the cargo transport unit and are not otherwise subject to this Code. Dangerous goods not necessary for the safe and proper operation of the cargo transport unit shall not be transported within the cargo transport unit.

The batteries inside the cargo transport unit are not subject to marking or labelling requirements. The cargo transport unit shall display the UN number in accordance with 5.3.2.1.2 and be placarded on two opposing sides in accordance with 5.3.1.1.2.

390 When a package contains a combination of lithium batteries contained in equipment and lithium batteries packed with equipment, the following requirements apply for the purposes of package marking and documentation:

(a) the package must be marked "UN 3091 Lithium metal batteries packed with equipment", or "UN 3481 Lithium ion batteries packed with equipment", as appropriate. If a package contains both lithium ion batteries and lithium metal batteries packed with and contained in equipment, the package must be marked as required for both battery types. However, button cell batteries installed in equipment (including circuit boards) need not be considered.

(b) the transport document must indicate "UN 3091 Lithium metal batteries packed with equipment" or "UN 3481 Lithium ion batteries packed with equipment", as appropriate. If a package contains both lithium metal batteries and lithium ion batteries packed with and contained in equipment, then the transport document must indicate both "UN 3091 Lithium metal batteries packed with equipment" and "UN 3481 Lithium ion batteries packed with equipment

391 Articles containing dangerous goods of Division 2.3, or Division 4.2, or Division 4.3, or Division 5.1, or Division 5.2 or Division 6.1 for substances of inhalation toxicity requiring Packing Group I and articles containing more than one of the hazards listed in 2.0.3.1 (b), (c), or (d) shall be transported under conditions approved by the competent authority.

392 For the transport of fuel gas containment systems designed and approved to be fitted in motor vehicles containing this gas the provisions of sub-section 4.1.4.1 and Chapter 6.2 of these Regulations need not be applied when transported for disposal, recycling, repair, inspection, maintenance or from where they are manufactured to a vehicle assembly plant, provided the following conditions are met:

(a) The fuel gas containment systems shall meet the requirements of the standards or regulations for fuel tanks for vehicles, as applicable. Examples of applicable standards and regulations are:

LPG tanks	
ECE Regulation No. 67 Revision 2	Uniform provisions concerning: I. Approval of specific equipment of vehicles of category M and N using liquefied petroleum gases in their propulsion system; II. Approval of vehicles of category M and N fitted with specific equipment for the use of liquefied petroleum gases in their propulsion system with regard to the installation of such equipment

ECE Regulation No. 115	Uniform provisions concerning the approval of: I. Specific LPG (liquefied petroleum gases) retrofit systems to be installed in motor vehicles for the use of LPG in their propulsion systems; II Specific CNG (compressed natural gas) retrofit systems to be installed in motor vehicles for the use of CNG in their propulsion system
CNG tanks	
ECE Regulation No. 110	Uniform provisions concerning the approval of: I. Specific components of motor vehicles using compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system; II. Vehicles with regard to the installation of specific components of an approved type for the use of compressed natural gas (CNG) and/or liquefied natural gas (LNG) in their propulsion system
ECE Regulation No. 115	(Uniform provisions concerning the approval of: I. Specific LPG (liquefied petroleum gases) retrofit systems to be installed in motor vehicles for the use of LPG in their propulsion systems; II Specific CNG (compressed natural gas) retrofit systems to be installed in motor vehicles for the use of CNG in their propulsion system)
ISO 11439:2013	Gas cylinders — High pressure cylinders for the on-board storage of natural gas as a fuel for automotive vehicles
ISO 15500-Series	ISO 15500: Road vehicles -- Compressed natural gas (CNG) fuel system components – several parts as applicable
ANSI NGV 2	Compressed natural gas vehicle fuel containers
CSA B51 Part 2: 2014	Boiler, pressure vessel, and pressure piping code Part 2 Requirements for high-pressure cylinders for on-board storage of fuels for automotive vehicles
Hydrogen pressure tanks	
Global Technical Regulation (GTR) No. 13	Global technical regulation on hydrogen and fuel cell vehicles (ECE/TRANS/180/Add.13).
ISO/TS 15869:2009	Gaseous hydrogen and hydrogen blends - Land vehicle fuel tanks
Regulation (EC) No.79/2009	Regulation (EC) No. 79/2009 of the European Parliament and of the Council of 14 January 2009 on type approval of hydrogen-powered motor vehicles, and amending Directive 2007/46/EC
Regulation (EU) No. 406/2010	Commission Regulation (EU) No 406/2010 of 26 April 2010 implementing Regulation (EC) No 79/2009 of the European Parliament and of the Council on type-approval of hydrogen-powered motor vehicles.

ECE Regulation No. 134	Uniform provisions concerning the approval of motor vehicles and their components with regards to the safety-related performance of hydrogen and fuel cell vehicles (HFCV)
CSA B51 Part 2: 2014	Boiler, pressure vessel, and pressure piping code Part 2 Requirements for high-pressure cylinders for on-board storage of fuels for automotive vehicles

Gas tanks designed and constructed in accordance with previous versions of relevant standards or regulations for gas tanks for motor vehicles, which were applicable at the time of the certification of the vehicles for which the gas tanks were designed and constructed may continue to be transported;

(b) The fuel gas containment systems shall be leakproof and shall not exhibit any signs of external damage which may affect their safety;

NOTE 1: *Criteria may be found in standard ISO 11623:2015 Gas cylinders – Composite construction – Periodic inspection and testing (or ISO 19078:2013 Gas cylinders – Inspection of the cylinder installation, and requalification of high pressure cylinders for the on-board storage of natural gas as a fuel for automotive vehicles).*

NOTE 2: *If the fuel gas containment systems are not leakproof or are overfilled or if they exhibit damage that could affect their safety (e.g. in case of a safety related recall), they shall only be carried in salvage pressure receptacles in conformity with these Regulations.*

(c) If a fuel gas containment system is equipped with two valves or more integrated in line, the two valves shall be closed as to be gastight under normal conditions of transport. If only one valve exists or only one valve works, all openings with the exception of the opening of the pressure relief device shall be closed as to be gastight under normal conditions of transport;

(d) Fuel gas containment systems shall be transported in such a way as to prevent obstruction of the pressure relief device or any damage to the valves and any other pressurised part of the fuel gas containment systems and unintentional release of the gas under normal conditions of transport. The fuel gas containment system shall be secured in order to prevent slipping, rolling or vertical movement;

(e) Valves shall be protected by one of the methods described in 4.1.6.1.8 (a) to (e);

(f) Except for the case of fuel gas containment systems removed for disposal, recycling, repair, inspection or maintenance, they shall be filled with not more than 20 % of their nominal filling ratio or nominal working pressure, as applicable;

(g) Notwithstanding the provisions of Chapter 5.2, when fuel gas containment systems are consigned in a handling device, markings and labels may be affixed to the handling device; and

(h) Notwithstanding the provisions of 5.4.1.5 the information on the total quantity of dangerous goods may be replaced by the following information:

(i) The number of fuel gas containment systems; and

(ii) In the case of liquefied gases the total net mass (kg) of gas of each fuel gas containment system and, in the case of compressed gases, the total water capacity (l) of each fuel gas containment system followed by the nominal working pressure.

Examples for information in the transport document:

Example 1: “UN 1971 natural gas, compressed, 2.1, 1 fuel gas containment system of 50 *l* in total, 200 bar”.

Example 2: “UN 1965 hydrocarbon gas mixture, liquefied, n.o.s., 2.1, 3 fuel gas containment systems, each of 15 kg net mass of gas”.

393 The nitrocellulose must meet the criteria of the Bergmann-Junk test or methyl violet paper test in the Manual of Tests and Criteria Appendix 10. Tests of type 3 (c) need not be applied.

394 The nitrocellulose must meet the criteria of the Bergmann-Junk test or methyl violet paper test in the Manual of Tests and Criteria Appendix 10.

395 This entry shall only be used for solid medical waste of Category A transported for disposal.

3.3.3 AUSTRALIAN SPECIAL PROVISIONS

The Special Provisions in this Section 3.3.3 are peculiar to this Code and are therefore not applicable to international transport, or to air or sea transport within Australia.

SP No.

AU01 Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in;

(a) packagings that do not incorporate a receptacle exceeding 500 kg(L); or

(b) IBCs.

AU02 GAS OIL or DIESEL OIL or HEATING OIL, LIGHT or PETROLEUM DISTILLATE is not subject to this Code if it does not meet the criteria of Chapter 2.3 for assignment to Class 3; i.e. if the flash point is more than 60^{o}C and the substance is not offered for transport at a temperature above its flash point.

Such substances will normally be C1 combustible liquids which are not classified as dangerous goods for transport purposes. However, the presence of a C1 combustible liquid in one or more compartments of a tank vehicle or portable tank transporting other refined petroleum products must be considered when determining the application of UN Number 1270 in accordance with 3.2.5.4 and 5.3.1.3.3.

AU03 Unodourised LP Gas or Propane or Butane may only be transported if each of the following conditions is met:

(a) each route used for the transport must have been determined by an appropriate risk management assessment; and

(b) each load must be accompanied by a gas detector suitable for the detection of LP Gas or Propane or Butane, in accordance with AS 1596, and by a person trained in its operation; and

(c) that person must use the gas detector to check for the presence of LP Gas or Propane or Butane in the vicinity of the load at each routine stop that the vehicle makes, and on any other occasion when there is a significant risk that LP Gas may have leaked, and must record in writing the details of each test; and

(d) the word "Unodourised" must be included as part of the shipping name displayed on vehicle emergency information panels; and

(e) a copy of the Transport Emergency Response Plan must be provided to the relevant hazmat incident combat agency, before the journey commences.

This provision does not apply to South Australia. The transport of unodourised LP Gas or Propane or Butane is prohibited in South Australia unless exempted by the Competent Authority in South Australia.

AU04 Natural ‘greasy wool’ fleece and bales are not subject to this Code.

AU05 <omitted>

AU06 GMMOs and GMOs to which 2.9.2.2 applies are not subject to this Code.

AU07 UN 1017 CHLORINE has a subsidiary hazard 5.1, as well as 8. Despite this, when transported in cylinders, pressure drums, MEGCs or tanks, chlorine gas is not considered incompatible with dangerous goods of Class 8 or 9, or Division 6.1, or combustible liquids.

AU08 For automotive batteries, the acid volume may be used when calculating the aggregate quantity of dangerous goods in the load.

If the acid volume is not known, a nominal figure of 25% of the gross weight of the battery may be used.

CHAPTER 3.4 - DANGEROUS GOODS PACKED IN LIMITED QUANTITIES

Introductory Notes

***NOTE 1**:* *Chapter 3.4 was amended in 2020 (Code Edition 7.7).*

The provisions in this Chapter set out the following requirements:

- *packing design and construction*
- *marking and labelling of packaging*
- *segregation*
- *use of overpacks*
- *transport documentation*

Other relevant provisions of the Code, dealing with matters not provided for in this Chapter, continue to apply. In the event of inconsistency or duplication between this Chapter and other provisions of the Code, the provisions of this Chapter prevail.

NOTE 2: *Under Regulation 1.1.5, 1.1.6 or 1.1.7, the transport of certain small quantities of dangerous goods may be conditionally exempt from the Regulations and this Code.*

NOTE 3: *The concessions in 3.4.6 and 3.4.11 - 3.4.13 of this Chapter also apply to Domestic Consumable Dangerous Goods (defined in 1.2.1) that are packed and intended for retail distribution*

NOTE 4: *When transporting UN0337 fireworks (bon bons, party poppers and sparklers only) refer to the relevant jurisdictional explosives regulations for any additional requirements.*

3.4.1 LIMITED QUANTITY AMOUNTS

A quantity of dangerous goods is a limited quantity if:

a) The dangerous goods has a limited quantity amount (more than 0), listed in column 7a Limited Quantities in the Dangerous Goods List, Table 3.2.3; and

b) The dangerous goods are packed in an inner packaging with:

(i) if solids, a mass that is less than or equal to the number shown in column 7a of the Dangerous Goods List, Table 3.2.3, when that number is expressed in kilograms;

(ii) if liquids, a volume that is less than or equal to the number shown in column 7a of the Dangerous Goods List, Table 3.2.3 when that number is expressed in litres;

(iii) if gases, including a gas in a liquefied form, are contained in one or more means of containment each of which has a capacity less than or equal to the number shown in column 7a of the Dangerous Goods List, Table 3.2.3, when that number is expressed in litres.

3.4.2 PACKAGING REQUIREMENTS FOR LIMITED QUANTITIES

3.4.2.1 General requirements applicable to all packagings used for dangerous goods packed in limited quantities.

Dangerous goods transported in accordance with this chapter must be packed in packages that meet the following criteria:

a) packagings must be designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods; and
b) all packagings must meet the provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8; and
c) all packagings must meet the construction requirements of 6.1.4, 6.2.1.2 and 6.2.4; and
d) for articles of Division 1.4, Compatibility Group S, packagings must also fully comply with the provisions of 4.1.5.

3.4.2.2 Inner packagings are compulsory, except for articles such as aerosols or "receptacles, small, containing gas.

3.4.2.3 Intermediate packagings:

a) are compulsory for liquid goods of Class 8, packing group II which have inner packagings of glass, porcelain or stoneware. The intermediate packaging must be compatible and rigid.

b) are compulsory for inner packagings that are liable to break or be easily punctured, such as those made of glass, porcelain, stoneware or certain plastics where the outer packaging is shrink wrapped or stretch wrapped.

c) may be used at any other time.

3.4.2.4 Outer packagings

Limited quantities must be packed in an outer packaging which must meet the following criteria:

a) dangerous goods packed in limited quantities amounts must be placed in a suitable outer packaging

b) except for articles of Division 1.4, Compatibility Group S, shrink wrapped or stretch wrapped trays meeting the conditions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8 are acceptable as outer packagings, provided the total gross mass of the package does not exceed 20kg

c) inner packagings that are liable to break or be easily punctured must be packed in outer packagings not exceeding a total gross mass of 20kg.

d) all other outer packagings must not exceed a total gross mass of 30kg.

3.4.3 <RESERVED>

3.4.4 <RESERVED>

3.4.5 <RESERVED>

3.4.6 SEGREGATION FOR PACKAGES CONTAINING LIMITED QUANTITIES

3.4.6.1 Different dangerous goods packed in limited quantities may be placed in the same outer packaging provided they will not interact dangerously in the event of leakage.

3.4.6.2 Any segregation provisions elsewhere in this Code do not apply to dangerous goods packed in limited quantities within a cargo transport unit. This includes the need to segregate food and food packaging.

3.4.7 MARK FOR PACKAGES CONTAINING LIMITED QUANTITIES

3.4.7.1 Except for air transport, packages containing dangerous goods in limited quantities must bear the mark shown in Figure 3.4.1:

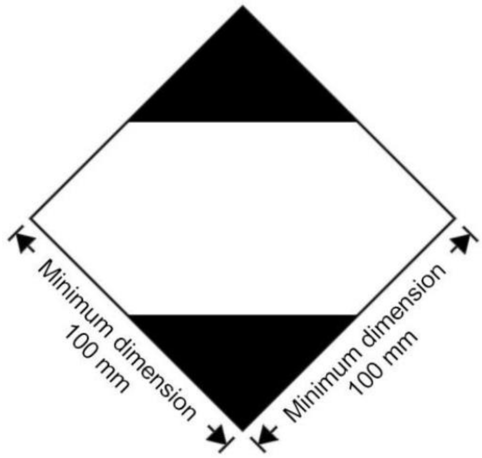


Figure 3.4.1: Mark for packages containing limited quantities

The mark must be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness.

The mark must be in the form of a square set at an angle of 45 degrees (diamond-shaped). The top and bottom portions and the surrounding line must be black. The centre area must be white or a suitable contrasting background. The minimum dimensions must be 100 mm x 100 mm and the minimum width of line forming the diamond must be 2 mm. Where dimensions are not specified, all features must be in approximate proportion to those shown.

3.4.7.2 If the size of the package so requires, the minimum outer dimensions shown in Figure 3.4.1 may be reduced to be not less than 50 mm x 50 mm provided the mark remains clearly visible. The minimum width of the line forming the diamond may be reduced to a minimum of 1 mm.

3.4.8 MARK FOR PACKAGES CONTAINING LIMITED QUANTITIES CONFORMING TO PART 3, CHAPTER 4 OF THE ICAO TECHNICAL INSTRUCTIONS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR

3.4.8.1 Packages containing dangerous goods packed in conformity with the provisions of Part 3, Chapter 4 of the ICAO Technical Instructions for the Transport of Dangerous Goods may bear the mark shown in Figure 3.4.2 to certify conformity with these provisions:

Figure 3.4.2: Mark for packages containing limited quantities conforming to Part 3, Chapter 4 of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air

The mark must be readily visible, legible and able to withstand open weather exposure without a substantial reduction in effectiveness.

The mark must be in the form of a square set at an angle of 45 degrees (diamond-shaped). The top and bottom portions and the surrounding line must be black. The centre area must be white or a suitable contrasting background. The minimum dimensions must be 100 mm x 100 mm and the minimum width of the line forming the diamond must be 2 mm. The symbol “Y” must be placed in the centre of the mark and must be clearly visible. Where dimensions are not specified, all features must be in approximate proportion to those shown.

3.4.8.2 If the size of the package so requires, the minimum outer dimensions shown in Figure 3.4.2 may be reduced to be not less than 50 mm x 50 mm provided the mark remains clearly visible. The minimum width of the line forming the diamond may be reduced to a minimum of 1 mm. The symbol “Y” must remain in approximate proportion to that shown in Figure 3.4.2.

3.4.8.3 Packages containing dangerous goods bearing the mark shown in 3.4.8 with or without the additional labels and marks for air transport must be deemed to meet the provisions of section 3.4.1 as appropriate and of sections 3.4.2 to 3.4.7 and need not bear the mark shown in 3.4.7.

3.4.8.4 Packages containing dangerous goods in limited quantities bearing the mark shown in 3.4.7 and conforming with the provisions of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air, including all necessary marks and labels specified in Parts 5 and 6, must be deemed to meet the provisions of section 3.4.1 as appropriate and of sections 3.4.2 to 3.4.7 when transported by land or by sea.

3.4.9 <RESERVED>

3.4.10 <RESERVED>

3.4.11 USE OF OVERPACKS

3.4.11.1 For an overpack containing dangerous goods packed in limited quantities, the following applies:

Unless the marks representative of all dangerous goods in an overpack are visible, the overpack must be:

a) marked with the word “OVERPACK”. The lettering of the “OVERPACK” mark shall be at least 12 mm high; and

b) marked with the marks required by this chapter. Except for air transport, the other provisions of 5.1.2.1 apply only if other dangerous goods which are not packed in limited quantities are contained in the overpack and only in relation to these other dangerous goods.

Except for air transport, the other provisions of 5.1.2.1 apply only if other dangerous goods which are not packed in limited quantities are contained in the overpack and only in relation to these other dangerous goods.

3.4.11.2 Despite 3.4.11.1, an overpack intended only for transport by road or rail within Australia need not be marked with the word "OVERPACK".

3.4.12.1 INFORMATION TO BE AVAILABLE DURING TRANSPORT

Prior to transporting, the consignor of the dangerous goods packed in limited quantities must inform the prime contractor, in a form readily ascertainable during transport, of:

a) the total gross mass of such goods to be consigned, and, if the goods consist of multiple consignments for different consignees, the gross mass of each consignment; and

b) if the goods to be consigned include an aggregate quantity of 2000 kg(L) or greater of any one UN Number - the UN Number, Proper Shipping Name and total aggregate quantity for that UN number.

3.4.12.2 The prime contractor must ensure that the information provided to them under 3.4.12.1 is readily ascertainable during transport of the dangerous goods.

3.4.13 DOCUMENTATION

3.4.13.1 A dangerous goods transport document is not required for dangerous goods that meet the requirements of this Chapter.

3.4.13.2 Any transport document for the consignment (e.g. consignment note, bill of lading, etc.) must include the notation ‘Contains Dangerous Goods Packed in Limited Quantities’

NOTE 1: *Placard limit requirements for Limited Quantities (LQ) are set out in Table 5.3.*

***NOTE 2**:* *Appropriate placards for limited quantity loads are given in 5.2.2.2.3 and 5.2.2.2.4.*

CHAPTER 3.5 - DANGEROUS GOODS PACKED IN EXCEPTED QUANTITIES

3.5.1 EXCEPTED QUANTITIES

3.5.1.1 Excepted quantities of dangerous goods of certain classes, other than articles, meeting the provisions of this Chapter are not subject to any other provisions of this Code except for:

(a) The training requirements in Chapter 1.3;

(b) The classification procedures and packing group criteria in Part 2;

(c) The packaging requirements of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.4.1 and 4.1.1.6.

***NOTE**: In the case of radioactive material, the requirements for radioactive material in excepted packages in 1.5.1.5 apply.*

3.5.1.2 Dangerous goods which may be carried as excepted quantities in accordance with the provisions of this Chapter are shown in column 7b of the dangerous goods list of Chapter 3.2 by means of an alphanumeric code as follows:

Code	**Maximum net quantity per inner packaging** (in grams for solids and ml for liquids and gases)	**Maximum net quantity per outer packaging** (in grams for solids and ml for liquids and gases, or sum of grams and ml in the case of mixed packing)
E0	Not permitted as Excepted Quantity	
E1	30	1000
E2	30	500
E3	30	300
E4	1	500
E5	1	300

For gases, the volume indicated for inner packagings refers to the water capacity of the inner receptacle and the volume indicated for outer packagings refers to the combined water capacity of all inner packagings within a single outer packaging.

3.5.1.3 Where dangerous goods in excepted quantities for which different codes are assigned are packaged together the total quantity per outer packaging shall be limited to that corresponding to the most restrictive code.

3.5.1.4 Excepted quantities of dangerous goods assigned to codes E1, E2, E4 and E5 are not subject to this Code provided that:

(a) The maximum net quantity of material per inner packaging is limited to 1 ml for liquids and gases and 1 g for solids;

(b) The provisions of 3.5.2 are met, except that an intermediate packaging is not required if the inner packagings are securely packed in an outer packaging with cushioning material in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents; and for liquids, the outer packaging contains sufficient absorbent material to absorb the entire contents of the inner packagings;

(c) The provisions of 3.5.3 are complied with; and

(c) The maximum net quantity of dangerous goods per outer packaging does not exceed 100 g for solids or 100 ml for liquids and gases.

3.5.2 PACKAGINGS

Packagings used for the transport of dangerous goods in excepted quantities shall be in compliance with the following:

(a) There shall be an inner packaging and each inner packaging shall be constructed of plastic (when used for liquid dangerous goods it shall have a thickness of not less than0.2 mm), or of glass, porcelain, stoneware, earthenware or metal (see also 4.1.1.2) and the closure of each inner packaging shall be held securely in place with wire, tape or other positive means; any receptacle having a neck with moulded screw threads shall have a leak proof threaded type cap. The closure shall be resistant to the contents;

(b) Each inner packaging shall be securely packed in an intermediate packaging with cushioning material in such a way that, under normal conditions of transport, it cannot break, be punctured or leak its contents. For liquid dangerous goods, the intermediate or outer packaging shall contain sufficient absorbent material to absorb the entire contents of the inner packagings. When placed in the intermediate packaging, the absorbent material may be the cushioning material. Dangerous goods shall not react

dangerously with cushioning, absorbent material and packaging material or reduce the integrity or function of the materials. Regardless of its orientation, the package shall completely contain the contents in case of breakage or leakage;

(c) The intermediate packaging shall be securely packed in a strong, rigid outer packaging (wooden, fibreboard or other equally strong material);

(d) Each package type shall be in compliance with the provisions in 3.5.3;

(e) Each package shall be of such a size that there is adequate space to apply all necessary marks; and

(f) Overpacks may be used and may also contain packages of dangerous goods or goods not subject to this Code.

3.5.3 TESTS FOR PACKAGES

3.5.3.1 The complete package as prepared for transport, with inner packagings filled to not less than95% of their capacity for solids or 98% for liquids, shall be capable of withstanding, as demonstrated by testing which is appropriately documented, without breakage or leakage of any inner packaging and without significant reduction in effectiveness:

(a) Drops onto a rigid, non-resilient, flat and horizontal surface from a height of 1.8 m:

(i) Where the sample is in the shape of a box, it shall be dropped in each of the following orientations:

- flat on the base;
- flat on the top;
- flat on the longest side;
- flat on the shortest side;
- on a corner;

(ii) Where the sample is in the shape of a drum, it shall be dropped in each of the following orientations:

- diagonally on the top chime, with the centre of gravity directly above the point of impact;
- diagonally on the base chime;
- flat on the side.

***NOTE**:* *Each of the above drops may be performed on different but identical packages.*

(b) A force applied to the top surface for a duration of 24 hours, equivalent to the total weight of identical packages if stacked to a height of 3 m (including the sample).

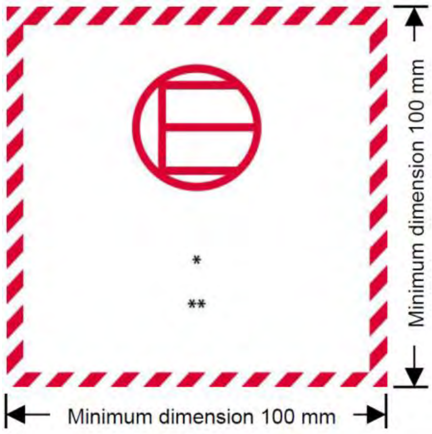
3.5.3.2 For the purposes of testing, the substances to be transported in the packaging may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used, it must have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. In the drop tests for liquids, when another substance is used, its relative density (specific gravity) and viscosity should be similar to those of the substance to be transported.

3.5.4 MARKING OF PACKAGES

3.5.4.1 Packages containing excepted quantities of dangerous goods prepared in accordance with this Chapter shall be durably and legibly marked with the mark shown in Figure 3.5.1. The primary hazard class or, when assigned, the division of each of the dangerous goods contained in the package shall be shown in the mark. Where the name of the consignor or consignee is not shown elsewhere on the package this information shall be included within the mark.

3.5.4.2 Excepted quantities mark

Figure 3.5.1: Excepted quantities mark



The mark shall be in the form of a square. The hatching and symbol shall be of the same colour, black or red, on white or suitable contrasting background. The minimum dimensions shall be 100 mm x 100 mm. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

* The Class or, when assigned, the Division number(s) shall be shown in this location.

** The name of the consignor or of the consignee shall be shown in this location if not shown elsewhere on the package.

3.5.4.3 Use of overpacks

For an overpack containing dangerous goods packed in excepted quantities, the following applies:

Unless the marks representative of all dangerous goods in an overpack are visible, the overpack shall be:

– marked with the word “OVERPACK”. The lettering of the “OVERPACK” mark shall be at least 12 mm high; and

– marked with the marks required by this chapter.

The other provisions of 5.1.2.1 apply only if other dangerous goods which are not packed in excepted quantities are contained in the overpack and only in relation to these other dangerous goods.

NOTE: *5.1.2.1.2 provides that an overpack intended only for transport by road or rail within Australia need not be marked with the word “OVERPACK”*

3.5.5 MAXIMUM NUMBER OF PACKAGES IN AN CARGO TRANSPORT UNIT

The number of packages in any cargo transport unit shall not exceed 1000.

3.5.6 DOCUMENTATION

3.5.6.1 A dangerous goods transport document is not required for dangerous goods that meet the requirements of this Chapter.

3.5.6.2 If a document (such as a bill of lading or air waybills) accompanies dangerous goods in excepted quantities, it shall include the statement "Dangerous Goods in Excepted Quantities" and indicate the number of packages.

PART 4: PACKING, TANK, CONTAINER, VEHICLE AND EQUIPMENT PROVISIONS

CHAPTER 4.1 - USE OF PACKAGINGS, INCLUDING INTERMEDIATE BULK CONTAINERS (IBCS) AND LARGE PACKAGINGS

Introductory Notes

NOTE 1: *This part reproduces in full the Packing provisions of Part 4 of UN20. It includes detailed Packing Instructions for all classes of dangerous goods, as referenced from column 8 (for packages, IBCs and Large Packagings) and column 10 (for portable tanks and bulk containers) of the Dangerous Goods List in Chapter 3.2, together with special packing provisions as referenced from columns 9 and 11.*

NOTE 2: *For Class 1 and Class 7 dangerous goods which are not subject to this Code except and insofar as they are transported with other dangerous goods, the information is provided for guidance only. For those classes, reference should be made to the Australian Explosives Code and the Codes of Practice for the Safe Transport of Radioactive Substances. The use of Packing Instructions from this Chapter that are not included in those Codes may require approval from the relevant Competent Authority.*

4.1.1 GENERAL PROVISIONS FOR THE PACKING OF DANGEROUS GOODS IN PACKAGINGS, INCLUDING IBCS AND LARGE PACKAGINGS

NOTE: *The general provisions of this section apply to all dangerous goods in packagings. However they only apply to the packing of goods of Class 2 and Division 6.2 where indicated in 4.1.8.2 (Division 6.2, UN 2814 and UN 2900) and in the applicable packing instructions of 4.1.4 (P201, P207 and LP02 for Class 2 and P620, P621, P622, IBC620, LP621 and LP622 for Division 6.2).*

4.1.1.1 Dangerous goods must be packed in good quality packagings, including IBCs and large packagings, which must be strong enough to withstand the shocks and loadings normally encountered during transport, including trans-shipment between cargo transport units and between cargo transport units and warehouses as well as any removal from a pallet or overpack for subsequent manual or mechanical handling. Packagings, including IBCs and large packagings, must be constructed and closed so as to prevent any loss of contents when prepared for transport which may be caused under normal conditions of transport, by vibration, or by changes in temperature, humidity or pressure (resulting from altitude, for example). Packagings, including IBCs and large packagings, must be closed in accordance with the information provided by the manufacturer. No dangerous residue must adhere to the outside of packages, IBCs and large packagings during transport. These provisions apply, as appropriate, to new, reused, reconditioned or remanufactured packagings, and to new, reused, repaired or remanufactured IBCs, and to new, reused or remanufactured large packagings.

4.1.1.2 Parts of packagings, including IBCs and large packagings, which are in direct contact with dangerous goods:

(a) must not be affected or significantly weakened by those dangerous goods; and

(b) must not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods; and

(c) must not allow permeation of the dangerous goods that could constitute a danger under normal conditions of transport.

Where necessary, they must be provided with a suitable inner coating or treatment.

4.1.1.3 Unless provided elsewhere in this Code, each packaging, including IBCs and large packagings, except inner packagings, must conform to a design type successfully tested in accordance with the requirements of 6.1.5, 6.3.5, 6.5.6 or 6.6.5, as applicable. However, IBCs manufactured before 1 January 2011 and conforming to a design type which has not passed the vibration test of 6.5.6.13 or which was not required to meet the criteria of 6.5.6.9.5 (d) at the time it was subjected to the drop test, may still be used.

4.1.1.3.1 Packagings, including IBCs and large packagings, may conform to one or more than one successfully tested design type and may bear more than one mark.

4.1.1.4 When filling packagings, including IBCs and large packagings, with liquids, sufficient ullage (outage) must be left to ensure that neither leakage nor permanent distortion of the packaging occurs as a result of an expansion of the liquid caused by temperatures likely to occur during transport. Unless specific requirements are prescribed, liquids must not completely fill a packaging at a temperature of 55 °C. However, sufficient ullage must be left in an IBC to ensure that at the mean bulk temperature of 50 °C it is not filled to more than 98% of its water capacity.

4.1.1.4.1 For air transport, packagings intended to contain liquids must also be capable of withstanding a pressure differential without leakage as specified in the international regulations for air transport.

4.1.1.5 Inner packagings must be packed in an outer packaging in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the outer packaging. Inner packagings containing liquids must be packaged with their closures upward and placed within outer packagings consistent with any orientation marks (see 5.2.1.7). Inner packagings that are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials, etc., must be secured in outer packagings with suitable cushioning material. Any leakage of the contents must not substantially impair the protective properties of the cushioning material or of the outer packaging.

4.1.1.5.1 Where an outer packaging of a combination packaging or a large packaging has been successfully tested with different types of inner packagings, a variety of such different inner packagings may also be assembled in this outer packaging or large packaging. In addition, provided an equivalent level of performance is maintained, the following variations in inner packagings are allowed without further testing of the package:

(a) Inner packagings of equivalent or smaller size may be used provided:

(i) The inner packagings are of similar design to the tested inner packagings (e.g. shape - round, rectangular, etc.);

(ii) The material of construction of the inner packagings (glass, plastics, metal, etc.) offers resistance to impact and stacking forces equal to or greater than that of the originally tested inner packaging;

(iii) The inner packagings have the same or smaller openings and the closure is of similar design (e.g. screw cap, friction lid, etc.);

(iv) Sufficient additional cushioning material is used to take up void spaces and to prevent significant movement of the inner packagings; and

(v) Inner packagings are oriented within the outer packaging in the same manner as in the tested package.

(b) A lesser number of the tested inner packagings, or of the alternative types of inner packagings identified in (a) above, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the inner packagings.

4.1.1.5.2 Use of supplementary packagings within an outer packaging (e.g. an intermediate packaging or a receptacle inside a required inner packaging) additional to what is required by the packing instructions is authorised provided all relevant requirements are met, including those of 4.1.1.3, and, if appropriate, suitable cushioning is used to prevent movement within the packaging.

4.1.1.6 Dangerous goods must not be packed together in the same outer packaging or in large packagings, with dangerous or other goods if they react dangerously with each other.

4.1.1.7 The closures of packagings containing wetted or diluted substances must be such that the percentage of liquid (water, solvent or phlegmatiser) does not fall below the prescribed limits during transport.

4.1.1.7.1 Where two or more closure systems are fitted in series on an IBC, that nearest to the substance being carried must be closed first.

4.1.1.8 Where pressure may develop in a package by the emission of gas from the contents (as a result of temperature increase or other causes), the packaging or IBC, may be fitted with a vent, provided that the gas emitted will not cause danger on account of its toxicity, its flammability, the quantity released, etc.

A venting device must be fitted if dangerous overpressure may develop due to normal decomposition of substances. The vent must be so designed that, when the packaging or IBC is in the attitude in which it is intended to be transported, leakages of liquid and the penetration of foreign substances are prevented under normal conditions of transport.

4.1.1.8.1 Liquids may only be filled into inner packagings which have an appropriate resistance to internal pressure that may be developed under normal conditions of transport.

4.1.1.8.2 Venting of the package is not permitted for air transport.

4.1.1.9 New, remanufactured or reused packagings, including IBCs and large packagings, or reconditioned packagings and repaired or routinely maintained IBCs must be capable of passing the tests prescribed in 6.1.5, 6.3.2, 6.5.6 or 6.6.5, as applicable. Before being filled and handed over for transport, every packaging, including IBCs and large packagings, must be inspected to ensure that it is free from corrosion, contamination or other damage and every IBC must be inspected with regard to the proper functioning of any service equipment. Any packaging, which shows signs of reduced strength as compared with the approved design type must no longer be used or must be so reconditioned, that it is able to withstand the design type tests. Any IBC which shows signs of reduced strength as compared with the tested design type must no longer be used or must be so repaired or routinely maintained that it is able to withstand the design type tests.

4.1.1.10 Liquids must be filled only into packagings, including IBCs, which have an appropriate resistance to the internal pressure that may develop under normal conditions of transport. Packagings and IBCs marked with the hydraulic test pressure prescribed in 6.1.3.1(d) and 6.5.2.2.1, respectively, must be filled only with a liquid having a vapour pressure:

(a) such that the total gauge pressure in the packaging or IBC (i.e. the vapour pressure of the filling substance plus the partial pressure of air or other inert gases, less 100 kPa) at 55 °C, determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C, will not exceed two thirds of the marked test pressure; or

(b) at 50 °C less than four sevenths of the sum of the marked test pressure plus 100 kPa; or

(c) at 55 °C less than two thirds of the sum of the marked test pressure plus 100 kPa.

IBCs intended for the carriage of liquids must not be used to carry liquids having a vapour pressure of more than 110 kPa (1.1 bar) at 50 °C or 130 kPa (1.3 bar) at 55 °C.

Examples of required marked test pressures for packagings, including IBCs, calculated as in 4.1.1.10 (c)

UN No.	Name	Class	Packing group	Vp55 (kPa)	Vp55× 1.5 (kPa)	(Vp55 × 1.5) minus 100 (kPa)	Required minimum test pressure gauge under 6.1.5.5.4.(c) (kPa)	Minimum test pressure (gauge) to be marked on the packaging (kPa)
2056	Tetrahydrofuran	3	II	70	105	5	100	100
2247	n-Decane	3	III	1.4	2.1	-97.9	100	100
1593	Dichloromethane	6.1	III	164	246	146	146	150
1155	Diethyl ether	3	I	199	299	199	199	250

NOTE 1: *For pure liquids the vapour pressure at 55 °C (Vp55) can often be obtained from scientific tables.*

NOTE 2: *The table refers to the use of 4.1.1.10(c) only, which means that the marked test pressure must exceed 1.5 times the vapour pressure at 55 °C less 100 kPa. When, for example, the test pressure for n-decane is* *determined according to 6.1.5.5.4 (a), the minimum marked test pressure may be lower.*

NOTE 3: *For diethyl ether the required minimum test pressure under 6.1.5.5.5 is 250 kPa.*

4.1.1.11 Empty packagings, including IBCs and large packagings, that have contained a dangerous substance, must be treated in the same manner as is required by this Code for a filled packaging, unless adequate measures have been taken to nullify any hazard.

4.1.1.12 Every packaging as specified in Chapter 6.1 intended to contain liquids must successfully undergo a suitable leakproofness test. This test is part of a quality assurance program as stipulated in 6.1.1.4 which shows the capability of meeting the appropriate test level indicated in 6.1.5.4.3:

(a) before it is first used for transport, except as permitted by 4.1.1.12.1;

(b) after remanufacturing or reconditioning of any packaging, before it is re-used for transport;

For this test the packaging need not have its closures fitted. The inner receptacle of a composite packaging may be tested without the outer packaging, provided the test results are not affected. This test is not necessary for inner packagings of combination packagings or large packagings.

4.1.1.12.1 Except where tested in accordance with 4.1.1.12, the leakproofness of tinplate cans constructed in accordance with AS 2854 and having a capacity not exceeding 15 L must be assured in accordance with a quality management system that complies with AS/NZS ISO 9001 or equivalent.

4.1.1.13 Packagings, including IBCs, used for solids which may become liquid at temperatures likely to be encountered during transport must also be capable of containing the substance in the liquid state.

4.1.1.14 Packagings, including IBCs, used for powdery or granular substances must be siftproof or must be provided with a liner.

4.1.1.15 For plastics drums and jerricans, rigid plastics IBCs and composite IBCs with plastics inner receptacles, unless otherwise exempted by the competent authority, the period of use permitted for the transport of dangerous substances is five years from the date of manufacture of the receptacles, except where a shorter period of use is prescribed because of the nature of the substance to be transported.

4.1.1.16 Where ice is used as a coolant it must not affect the integrity of the packaging.

4.1.1.17 Explosives, self-reactive substances and organic peroxides

Unless specific provision to the contrary is made in this Code or the Australian Explosives Code, the packagings, including IBCs and large packagings, used for goods of Class 1, self-reactive substances of Division 4.1 and organic peroxides of Division 5.2 must comply with the provisions for the medium danger group (packing group II).

4.1.1.18 Use of salvage packagings and large salvage packagings

4.1.1.18.1 Damaged, defective, leaking or non-conforming packages, or dangerous goods that have spilled or leaked may be transported in salvage packagings mentioned in 6.1.5.1.11 and 6.6.5.1.9. This does not prevent the use of a larger size packaging or large packaging of appropriate type and performance level under the conditions of 4.1.1.18.2 and 4.1.1.18.3.

4.1.1.18.2 Appropriate measures must be taken to prevent excessive movement of the damaged or leaking packages within a salvage packaging. When the salvage packaging contains liquids, either:

(a) the salvage packaging must be able to retain the liquid during transport with closures complying with 6.1.4.3.5 or 6.1.4.8.6 as applies; or

(b) sufficient inert absorbent material must be added to eliminate the presence of free liquid.

4.1.1.18.3 Appropriate measures must be taken to ensure there is no dangerous build up of pressure.

4.1.1.19 Use of salvage pressure receptacles

4.1.1.19.1 In the case of damaged, defective, leaking or non-conforming pressure receptacles, salvage pressure receptacles according to 6.2.3 may be used.

NOTE: *A salvage pressure receptacle may be used as an overpack in accordance with 5.1.2. When used as an overpack, marks must be in accordance with 5.1.2.1 instead of 5.2.1.3.*

4.1.1.19.2 Pressure receptacles must be placed in salvage pressure receptacles of suitable size. The maximum size of the placed pressure receptacle is limited to a water capacity of 1,000 litres. More than one pressure receptacle may be placed in the same salvage pressure receptacle only if the contents are known and do not react dangerously with each other (see 4.1.1.6). In this case the total sum of water capacities of the placed pressure receptacles must not exceed 1,000 litres. Measures must be taken to prevent movement of the pressure receptacles within the salvage pressure receptacle e.g. by partitioning, securing or cushioning.

4.1.1.19.3 A pressure receptacle may only be placed in a salvage pressure receptacle if:

(a) The salvage pressure receptacle is in accordance with 6.2.3.5 and a copy of the approval certificate is available;

(b) Parts of the salvage pressure receptacle which are, or are likely to be in direct contact with the dangerous goods will not be affected or weakened by those dangerous goods and will not cause a dangerous effect (e.g. catalyzing reaction or reacting with the dangerous goods); and

(c) The contents of the contained pressure receptacle(s) is limited in pressure and volume so that if totally discharged into the salvage pressure receptacle, the pressure in the salvage pressure receptacle at 65 ^{0}C will not exceed the test pressure of the salvage pressure receptacle (for gases, see packing instruction in P200 (3) 4.1.4.1). The reduction of the useable water capacity of the salvage pressure receptacle, e.g. by any contained equipment and cushioning, must be taken into account.

4.1.1.19.4 The proper shipping name, the UN Number preceded by the letters "UN" and label(s) as required for packages in Chapter 5.2 applicable to the dangerous goods inside the contained pressure receptacle(s) must be applied to the salvage pressure receptacle for transport.

4.1.1.19.5 Salvage pressure receptacles must be cleaned, purged and visually inspected internally and externally after each use. They must be periodically inspected and tested in accordance with 6.2.1.6 at least once every five years.

4.1.1.20 Reuse of Packagings

4.1.1.20.1 Each packaging must be examined before re-use. If the packaging exhibits signs of interior or exterior damage or deterioration affecting its ability to withstand performance testing, it must not be re-used to transport dangerous goods.

4.1.1.20.2 Plastics drums and jerricans must not be re-used to transport dangerous goods of packing group I.

4.1.1.20.3 A plastics packaging must not be re-used to transport dangerous goods more than five years after the date of its manufacture.

4.1.1.20.4 Before a packaging is reused for the transport of dangerous goods:

(a) any irrelevant marks and labels must be removed;
(b) any packaging that uses a vented cap must be fitted with a new closure of original specification;
(c) any composite packaging with a flexible plastics inner receptacle (other than a poly-lined steel drum) must be fitted with a new inner receptacle of original specification.

4.1.1.21 Reprocessed steel drums

4.1.1.21.1 A reprocessed steel drum must not be used to transport dangerous goods of packing group I.

4.1.1.21.2 A reprocessed steel drum must not be used to transport dangerous goods unless it is suitable for use with the dangerous goods in accordance with this Part and has been reprocessed in accordance with and subject to all the conditions imposed by Appendix D of this Code, the Code of Practice for Reprocessing Steel Drums.

4.1.2 ADDITIONAL GENERAL PROVISIONS FOR THE USE OF IBCS

4.1.2.1 When IBCs are used for the transport of liquids with a flash point of 60 °C (closed cup) or lower, or of powders liable to dust explosion, measures must be taken to prevent a dangerous electrostatic discharge.

4.1.2.2 Every metal, rigid plastics and composite IBC, must be inspected and tested, as relevant, in accordance with 6.5.4.4 or 6.5.4.5:

- before it is put into service;

- thereafter at intervals not exceeding two and a half and five years, as appropriate;
- after the repair or remanufacture, before it is re-used for transport.

An IBC must not be filled and offered for transport after the date of expiry of the last periodic test or inspection. However, an IBC filled prior to the date of expiry of the last periodic test or inspection may be transported for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, an IBC may be transported after the date of expiry of the last periodic test or inspection:

(a) after emptying but before cleaning, for purposes of performing the required test or inspection prior to refilling; and

(b) unless otherwise exempted by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection in order to allow the return of dangerous goods or residues for proper disposal or recycling. Reference to this exemption must be entered in the transport document.

4.1.2.3 IBCs of type 31HZ2 must be filled to at least 80% of the volume of the outer casing and always be carried in closed cargo transport units.

4.1.2.4 Except for routine maintenance of metal, rigid plastics, composite and flexible IBCs performed by the owner of the IBC, whose State and name or authorised symbol is durably marked on the IBC, the party performing routine maintenance must durably mark the IBC near the manufacturer's UN design type mark to show:

(a) the State in which the routine maintenance was carried out; and

(b) the name or authorised symbol of the party performing the routine maintenance.

4.1.3 GENERAL PROVISIONS CONCERNING PACKING INSTRUCTIONS

4.1.3.1 Packing instructions applicable to dangerous goods of Classes 1 to 9 are specified in 4.1.4. They are subdivided depending on the type of packagings to which they apply:

Sub-section 4.1.4.1	for packagings other than IBCs and large packagings; these packing instructions are designated by an alphanumeric code comprising the letter "P";
Sub-section 4.1.4.2	for IBCs; these are designated by an alphanumeric code comprising the letters "IBC";
Sub-section 4.1.4.3	for large packagings; these are designated by an alphanumeric code comprising the letters "LP".

Generally, packing instructions specify that the general provisions of 4.1.1, 4.1.2 and/or 4.1.3, as appropriate, are applicable. They may also require compliance with the special provisions of sections 4.1.5, 4.1.6, 4.1.7, 4.1.8 or 4.1.9 when appropriate. Special packing provisions may also be specified in the packing instruction for individual substances or articles. They are also designated by an alphanumeric code comprising the letters:

"PP" for packagings other than IBCs and large packagings

"B" for IBCs

"L" for large packagings.

Unless otherwise specified, each packaging must conform to the applicable requirements of Part 6. Generally packing instructions do not provide guidance on compatibility and the user should not select a packaging without checking that the substance is compatible with the packaging material selected (e.g. most fluorides are unsuitable for glass receptacles). Where glass receptacles are permitted in the packing instructions porcelain, earthenware and stoneware packagings are also allowed.

4.1.3.2 Column 8 of the Dangerous Goods List shows for each article or substance the packing instruction(s) that must be used. Column 9 indicates the special packing provisions applicable to specific substances or articles.

4.1.3.3 Each packing instruction shows, where applicable, the acceptable single and combination packagings. For combination packagings, the acceptable outer packagings, inner packagings and when applicable the maximum quantity permitted in each inner or outer packaging, are shown. Maximum net mass and maximum capacity are as defined in 1.2.1.1.

4.1.3.4 The following packagings must not be used when the substances being transported are liable to become liquid during transport:

Packagings:

Drums: 1D and 1G

Boxes: 4C1, 4C2, 4D, 4F, 4G and 4H1

Bags: 5L1, 5L2, 5L3, 5H1, 5H2, 5H3, 5H4, 5M1 and 5M2

Composite packagings:

6HC, 6HD2, 6HG1, 6HG2, 6HD1, 6PC, 6PD1, 6PD2, 6PG1, 6PG2 and 6PH1

Large packagings:

Flexible plastics: 51H (outer packaging)

IBCs:

For substances of packing group I: All types of IBCs;

For substances of packing groups II and III:

Wooden: 11C, 11D and 11F

Fibreboard: 11G

Flexible: 13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 and 13M2

Composite: 11HZ2 and 21HZ2.

4.1.3.5 Where the packing instructions in this chapter authorise the use of a particular type of packaging (e.g. 4G; 1A2), packagings bearing the same packaging identification code followed by the letters "V", "U" or "W" marked in accordance with the requirements of Part 6 (e.g. 4GV, 4GU or 4GW; 1A2V, 1A2U or 1A2W) may also be used under the same conditions and limitations applicable to the use of that type of packaging according to the relevant packing instructions. For example, a combination packaging marked with the packaging code "4GV" may be used whenever a combination packaging marked "4G" is authorised, provided the requirements in the relevant packing instruction regarding types of inner packagings and quantity limitations are respected.

4.1.3.6 Pressure receptacles for liquids and solids

4.1.3.6.1 Unless otherwise indicated in this Code, pressure receptacles conforming to:

(a) the applicable requirements of Chapter 6.2; or

(b) the National or International standards on the design, construction, testing, manufacturing and inspection, as applied by the country in which the pressure receptacles are manufactured, provided that the provisions of 4.1.3.6 and 6.2.3.3 are met,

are authorised for the transport of any liquid or solid substance other than explosives, thermally unstable substances, organic peroxides, self-reactive substances, substances where significant pressure may develop by evolution of chemical reaction and radioactive material (unless permitted in 4.1.9).

This sub-section is not applicable to the substances mentioned in 4.1.4.1, packing instruction P200, Table 3.

4.1.3.6.2 Every design type of pressure receptacle must be approved by the competent authority of the country of manufacture or as indicated in Chapter 6.2.

4.1.3.6.3 Unless otherwise indicated, pressure receptacles having a minimum test pressure of 0.6 MPa must be used.

4.1.3.6.4 Unless otherwise indicated, pressure receptacles may be provided with an emergency pressure relief device designed to avoid bursting in case of overfill or fire accidents.

Pressure receptacle valves must be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or must be protected from damage which could cause inadvertent release of the contents of the pressure receptacle, by one of the methods as given in 4.1.6.1.8 (a) to (e).

4.1.3.6.5 The level of filling must not exceed 95% of the capacity of the pressure receptacle at 50 °C. Sufficient ullage (outage) must be left to ensure that the pressure receptacle will not be liquid full at a temperature of 55 °C.

4.1.3.6.6 Unless otherwise indicated pressure receptacles must be subjected to a periodic inspection and test every 5 years. The periodic inspection must include an external examination, an internal examination or alternative method as approved by the competent authority, a pressure test or equivalent effective non-destructive testing with the agreement of the competent authority including an inspection of all accessories (e.g. tightness of valves, emergency relief valves of fusible elements). Pressure receptacles must not be filled after they become due for periodic inspection and test but may be transported after the expiry of the time limit. Pressure receptacle repairs must meet the requirements of 4.1.6.1.11.

4.1.3.6.7 Prior to filling, the pressure receptacle must be inspected to ensure that the pressure receptacle is authorised for the substances to be transported and that the provisions of this Code have been met. Shut-off valves must be closed after filling and remain closed during transport. A further inspection must verify that the closures and equipment are not leaking prior to consignment.

4.1.3.6.8 Refillable pressure receptacles must not be filled with a substance different from that previously contained unless the necessary operations for change of service have been performed.

4.1.3.6.9 Marking of pressure receptacles for liquids and solids according to 4.1.3.6 (not conforming to the requirements of Chapter 6.2) must be in accordance with the requirements of the competent authority of the country of manufacturing.

4.1.3.7 Use of alternative packagings

Packagings or IBCs not specifically authorised in the applicable packing instruction must not be used for the transport of a substance or article unless specifically determined by the competent authority and provided:

(a) the alternative packaging complies with the general requirements of this Part; and

(b) when the packing instruction indicated in the Dangerous Goods List so specifies, the alternative packaging meets the requirements of Part 6; and

(c) the competent authority determines that the alternative packaging provides at least the same level of safety as if the substance were packed in accordance with a method specified in the particular packing instruction indicated in the Dangerous Goods List; and

(d) a copy of the competent authority determination accompanies each consignment or the transport document includes all information required under the determination.

NOTE: *The competent authorities making such determinations should take action to amend this Code to include the provisions covered by the determination as appropriate.*

4.1.3.8 <Reserved>

4.1.3.9 Reprocessed steel drums may only be used as packagings for the transport of dangerous goods if they have been reprocessed in accordance with Appendix D. Reprocessed steel drums must not be used for the transport of dangerous goods of packing group I.

4.1.4 LIST OF PACKING INSTRUCTIONS

4.1.4.1 Packing instructions concerning the use of packagings (except IBCs and large packagings)

P001	PACKING INSTRUCTION (LIQUIDS)			P001
The following packagings are authorized provided that the general provisions of **4.1.1** and **4.1.3** are met:				
		Maximum capacity/Net mass (see 4.1.3.3)		
		Packing group I	**Packing group II**	**Packing group III**
Combination packagings				
Inner packagings	**Outer packagings**			
Glass 10 *l*	**Drums**			
Plastics 30 *l*	steel (1A1, 1A2)	250 kg	400 kg	400 kg
Metal 40 *l*	aluminium (1B1, 1B2)	250 kg	400 kg	400 kg
	other metal (1N1, 1N2)	250 kg	400 kg	400 kg
	plastics (1H1, 1H2)	250 kg	400 kg	400 kg
	plywood (1D)	150 kg	400 kg	400 kg
	fibre (1G)	75 kg	400 kg	400 kg
	Boxes			
	steel (4A)	250 kg	400 kg	400 kg
	aluminium (4B)	250 kg	400 kg	400 kg
	other metal (4N)	250 kg	400 kg	400 kg
	natural wood (4C1, 4C2)	150 kg	400 kg	400 kg
	plywood (4D)	150 kg	400 kg	400 kg
	reconstituted wood (4F)	75 kg	400 kg	400 kg
	fibreboard (4G)	75 kg	400 kg	400 kg
	expanded plastics (4H1)	60 kg	60 kg	60 kg
	solid plastics (4H2)	150 kg	400 kg	400 kg
	Jerricans			
	steel (3A1, 3A2)	120 kg	120 kg	120 kg
	aluminium (3B1, 3B2)	120 kg	120 kg	120 kg
	plastics (3H1, 3H2)	120 kg	120 kg	120 kg
Single packagings				
Drums				
steel, non-removable head (1A1)		250 L	450 L	450 L
steel, removable head (1A2)		250 L [a]	450 L	450 L
aluminium, non-removable head (1B1)		250 L	450 L	450 L
aluminium, removable head (1B2)		250 L [a]	450 L	450 L
other metal, non-removable head (1N1)		250 L	450 L	450 L
other metal, removable head (1N2)		250 L [a]	450 L	450 L
plastics, non-removable head (1H1)		250 L	450 L	450 L
plastics, removable head (1H2)		250 L [a]	450 L	450 L
Jerricans				
steel, non-removable head (3A1)		60 L	60 L	60 L
steel, removable head (3A2)		60 L [a]	60 L	60 L
aluminium, non-removable head (3B1)		60 L	60 L	60 L
aluminium, removable head (3B2)		60 L [a]	60 L	60 L
plastics, non-removable head (3H1)		60 L	60 L	60 L
plastics, removable head (3H2)		60 L [a]	60 L	60 L

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[a] *Only substances with a viscosity more than 200 mm²/s are permitted.*

P001	**PACKING INSTRUCTION (LIQUIDS)** ***(cont'd)***		**P001**
	Maximum capacity/Net mass (see 4.1.3.3)		
	Packing group I	**Packing group II**	**Packing group III**
Composite packagings			
plastics receptacle in steel or aluminium or plastics drum (6HA1, 6HB1, 6HH1)	250 L	250 L	250 L
plastics receptacle in fibre or plywood drum (6HG1, 6HD1)	120 L	250 L	250 L
plastics receptacle in steel or aluminium crate or box or plastic receptacle in wooden, plywood, fibreboard or solid plastics box (6HA2,6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L	60 L	60 L
glass receptacle in steel, aluminium, fibre, plywood, expanded plastics or solid plastics drum (6PA1, 6PB1, 6PG1, 6PD1, 6PH1 or 6PH2) or in steel, aluminium, wooden or fibreboard box or in a wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2)	60 L	60 L	60 L
Pressure receptacles, provided that the general provisions of 4.1.3.6 are met.			

Special packing provisions:

PP1 For UN Nos. 1133, 1210, 1263 and 1866[b] and for adhesives, printing inks, printing ink related materials, paints, paint related materials and resin solutions which are assigned to UN 3082, metal or plastics packagings for substances of packing groups II and III in quantities of 5 litres or less per packaging are not required to meet the performance tests in Chapter 6.1 when transported:

(a) In palletized loads, a pallet box or unit load device, e.g. individual packagings placed or stacked and secured by strapping, shrink or stretch-wrapping or other suitable means to a pallet. For sea transport, the palletized loads, pallet boxes or unit load devices shall be firmly packed and secured in closed cargo transport units; or

(b) As an inner packaging of a combination packaging with a maximum net mass of 40 kg.

PP2 For UN 3065, wooden barrels with a maximum capacity of 250 litres and which do not meet the provisions of Chapter 6.1 may be used.

PP4 For UN 1774, packagings shall meet the packing group II performance level.

PP5 For UN 1204, packagings shall be so constructed that explosion is not possible by reason of increased internal pressure. Gas cylinders and gas receptacles shall not be used for these substances.

PP10 For UN 1791, packing group II, the packaging shall be vented.

PP31 For UN 1131, packagings shall be hermetically sealed.

PP33 For UN 1308, packing groups I and II, only combination packagings with a maximum gross mass of 75 kg are allowed.

PP81 For UN 1790 with more than 60 % but not more than 85 % hydrogen fluoride and UN 2031 with more than 55 % nitric acid, the permitted use of plastics, drums and jerricans as single packagings shall be two years from their date of manufacture.

PP93 For UN Nos. 3532 and 3534, packagings shall be designed and constructed to permit the release of gas or vapour to prevent a build-up of pressure that could rupture the packagings in the event of loss of stabilization.

[a] *Only substances with a viscosity more than 200 mm^2/s are permitted.*

[b] *UN20 extended PP1 to adhesives, printing inks, printing ink related materials, paints, paint related materials and resin solutions which are assigned to UN3082. However, such materials are not subject to this Code under SP AU01.*

P002		**PACKING INSTRUCTION (SOLIDS)**			**P002**
The following packagings are authorized provided that the general provisions of **4.1.1** and **4.1.3** are met:					
			Maximum net mass (see 4.1.3.3)		
			Packing group I	**Packing group II**	**Packing group III**
Combination packagings					
Inner packagings		**Outer packagings**			
Glass	10 kg	**Drums**			
Plastics[a]	50 kg	steel (1A1, 1A2)	400 kg	400 kg	400 kg
Metal	50 kg	aluminium (1B1, 1B2)	400 kg	400 kg	400 kg
Paper[a, b, c]	50 kg	other metal (1N1, 1N2)	400 kg	400 kg	400 kg
Fibre[a, b, c]	50 kg	plastics (1H1, 1H2)	400 kg	400 kg	400 kg
		plywood (1D)	400 kg	400 kg	400 kg
		fibre (1G)	400 kg	400 kg	400 kg
		Boxes			
		steel (4A)	400 kg	400 kg	400 kg
		aluminium (4B)	400 kg	400 kg	400 kg
		other metal (4N)	400 kg	400 kg	400 kg
		natural wood (4C1)	250 kg	400 kg	400 kg
		natural wood with sift proof walls (4C2)	250 kg	400 kg	400 kg
		plywood (4D)	250 kg	400 kg	400 kg
		reconstituted wood (4F)	125 kg	400 kg	400 kg
		fibreboard (4G)	125 kg	400 kg	400 kg
		expanded plastics (4H1)	60 kg	60 kg	60 kg
		solid plastics (4H2)	250 kg	400 kg	400 kg
		Jerricans			
		steel (3A1, 3A2)	120 kg	120 kg	120 kg
		aluminium (3B1, 3B2)	120 kg	120 kg	120 kg
		plastics (3H1, 3H2)	120 kg	120 kg	120 kg
Single packagings					
Drums					
steel (1A1 or 1A2[d])			400 kg	400 kg	400 kg
aluminium (1B1 or 1B2[d])			400 kg	400 kg	400 kg
metal, other than steel, or aluminium (1N1 or 1N2[d])			400 kg	400 kg	400 kg
plastics (1H1 or 1H2[d])			400 kg	400 kg	400 kg
fibre (1G)[e]			400 kg	400 kg	400 kg
plywood (1D)[e]			400 kg	400 kg	400 kg
Jerricans					
Steel (3A1 or 3A2[d])			120 kg	120 kg	120 kg
Aluminium (3B1 or 3B2[d])			120 kg	120 kg	120 kg
plastics (3H1 or 3H2[d])			120 kg	120 kg	120 kg

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[a] *These inner packagings shall be siftproof.*
[b] *These inner packagings shall not be used when the substances being transported may become liquid during transport (see 4.1.3.4).*
[c] *Paper and fibre inner packagings shall not be used for substances of packing group I.*
[d] *These packagings shall not be used for substances of packing group I that may become liquid during transport (see 4.1.3.4).*
[e] *These packagings shall not be used when the substances being transported may become liquid during transport (see 4.1.3.4).*

P002	PACKING INSTRUCTION (SOLIDS) *(cont'd)*		P002
	Maximum net mass (see 4.1.3.3)		
	Packing group I	Packing group II	Packing group III
Single packagings *(cont'd)*			
Boxes			
steel (4A)[e]	Not allowed	400 kg	400 kg
aluminium (4B)[e]	Not allowed	400 kg	400 kg
other metal (4N)[e]	Not allowed	400 kg	400 kg
natural wood (4C1)[e]	Not allowed	400 kg	400 kg
plywood (4D)[e]	Not allowed	400 kg	400 kg
reconstituted wood (4F)[e]	Not allowed	400 kg	400 kg
natural wood with sift proof walls (4C2)[e]	Not allowed	400 kg	400 kg
fibreboard (4G)[e]	Not allowed	400 kg	400 kg
solid plastics (4H2) [e]	Not allowed	400 kg	400 kg
Bags			
bags (5H3, 5H4, 5L3, 5M2)[e]	Not allowed	50 kg	50 kg
Composite packagings			
plastics receptacle in steel, aluminium, plywood, fibre or plastics drum (6HA1, 6HB1, 6HG1[e], 6HD1[e], or 6HH1)	400 kg	400 kg	400 kg
plastics receptacle in steel or aluminium crate or box, wooden box, plywood box, fibreboard box or solid plastics box (6HA2, 6HB2, 6HC, 6HD2 [e], 6HG2[e] or 6HH2)	75 kg	75 kg	75 kg
glass receptacle in steel, aluminium, plywood or fibre drum (6PA1, 6PB1, 6PD1[e] or 6PG1[e]) or in steel, aluminium, wooden or fibreboard box or in wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2[e], or 6PD2[e]) or in expanded or solid plastics packaging (6PH1 or 6PH2 [e])	75 kg	75 kg	75 kg
Pressure receptacles, provided that the general provisions of 4.1.3.6 are met.			

Special packing provisions:

PP7 For UN 2000, celluloid may be transported unpacked on pallets, wrapped in plastic film and secured by appropriate means, such as steel bands as a full load in closed cargo transport units. Each pallet shall not exceed 1000 kg.

PP8 For UN 2002, packagings shall be so constructed that explosion is not possible by reason of increased internal pressure. Gas cylinders and gas receptacles shall not be used for these substances.

PP9 For UN 3175, UN 3243 and UN 3244, packagings shall conform to a design type that has passed a leakproofness test at the packing group II performance level. For UN 3175 the leakproofness test is not required when the liquids are fully absorbed in solid material contained in sealed bags.

PP11 For UN 1309, packing group III, and UN 1362, 5H1, 5L1 and 5M1 bags are allowed if they are overpacked in plastic bags and are wrapped in shrink or stretch wrap on pallets.

PP12 For UN 1361, UN 2213 and UN 3077, 5H1, 5L1 and 5M1 bags are allowed when transported in closed cargo transport units.

PP13 For articles classified under UN 2870, only combination packagings meeting the packing group I performance level are authorized.

PP14 For UN 2211, UN 2698 and UN 3314, packagings are not required to meet the performance tests in Chapter 6.1.

PP15 For UN 1324 and UN 2623, packagings shall meet the packing group III performance level.

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[e] *These packagings shall not be used when the substances being transported may become liquid during transport (see 4.1.3.4).*

P002	PACKING INSTRUCTION (SOLIDS) *(cont'd)*	P002
Special packing provisions (cont'd):		
PP20	For UN 2217, any siftproof, tearproof receptacle may be used.	
PP30	For UN 2471, paper or fibre inner packagings are not permitted.	
PP34	For UN 2969 (as whole beans), 5H1, 5L1 and 5M1 bags are permitted.	
PP37	For UN 2590 and UN 2212, 5M1 bags are permitted. All bags of any type shall be transported in closed cargo transport units or be placed in closed rigid overpacks.	
PP38	For UN 1309, packing group II, bags are permitted only in closed cargo transport units.	
PP84	For UN 1057, rigid outer packagings meeting the packing group II performance level shall be used. The packagings shall be designed and constructed and arranged to prevent movement, inadvertent ignition of the devices or inadvertent release of flammable gas or liquid.	
PP85	For UN Nos. 1748, 2208, 2880, 3485, 3486 and 3487, if bags are used as single packagings they should be adequately separated to allow for the dissipation of heat. For transport by sea, bags are not allowed as single packagings.	
PP92	For UN Nos. 3531 and 3533, packagings shall be designed and constructed to permit the release of gas or vapour to prevent a build-up of pressure that could rupture the packagings in the event of loss of stabilization.	

P003	PACKING INSTRUCTION	P003
Dangerous goods must be placed in suitable outer packagings. The packagings must meet the provisions of **4.1.1.1**, **4.1.1.2**, **4.1.1.4**, **4.1.1.8** and **4.1.3** and be so designed that they meet the construction requirements of **6.1.4**. Outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, must be used. Where this packing instruction is used for the transport of articles or inner packagings of combination packagings the packaging must be designed and constructed to prevent inadvertent discharge of articles during normal conditions of transport.		
Special packing provisions:		
PP16	For UN 2800: (a) batteries must be protected from short circuit within the packagings	
PP17	For UN 2037, packages must not exceed 55 kg net mass for fibreboard packagings or 125 kg net mass for other packagings.	
PP18	For UN 1845, packagings must be designed and constructed to permit the release of carbon dioxide gas to prevent a build-up of pressure that could rupture the packagings.	
PP19	For UN Nos. 1327, 1364, 1365, 1856 and 3360 transport as bales is authorised.	
PP20	For UN Nos. 1363, 1386, 1408 and 2793 any siftproof, tearproof receptacle may be used.	
PP32	UN Nos. 2857 and 3358 and robust articles consigned under UN 3164 may be transported unpackaged, in crates or in appropriate overpacks.	
PP96	For UN 2037 waste gas cartridges carried in accordance with special provision 327, the packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.	
PP90	For UN 3506, sealed inner liners or bags of strong leak-proof and puncture resistant material impervious to mercury which will prevent escape of the substance from the package irrespective of the position of the package must be used. For air transport additional requirements may apply.	
PP91	For UN 1044, large fire extinguishers may also be transported unpackaged provided that the requirements of 4.1.3.8 (a) to (e) are met, the valves are protected by one of the methods in accordance with 4.1.6.1.8 (a) to (d) and other equipment mounted on the fire extinguisher is protected to prevent accidental activation. For the purpose of this special packing provision, “large fire extinguishers” means fire extinguishers as described in indents (c) to (e) of special provision 225 of Chapter 3.3.	

P004	PACKING INSTRUCTION	P004
This instruction applies to UN Nos. 3473, 3476, 3477, 3478 and 3479.		

The following packagings are authorised:

(1) For fuel cell cartridges, provided that the general provisions of **4.1.1.1**, **4.1.1.2**, **4.1.1.3**, **4.1.1.6** and **4.1.3** are met:
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).
Packagings must conform to the packing group II performance level.

(2) For fuel cell cartridges packed with equipment: strong outer packagings which meet the general provisions of **4.1.1.1**, **4.1.1.2**, **4.1.1.6** and **4.1.3**.
When fuel cell cartridges are packed with equipment, they must be packed in inner packagings or placed in the outer packaging with cushioning material or divider(s) so that the fuel cell cartridges are protected against damage that may be caused by the movement or placement of the contents within the outer packaging.
The equipment must be secured against movement within the outer packaging.
For the purpose of this packing instruction, "equipment" means apparatus requiring the fuel cell cartridges with which it is packed for its operation.

(3) For fuel cell cartridges contained in equipment: strong outer packagings which meet the general provisions of **4.1.1.1**, **4.1.1.2**, **4.1.1.6** and **4.1.3**.
Large robust equipment (see 4.1.3.8) containing fuel cell cartridges may be transported unpackaged. For fuel cell cartridges contained in equipment, the entire system must be protected against short circuit and inadvertent operation.

P005	PACKING INSTRUCTION (LIQUIDS) (Table 4.1.4.1)	P005
This instruction applies to UN Nos. 3528, 3529 and 3530.		

If the engine or machinery is constructed and designed so that the means of containment containing the dangerous goods affords adequate protection, an outer packaging is not required.

Dangerous goods in engines or machinery must otherwise be packed in outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, and meeting the applicable requirements of 4.1.1.1, or they must be fixed in such a way that they will not become loose during normal conditions of transport, e.g. in cradles or crates or other handling devices.

In addition, the manner in which means of containment are contained within the engine or machinery, must be such that under normal conditions of transport, damage to the means of containment containing the dangerous goods is prevented; and in the event of damage to the means of containment containing liquid dangerous goods, no leakage of the dangerous goods from the engine or machinery is possible (a leakproof liner may be used to satisfy this requirement).

Means of containment containing dangerous goods must be so installed, secured or cushioned as to prevent their breakage or leakage and so as to control their movement within the engine or machinery during normal conditions of transport. Cushioning material must not react dangerously with the content of the means of containment. Any leakage of the contents must not substantially impair the protective properties of the cushioning material.

Additional requirement:

Other dangerous goods (e.g. batteries, fire extinguishers, compressed gas accumulators or safety devices) required for the functioning or safe operation of the engine or machinery must be securely mounted in the engine or machine.

P006	**PACKING INSTRUCTION**	**P006**
This instruction applies to UN Nos. 3537, 3538, 3540, 3541, 3546, 3547 and 3548.		
(1) The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings shall conform to the packing group II performance level. (2) In addition, for robust articles the following packagings are authorized: Strong outer packagings constructed of suitable material and of adequate strength and design in relation to the packaging capacity and its intended use. The packagings shall meet the provisions of **4.1.1.1, 4.1.1.2, 4.1.1.8** and **4.1.3** in order to achieve a level of protection that is at least equivalent to that provided by Chapter **6.1**. Articles may be transported unpackaged or on pallets when the dangerous goods are afforded equivalent protection by the article in which they are contained. (3) Additionally, the following conditions shall be met: (a) Receptacles within articles containing liquids or solids shall be constructed of suitable materials and secured in the article in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the article itself or the outer packaging; (b) Receptacles containing liquids with closures shall be packed with their closures correctly oriented. The receptacles shall in addition conform to the internal pressure test provisions of **6.1.5.5**; (c) Receptacles that are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials shall be properly secured. Any leakage of the contents shall not substantially impair the protective properties of the article or of the outer packaging; (d) Receptacles within articles containing gases shall meet the requirements of Section **4.1.6** and Chapter **6.2** as appropriate or be capable of providing an equivalent level of protection as packing instructions P200 or P208; (e) Where there is no receptacle within the article, the article shall fully enclose the dangerous substances and prevent their release under normal conditions of transport. (4) Articles shall be packed to prevent movement and inadvertent operation during normal conditions of transport.		

P010	**PACKING INSTRUCTION (LIQUIDS)**	**P010**
The following packagings are authorised provided that the general provisions of **4.1.1** and **4.1.3** are met:		
Combination packagings		
Inner packagings	**Outer packagings**	**Maximum net mass (see 4.1.3.3)**
	Drums	
Glass 1 L	steel (1A1, 1A2)	400 kg
Metal 40 L	plastics (1H1, 1H2)	400 kg
	plywood (1D)	400 kg
	fibre (1G)	400 kg
	Boxes	
	steel (4A)	400 kg
	natural wood (4C1, 4C2)	400 kg
	plywood (4D)	400 kg
	reconstituted wood (4F)	400 kg
	fibreboard (4G)	400 kg
	expanded plastics (4H1)	60 kg
	solid plastics (4H2)	400 kg
Single packagings		**Maximum capacity (see 4.1.3.3)**
Drums	steel, non-removable head (1A1)	450 L
Jerricans	steel, non-removable head (3A1)	60 L
Composite packagings	Plastics receptacle in steel drums (6HA1)	250 L
Steel pressure receptacles, provided that the general provisions of 4.1.3.6 are met.		

P099	**PACKING INSTRUCTION**	**P099**
Only packagings which are determined to be suitable for these goods by the competent authority may be used (see **4.1.3.7**). A copy of the competent authority determination must accompany each consignment or the transport document must include an indication that the packaging was authorised by the competent authority.		

P101	**PACKING INSTRUCTION**	**P101**
Only packagings which are approved by the competent authority may be used. The distinguishing sign used on vehicles in international road traffic[a] of the country for which the authority acts, shall be marked on the transport documents as follows: "Packaging approved by the competent authority of... "		

[a] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

P110(a)	**PACKING INSTRUCTION**	**P110(a)**

The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:

Inner packagings	Intermediate packagings	Outer packagings
Bags plastics textile, plastic coated or lined rubber textile, rubberised textile **Receptacles** Wood	**Bags** plastics textile, plastic coated or lined rubber textile, rubberised **Receptacles** Plastics metal wood	**Drums** steel, removable head (1A1, 1A2) metal, other than steel or aluminium (1N1, 1N2) plastics, removable head (1H1, 1H2)

Additional requirements:

1. The intermediate packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning.

2. Outer packagings must be filled with water saturated material such as an anti-freeze solution or wetted cushioning. Outer packagings must be constructed and sealed to prevent evaporation of the wetting solution, except for UN 0224 when carried dry.

P110(b)	**PACKING INSTRUCTION**	**P110(b)**

The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:

Inner packagings	Intermediate packagings	Outer packagings
Receptacles metal wood rubber, conductive plastics, conductive **Bags** rubber, conductive plastics, conductive	**Dividing partitions** metal wood plastics fibreboard	**Boxes** natural wood, sift-proof wall (4C2) plywood (4D) reconstituted wood (4F)

Special packing provision:

PP42 For UN Nos. 0074, 0113, 0114, 0129, 0130, 0135 and 0224, the following conditions must be met:

(a) inner packagings must not contain more than 50 g of explosive substance (quantity corresponding to dry substance); and

(b) compartments between dividing partitions must not contain more than one inner packaging, firmly fitted; and

(c) the outer packaging may be partitioned into up to 25 compartments.

P111	**PACKING INSTRUCTION**	**P111**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags paper, waterproofed plastics textile, rubberised **Receptacles** Wood **Sheets** Plastics Textile, rubberised	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) **Drums** steel, removable head (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibreboard (1G) plastics (1H1, 1H2)

Special packing provision:

PP43 For UN 0159, inner packagings are not required when metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastics (1H1 or 1H2) drums are used as outer packagings.

P112(a)	**PACKING INSTRUCTION (Solid wetted, 1.1D)**	**P112(a)**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags paper, multiwall, water resistant plastics textile textile, rubberised woven plastics **Receptacles** metal plastics wood	**Bags** plastics textile, plastic coated or lined **Receptacles** metal plastics wood	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
Additional requirement: Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging.		
Special packing provisions: **PP26** For UN Nos. 0004, 0076, 0078, 0154, 0219 and 0394, packagings must be lead free. **PP45** For UN 0072 and UN 0226, intermediate packagings are not required.		

P112(b)	**PACKING INSTRUCTION (Solid dry, other than powder 1.1D)**	**P112(b)**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags paper, kraft paper, multiwall, water resistant plastics textile textile, rubberised woven plastics	**Bags (for UN 0150 only)** plastics textile, plastic coated or lined	**Bags** woven plastics, sift-proof (5H2) woven plastics, water-resistant (5H3) plastics, film (5H4) textile, sift-proof (5L2) textile, water resistant (5L3) paper, multiwall, water resistant (5M2) **Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
Special packing provisions: **PP26** For UN Nos. 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free. **PP46** For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg. **PP47** For UN 0222 inner packagings are not required when the outer packaging is a bag.		

<table>
<tr><td>P112(c)</td><td colspan="2">PACKING INSTRUCTION (Solid dry powder 1.1D)</td><td>P112(c)</td></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:</td></tr>
<tr><td>Inner packagings</td><td>Intermediate packagings</td><td colspan="2">Outer packagings</td></tr>
<tr><td>Bags
paper, multiwall, water resistant
plastics
woven plastics
Receptacles
fibreboard
metal
plastics
wood</td><td>Bags
paper, multiwall, water resistant with inner lining plastics
Receptacles
metal
plastics
wood</td><td colspan="2">Boxes
steel (4A)
metal, other than steel or aluminium (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
plastics, solid (4H2)
aluminium (4B)
Drums
steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)</td></tr>
<tr><td colspan="4">Additional requirements:
1. Inner packagings are not required if drums are used as the outer packaging.
2. The packaging must be sift-proof.</td></tr>
<tr><td colspan="4">Special packing provision:
PP26 For UN Nos. 0004, 0076, 0078, 0154, 0216, 0219 and 0386, packagings must be lead free.
PP46 For UN 0209, bags, sift-proof (5H2) are recommended for flake or prilled TNT in the dry state and a maximum net mass of 30 kg.
PP48 For UN 0504, metal packagings must not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in 6.1.4, are not considered metal packagings.</td></tr>
</table>

P113	**PACKING INSTRUCTION**	**P113**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags paper plastics textile, rubberised **Receptacles** fibreboard metal plastics wood	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

Additional requirement:

The packaging must be sift-proof.

Special packing provisions:

PP49	For UN 0094 and UN 0305, no more than 50 g of substance must be packed in an inner packaging.
PP50	For UN 0027, inner packagings are not necessary when drums are used as the outer packaging.
PP51	For UN 0028, paper kraft or waxed paper sheets may be used as inner packagings.

P114(a)	**PACKING INSTRUCTION (Solid wetted)**	**P114(a)**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags plastics textile woven plastics **Receptacles** metal plastics wood	**Bags** plastics textile, plastic coated or lined **Receptacles** metal plastics **Dividing partitions** wood	**Boxes** steel (4A) metal, other than steel or aluminium (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

Additional requirement:

Intermediate packagings are not required if leakproof removable head drums are used as the outer packaging.

Special packing provisions:

PP26 For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings must be lead free.

PP43 For UN 0342, inner packagings are not required when metal (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) or plastics (1H1 or 1H2) drums are used as outer packagings.

P114(b)	**PACKING INSTRUCTION (Solid dry)**	**P114(b)**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags	Not necessary	**Boxes**
paper, kraft		natural wood, ordinary (4C1)
plastics		natural wood, sift-proof walls (4C2)
textile, sift-proof		plywood (4D)
woven plastics, sift-proof		reconstituted wood (4F)
Receptacles		fibreboard (4G)
fibreboard		**Drums**
metal		steel (1A1, 1A2)
paper		aluminium (1B1, 1B2)
plastics		other metal (1N1, 1N2)
wood		plywood (1D)
woven plastics, sift-proof		fibre (1G)
plastics		plastics (1H1, 1H2)

Special packing provisions:

PP26 For UN Nos. 0077, 0132, 0234, 0235 and 0236, packagings must be lead free.

PP48 For UN Nos. 0508 and 0509, metal packagings must not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in 6.1.4, are not considered metal packagings.

PP50 For UN Nos. 0160, 0161 and 0508, inner packagings are not necessary if drums are used as the outer packaging

PP52 For UN 0160 and UN 0161, when metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2) are used as the outer packaging, metal packagings must be so constructed that the risk of explosion, by reason of increase internal pressure from internal or external causes is prevented

<table>
<tr><th>P115</th><th colspan="2">PACKING INSTRUCTION</th><th>P115</th></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met.</td></tr>
<tr><td>Inner packagings</td><td>Intermediate packagings</td><td colspan="2">Outer packagings</td></tr>
<tr><td>Receptacles
plastics
wood</td><td>Bags
plastics in metal receptacles
Drums
metal
Receptacles
wood</td><td colspan="2">Boxes
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
Drums
steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)</td></tr>
<tr><td colspan="4">Special packing provisions:
PP45 For UN 0144, intermediate packagings are not required.
PP53 For UN Nos. 0075, 0143, 0495 and 0497, when boxes are used as the outer packaging, inner packagings must have taped screw cap closures and be not more than 5 litres capacity each. Inner packagings must be surrounded with non-combustible absorbent cushioning materials. The amount of absorbent cushioning material must be sufficient to absorb the liquid contents. Metal receptacles must be cushioned from each other. Net mass of propellant is a limited to 30 kg for each package when outer packagings are boxes.
PP54 For UN Nos. 0075, 0143, 0495 and 0497, when drums are used as the outer packaging and when intermediate packagings are drums, they must be surrounded with non-combustible cushioning material in a quantity sufficient to absorb the liquid contents. A composite packaging consisting of a plastic receptacle in a metal drum may be used instead of the inner and intermediate packagings. The net volume of propellant in each package must not exceed 120 litres.
PP55 For UN 0144, absorbent cushioning material must be inserted.
PP56 For UN 0144, metal receptacles may be used as inner packagings.
PP57 For UN Nos. 0075, 0143, 0495 and 0497, bags must be used as intermediate packagings when boxes are used as outer packagings.
PP58 For UN Nos. 0075, 0143, 0495 and 0497, drums must be used as intermediate packagings when drums are used as outer packagings.
PP59 For UN 0144, fibreboard boxes (4G) may be used as outer packagings.
PP60 For UN 0144, aluminium drums (1B1 and 1B2) and metal, other than steel or aluminium, drums (1N1 and 1N2) must not be used.</td></tr>
</table>

<table>
<tr><th>P116</th><th colspan="2">PACKING INSTRUCTION</th><th>P116</th></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met.</td></tr>
<tr><th>Inner packagings</th><th>Intermediate packagings</th><th colspan="2">Outer packagings</th></tr>
<tr><td>Bags
paper, water and oil resistant
plastics
textile, plastic coated or lined
woven plastics, sift-proof
Receptacles
fibreboard, water resistant
metal
polastics
wood, sift-proof
Sheets
paper, water resistant
paper, waxed
plastics</td><td>Not necessary</td><td colspan="2">Bags
woven plastics (5H1, 5H2, 5H3)
paper, multiwall, water resistant (5M2)
plastics, film (5H4)
textile, sift-proof (5L2)
textile, water resistant (5L3)
Boxes
steel (4A)
aluminium (4B)
other metal (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
plastics, solid (4H2)
Drums
steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)
Jerricans
steel (3A1, 3A2)
plastics (3H1, 3H2)</td></tr>
<tr><td colspan="4">Special packing provisions:
PP61 For UN Nos. 0082, 0241, 0331 and 0332, inner packagings are not required if leakproof removable head drums are used as the outer packaging.
PP62 For UN Nos. 0082, 0241, 0331 and 0332, inner packagings are not required when the explosive is contained in a material impervious to liquid.
PP63 For UN 0081, inner packagings are not required when contained in rigid plastics which is impervious to nitric esters.
PP64 For UN 0331, inner packagings are not required when bags (5H2), (5H3) or (5H4) are used as outer packagings.
PP65 <Deleted>
PP66 For UN 0081, bags must not be used as outer packagings.</td></tr>
</table>

<table>
<tr><th>P130</th><th colspan="2">PACKING INSTRUCTION</th><th>P130</th></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met.</td></tr>
<tr><th>Inner packagings</th><th>Intermediate packagings</th><th colspan="2">Outer packagings</th></tr>
<tr><td>Not necessary</td><td>Not necessary</td><td colspan="2">Boxes
steel (4A)
aluminium (4B)
other metal (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
plastics, expanded (4H1)
plastics, solid (4H2)
Drums
steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)</td></tr>
<tr><td colspan="4">Special packing provision:
PP67 The following applies to UN Nos. 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0488, 0502 and 0510: Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.</td></tr>
</table>

P131	**PACKING INSTRUCTION**	**P131**
The following packagings are authorized, provided that the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags	Not necessary	**Boxes**
paper		steel (4A)
plastics		aluminium (4B)
		other metal (4N)
Receptacles		natural wood, ordinary (4C1)
fibreboard		natural wood, sift-proof walls (4C2)
metal		plywood (4D)
plastics		reconstituted wood (4F)
wood		fibreboard (4G)
		plastics, solid (4H2)
Reels		**Drums**
		steel (1A1, 1A2)
		aluminium (1B1, 1B2)
		other metal (1N1, 1N2)
		plywood (1D)
		fibre (1G)
		plastics (1H1, 1H2)

Special packing provision:

PP68 For UN Nos. 0029, 0267 and 0455, bags and reels shall not be used as inner packagings.

P132(a)	**PACKING INSTRUCTION (Articles consisting of closed metal, plastics or fibreboard casings that contain a detonating explosive, or consisting of plastics-bonded detonating explosives)**	**P132(a)**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Not necessary	Not necessary	**Boxes**
		steel (4A)
		aluminium (4B)
		other metal (4N)
		wood, natural, ordinary (4C1)
		wood, natural, sift-proof walls (4C2)
		plywood (4D)
		reconstituted wood (4F)
		fibreboard (4G)
		plastics, solid (4H2)

<table>
<tr><td>P132(b)</td><td colspan="2">PACKING INSTRUCTION
(Articles without closed casings)</td><td>P132(b)</td></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:</td></tr>
<tr><td>Inner packagings</td><td>Intermediate packagings</td><td colspan="2">Outer packagings</td></tr>
<tr><td>Receptacles
fibreboard
metal
plastics
wood
Sheets
paper
plastics</td><td>Not necessary</td><td colspan="2">Boxes
steel (4A)
aluminium (4B)
other metal (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
plastics, solid (4H2)</td></tr>
</table>

<table>
<tr><td>P133</td><td colspan="2">PACKING INSTRUCTION</td><td>P133</td></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:</td></tr>
<tr><td>Inner packagings</td><td>Intermediate packagings</td><td colspan="2">Outer packagings</td></tr>
<tr><td>Receptacles
fibreboard
metal
plastics
wood
Trays, fitted with dividing partitions
fibreboard
plastics
wood</td><td>Receptacles
fibreboard
metal
plastics
wood</td><td colspan="2">Boxes
steel (4A)
aluminium (4B)
other metal (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
plastics, solid (4H2)</td></tr>
<tr><td colspan="4">Additional requirement:
Receptacles are only required as intermediate packagings when the inner packagings are trays.</td></tr>
<tr><td colspan="4">Special packing provision:
PP69 For UN Nos. 0043, 0212, 0225, 0268 and 0306, trays must not be used as inner packagings.</td></tr>
</table>

P134	**PACKING INSTRUCTION**	**P134**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags water resistant **Receptacles** fibreboard metal plastics wood **Sheets** fibreboard, corrugated **Tubes** Fibreboard	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P135	**PACKING INSTRUCTION**	**P135**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags paper plastics **Receptacles** fibreboard metal plastics wood **Sheets** paper plastics	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, expanded (4H1) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P136	**PACKING INSTRUCTION**	**P136**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags plastics textile **Boxes** fibreboard plastics wood **Dividing partitions in the outer packagings**	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

<table>
<tr><td>P137</td><td colspan="2">PACKING INSTRUCTION</td><td>P137</td></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:</td></tr>
<tr><th>Inner packagings</th><th>Intermediate packagings</th><th colspan="2">Outer packagings</th></tr>
<tr><td>Bags
plastics
Boxes
Fibreboard
wood
Tubes
fibreboard
metal
plastics
Dividing partitions in the outer packagings</td><td>Not necessary</td><td colspan="2">Boxes
steel (4A)
aluminium (4B)
other metal (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
Plastics, Solid (4H2)
Drums
steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)</td></tr>
<tr><td colspan="4">Special packing provision:
PP70 For UN Nos. 0059, 0439, 0440 and 0441, when the shaped charges are packed singly, the conical cavity must face downwards and the package must be marked in accordance with 5.2.1.7.1. When the shaped charges are packed in pairs, the conical cavities must face inwards to minimise the jetting effect in the event of accidental initiation.</td></tr>
</table>

P138	PACKING INSTRUCTION	P138
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags Plastics	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)
Additional requirement: If the ends of the articles are sealed, inner packagings are not necessary.		

P139	**PACKING INSTRUCTION**	**P139**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags plastics **Receptacles** fibreboard metal plastics wood **Reels** **Sheets** paper plastics	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

Special packing provisions:

PP71 For UN Nos. 0065, 0102, 0104, 0289 and 0290, the ends of the detonating cord must be sealed, for example, by a plug firmly fixed so that the explosive cannot escape. The ends of flexible detonating cord must be fastened securely.

PP72 For UN 0065 and UN 0289, inner packagings are not required when they are in coils.

P140	**PACKING INSTRUCTION**	**P140**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags	Not necessary	**Boxes**
plastics		steel (4A)
Reels		aluminium (4B)
Sheets		other metal (4N)
paper, kraft		natural wood, ordinary (4C1)
plastics		natural wood, sift-proof walls (4C2)
Receptacles		plywood (4D)
wood		reconstituted wood (4F)
		fibreboard (4G)
		plastics, solid (4H2)
		Drums
		steel (1A1, 1A2)
		aluminium (1B1, 1B2)
		other metal (1N1, 1N2)
		plywood (1D)
		fibre (1G)
		plastics (1H1, 1H2)

Special packing provisions:

PP73 For UN 0105, no packagings are required if the ends are sealed.

PP74 For UN 0101, the packaging must be sift-proof except when the fuse is covered by a paper tube and both ends of the tube are covered with removable caps.

PP75 For UN 0101, steel or aluminium boxes or drums must not be used.

P141	PACKING INSTRUCTION	P141
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Receptacles fibreboard metal plastics wood **Trays, fitted with dividing partitions** plastics wood **Dividing partitions in the outer packagings**	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

P142	PACKING INSTRUCTION	P142
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags paper plastics **Receptacles** fibreboard metal plastics wood **Sheets** paper **Trays, fitted with dividing partitions** Plastics	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary (4C1) natural wood, sift-proof walls (4C2) plywood (4D) reconstituted wood (4F) fibreboard (4G) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plywood (1D) fibre (1G) plastics (1H1, 1H2)

<table>
<tr><td>P143</td><td colspan="2" align="center">PACKING INSTRUCTION</td><td>P143</td></tr>
<tr><td colspan="4">The following packagings are authorised, provided the general packing provisions of 4.1.1, 4.1.3 and special packing provisions of 4.1.5 are met:</td></tr>
<tr><td>Inner packagings</td><td>Intermediate packagings</td><td colspan="2">Outer packagings</td></tr>
<tr><td>Bags
paper, kraft
plastics
textile
textile, rubberised
Receptacles
fibreboard
metal
plastics
wood
Trays, fitted with dividing partitions
plastics
wood</td><td>Not necessary</td><td colspan="2">Boxes
steel (4A)
aluminium (4B)
other metal (4N)
natural wood, ordinary (4C1)
natural wood, sift-proof walls (4C2)
plywood (4D)
reconstituted wood (4F)
fibreboard (4G)
plastics, solid (4H2)
Drums
steel (1A1, 1A2)
aluminium (1B1, 1B2)
other metal (1N1, 1N2)
plywood (1D)
fibre (1G)
plastics (1H1, 1H2)</td></tr>
<tr><td colspan="4">Additional requirement:
Instead of the above inner and outer packagings, composite packagings (6HH2) (plastic receptacle with outer solid box) may be used.</td></tr>
<tr><td colspan="4">Special packing provisions:
PP76 For UN Nos. 0271, 0272, 0415 and 0491, when metal packagings are used, metal packagings must be so constructed that the risk of explosion, by reason of increase in internal pressure from internal or external causes is prevented.</td></tr>
</table>

P144	**PACKING INSTRUCTION**	**P144**
The following packagings are authorised, provided the general packing provisions of **4.1.1**, **4.1.3** and special packing provisions of **4.1.5** are met:		

Inner packagings	Intermediate packagings	Outer packagings
Receptacles fibreboard metal plastics wood **Dividing partitions in the outer packagings**.	Not necessary	**Boxes** steel (4A) aluminium (4B) other metal (4N) natural wood, ordinary with metal liner (4C1) plywood (4D) with metal liner reconstituted wood (4F) with metal liner plastics, expanded (4H1) plastics, solid (4H2) **Drums** steel (1A1, 1A2) aluminium (1B1, 1B2) other metal (1N1, 1N2) plastics (1H1, 1H2)

Special packing provision:

PP77 For UN Nos. 0248 and 0249, packagings must be protected against the ingress of water. When water-activated contrivances are transported unpackaged, they must be provided with at least two independent protective features which prevent the ingress of water.

P200	PACKING INSTRUCTION	P200

For pressure receptacles, the general packing requirements of **4.1.6.1** must be met. In addition, for MEGCs, the general requirements of **4.2.4** must be met.

Cylinders, tubes, pressure drums, bundles of cylinders constructed as specified in Chapter 6.2 and MEGCs constructed as specified in 6.7.5 are authorised for the transport of a specific substance when specified in the following tables. For some substances the special packing provisions may prohibit a particular type of cylinder, tube, pressure drum or bundle of cylinders.

(1) Pressure receptacles containing toxic substances with an LC50 less than or equal to 200 ml/m3 (ppm) as specified in the table must not be equipped with any pressure relief device. Pressure relief devices must be fitted on pressure receptacles used for the transport of UN 1013 carbon dioxide and UN 1070 nitrous oxide. Other pressure receptacles must be fitted with a pressure relief device if specified by the competent authority of the country of use. The type of pressure relief device, the set to discharge pressure and relief capacity of pressure relief devices, if required, must be specified by the competent authority of the country of use.

(2) The following three tables cover compressed gases (Table 1), liquefied and dissolved gases (Table 2) and substances not in Class 2 (Table 3). They provide:

(a) the UN number, name and description, and classification of the substance;

(b) the LC_{50} for toxic substances;

(c) the types of pressure receptacles authorised for the substance, shown by the letter "X";

(d) the maximum test period for periodic inspection of the pressure receptacles;

NOTE: *For pressure receptacles which make use of composite materials, the maximum test period shall be 5 years. The test period may be extended to that specified in Tables 1 and 2 (ie up to 10 years), if approved by the competent authority of the country of use.*

(e) the minimum test pressure of the pressure receptacles;

(f) the maximum working pressure of the pressure receptacles for compressed gases (where no value is given, the working pressure must not exceed two thirds of the test pressure) or the maximum filling ratio(s) dependent on the test pressure(s) for liquefied and dissolved gases;

(g) special packing provisions that are specific to a substance.

(3) In no case must pressure receptacles be filled in excess of the limit permitted in the following requirements.

(a) For compressed gases, the working pressure must be not more than two thirds of the test pressure of the pressure receptacles. Restrictions to this upper limit on working pressure are imposed by (5), special packing provision “o”. In no case may the internal pressure at 65°C exceed the test pressure.

(b) For high pressure liquefied gases, the filling ratio must be such that the settled pressure at 65°C does not exceed the test pressure of the pressure receptacles.

The use of test pressures and filling ratios other than those in the table is permitted, except where (5), special packing provision "o" applies provided that:

(i) the criterion of (5) special packing provision “r” is met where applicable; or

(ii) the above criterion is met in all other cases.

For high pressure liquefied gases for which data is not provided in the table, the maximum filling ratio (FR) must be determined as follows:

$$FR = 8.5 \times 10^{-4} \times d_g \times P_h$$

where FR = maximum filling ratio

d_g = gas density (at 15 °C, 1 bar)(in g/L)

P_h = minimum test pressure (in bar)

If the density of the gas is unknown, the maximum filling ratio must be determined as follows:

$$FR = \frac{P_h \times MM \times 10^{-3}}{R \times 338}$$

where FR = maximum filling ratio

P_h = minimum test pressure (in bar)

MM = molecular mass (in g/mol)

R = 8.31451×10^{-2} bar. L/mol.K (gas constant)

P200	PACKING INSTRUCTION (Cont.)	P200

For gas mixtures, the average molecular mass is to be taken, taking into account the volumetric concentrations of the various components;

(c) For low pressure liquefied gases, the maximum mass of contents per litre of water capacity must equal 0.95 times the density of the liquid phase at 50 °C; in addition, the liquid phase must not fill the pressure receptacle at any temperature up to 60 °C. The test pressure of the pressure receptacle must be at least equal to the vapour pressure (absolute) of the liquid at 65 °C, minus 100 kPa (1 bar).

For low pressure liquefied gases and gas mixtures for which relevant data are not available, the maximum filling ratio must be determined as follows:

$$FR = (0.0032 \times BP - 0.24) \times d_1$$

where FR = maximum filling ratio

BP = boiling point (in Kelvin)

d_1 = density of the liquid at boiling point (in kg/L)

(d) For UN 1001, acetylene, dissolved, and UN 3374 acetylene, solvent free, see (5), special packing provision "p".

(e) For liquefied gases charged with compressed gases, both components – the liquefied gas and the compressed gas – have to be taken into consideration in the calculation of the internal pressure in the pressure receptacle.

The maximum mass of contents per litre of water capacity must not exceed 0.95 times the density of the liquid phase at 50 °C; in addition, the liquid phase must not completely fill the pressure receptacle at any temperature up to 60 °C.

When filled, the internal pressure at 65 °C must not exceed the test pressure of the pressure receptacles. The vapour pressures and volumetric expansions of all substances in the pressure receptacles must be considered. When experimental data is not available, the following steps must be carried out:

(i) Calculation of the vapour pressure of the liquefied gas and of the partial pressure of the compressed gas at 15 °C (filling temperature);

(ii) Calculation of the volumetric expansion of the liquid phase resulting from the heating from 15 °C to 65 °C and calculation of the remaining volume for the gaseous phase;

(iii) Calculation of the partial pressure of the compressed gas at 65 °C considering the volumetric expansion of the liquid phase;

NOTE: *The compressibility factor of the compressed gas at 15 °C and 65 °C must be considered.*

(iv) Calculation of the vapour pressure of the liquefied gas at 65 °C;

(v) The total pressure is the sum of the vapour pressure of the liquified gas and the partial pressure of the compressed gas at 65 °C;

(vi) Consideration of the solubility of the compressed gas at 65 °C in the liquid phase;

The test pressure of the pressure receptacle must not be less than the calculated total pressure minus 100 kPa (1bar).

If the solubility of the compressed gas in the liquid phase is not known for the calculation, the test pressure can be calculated without taking the gas solubility (sub-paragraph (vi)) into account.

Continued next page

P200	PACKING INSTRUCTION (Cont.)	P200

(4) The filling of pressure receptacles shall be carried out by qualified staff using appropriate equipment and procedures.

The procedures should include checks of:

- The conformity of receptacles and accessories with this Code;
- Their compatibility with the product to be transported;
- The absence of damage which might affect safety;
- Compliance with the degree or pressure of filling, as appropriate;
- Marks and identification.

These requirements are deemed to be met if the following standards are applied:

- ISO 10691: 2004	Gas cylinders – Refillable welded steel cylinders for liquefied petroleum gas (LPG) – Procedures for checking before, during and after filling.
- ISO 11372: 2011	Gas cylinders – Acetylene cylinders – Filling conditions and filling inspection
- ISO 11755: 2005	Gas cylinders – Cylinder bundles for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling
- ISO 13088: 2011	Gas cylinders – Acetylene cylinder bundles – Filling conditions and filling inspection
- ISO 24431:2016	Gas cylinders – Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) – Inspection at time of filling

(5) Special packing provisions:

Material compatibility

a: Aluminium alloy pressure receptacles must not be used.

b: Copper valves must not be used.

c: Metal parts in contact with the contents must not contain more than 65% copper.

d: When steel pressure receptacles are used, only those bearing the "H" mark in accordance with 6.2.2.7.4 (p) are permitted.

Requirements for toxic substances with an LC50 less than or equal to 200 ml/m³ (ppm)

k: Valve outlets must be fitted with pressure retaining gas-tight plugs or caps having threads that match those of the valves outlets.

Each cylinder within a bundle must be fitted with an individual valve that must be closed during transport. After filling, the manifold must be evacuated, purged and plugged.

Bundles containing UN 1045 Fluorine, compressed, may be constructed with isolation valves on groups of cylinders not exceeding 150 litres total water capacity instead of isolation valves on every cylinder.

Cylinders and individual cylinders in a bundle must have a test pressure greater than or equal to 200 bar and a minimum wall thickness of 3.5 mm for aluminium alloy or 2 mm for steel. Individual cylinders not complying with this requirement must be transported in a rigid outer packaging that will adequately protect the cylinder and its fittings and meeting the packing group I performance level. Pressure drums must have a minimum wall thickness as specified by the competent authority.

Pressure receptacles must not be fitted with a pressure relief device.

Continued next page

P200	PACKING INSTRUCTION (Cont.)	P200

Cylinders and individual cylinders in a bundle must be limited to a maximum water capacity of 85 litres.

Each valve must be capable of withstanding the test pressure of the pressure receptacle and be connected directly to the pressure receptacle by either a taper thread or other means which meets the requirements of ISO 10692-2:2001.

Each valve must either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing.

Each pressure receptacle must be tested for leakage after filling.

Gas specific provisions

l: UN 1040 ethylene oxide may also be packed in hermetically sealed glass or metal inner packagings suitably cushioned in fibreboard, wooden or metal boxes meeting the packing group I performance level. The maximum quantity permitted in any glass inner packaging is 30 g, and the maximum quantity permitted in any metal inner packaging is 200 g. After filling, each inner packaging must be determined to be leak-tight by placing the inner packaging in a hot water bath at a temperature, and for a period of time, sufficient to ensure that an internal pressure equal to the vapour pressure of ethylene oxide at 55 °C is achieved. The maximum net mass in any outer packaging must not exceed 2.5 kg.

m: Pressure receptacles must be filled to a working pressure not exceeding 5 bar.

n: Cylinders and individual cylinders in a bundle must contain not more than 5 kg of the gas. When bundles containing UN 1045 Fluorine, compressed, are divided into groups of cylinders in accordance with special packing provision “k”, each group must contain not more than 5 kg of the gas.

o: In no case must the working pressure or filling ratio shown in the table be exceeded.

p: For UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free: cylinders must be filled with a homogeneous monolithic porous material; the working pressure and the quantity of acetylene must not exceed the values prescribed in the approval or in ISO 3807-1:2000, ISO 3807-2:2000, ISO 3807-:2013 or AS 2030.2, as applicable.

For UN 1001 acetylene, dissolved: cylinders must contain a quantity of acetone or suitable solvent as specified in the approval (see ISO 3807-1:2000, ISO 3807-2:2000, ISO 3807-2:2013 or AS 2030.2, as applicable); cylinders fitted with pressure relief devices or manifolded together must be transported vertically.

The test pressure of 52 bar applies only to cylinders fitted with a fusible plug.

q: Valve outlets of pressure receptacles for pyrophoric gases or flammable mixtures of gases containing more than 1% of pyrophoric compounds must be fitted with gas-tight plugs or caps. When these pressure receptacles are manifolded in a bundle, each of the pressure receptacles must be fitted with an individual valve that must be closed during transport, and the outlet of the manifold valve must be fitted with a pressure retaining gas-tight plug or cap. Gas-tight plugs or caps must have threads that match those of the valves outlets.

r: The filling ratio of this gas must be limited such that, if complete decomposition occurs, the pressure does not exceed two thirds of the test pressure of the pressure receptacle.

ra: This gas may also be packed in capsules under the following conditions:

(a) The mass of gas must not exceed 150 g per capsule;

(b) The capsules must be free from faults liable to impair the strength;

(c) The leakproofness of the closure must be ensured by an additional device (cap, crown, seal, binding, etc.) capable of preventing any leakage of the closure during transport;

(d) The capsules must be placed in an outer packaging of sufficient strength. A package must not weigh more than 75 kg.

Continued next page

P200	PACKING INSTRUCTION (Cont.)	P200

s: Aluminium alloy pressure receptacles must be:

- Equipped only with brass or stainless steel valves; and
- Cleaned in accordance with ISO 11621:1997 and not contaminated with oil.

t: (i) The wall thickness of pressure receptacles must be not less than 3 mm.

(ii) Prior to transport it must be ensured that the pressure has not risen due to potential hydrogen generation.

Periodic inspection

u: The interval between periodic tests may be extended to 10 years for aluminium alloy pressure receptacles when the alloy of the pressure receptacle has been subjected to stress corrosion testing as specified in ISO 7866:2012 + Cor 1:2014.

v: The interval between periodic inspections for steel cylinders may be extended to 15 years if approved by the competent authority of the country of use.

Requirements for N.O.S. descriptions and for mixtures

z: The construction materials of the pressure receptacles and their accessories must be compatible with the contents and must not react to form harmful or dangerous compounds therewith.

The test pressure and filling ratio must be calculated in accordance with the relevant requirements of (3).

Toxic substances with an LC_{50} less than or equal to 200 ml/m^3 must not be transported in tubes, pressure drums or MEGCs and must meet the requirements of special packing provision "k". However, UN 1975 Nitric oxide and dinitrogen tetroxide mixture may be transported in pressure drums.

For pressure receptacles containing pyrophoric gases or flammable mixtures of gases containing more than 1% pyrophoric compounds, the requirements of special packing provision ‘q’ must be met.

The necessary steps must be taken to prevent dangerous reactions (i.e. polymerisation or decomposition) during transport. If necessary, stabilisation or addition of an inhibitor must be required.

Mixtures containing UN 1911 diborane, must be filled to a pressure such that, if complete decomposition of the diborane occurs, two thirds of the test pressure of the pressure receptacle must not be exceeded.

Mixtures containing UN 2192 germane, other than mixtures of up to 35% germane in hydrogen or nitrogen or up to 28% germane in helium or argon, must be filled to a pressure such that, if complete decomposition of the germane occurs, two thirds of the test pressure of the pressure receptacle must not be exceeded.

P200	**PACKING INSTRUCTION *(cont'd)***	**P200**

Table 4.1.4.1A: COMPRESSED GASES

UN No.	**Name and description**	**Class or Division**	**Subsidiary hazard**	**LC_{50} ml/m^3**	**Cylinders**	**Tubes**	**Pressure drums**	**Bundles of cylinders**	**MEGCs**	**Test period, years**	**Test pressure, bar***	**Maximum working pressure, bar***	**Special packing provisions**
1002	AIR, COMPRESSED	2.2			X	X	X	X	X	10			
1006	ARGON, COMPRESSED	2.2			X	X	X	X	X	10			
1016	CARBON MONOXIDE, COMPRESSED	2.3	2.1	3760	X	X	X	X	X	5			u
1023	COAL GAS, COMPRESSED	2.3	2.1		X	X	X	X	X	5			
1045	FLUORINE, COMPRESSED	2.3	5.1 8	185	X			X		5	200	30	a, k, n, o
1046	HELIUM, COMPRESSED	2.2			X	X	X	X	X	10			
1049	HYDROGEN, COMPRESSED	2.1			X	X	X	X	X	10			d
1056	KRYPTON, COMPRESSED	2.2			X	X	X	X	X	10			
1065	NEON, COMPRESSED	2.2			X	X	X	X	X	10			
1066	NITROGEN, COMPRESSED	2.2			X	X	X	X	X	10			
1071	OIL GAS, COMPRESSED	2.3	2.1		X	X	X	X	X	5			
1072	OXYGEN, COMPRESSED	2.2	5.1		X	X	X	X	X	10			s
1612	HEXAETHYL TETRAPHOSPHATE AND COMPRESSED GAS MIXTURE	2.3			X	X	X	X	X	5			z
1660	NITRIC OXIDE, COMPRESSED	2.3	5.1 8	115	X			X		5	225	33	k, o
1953	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1	$\leq$ 5000	X	X	X	X	X	5			z
1954	COMPRESSED GAS, FLAMMABLE, N.O.S	2.1			X	X	X	X	X	10			z

P200	**PACKING INSTRUCTION *(cont'd)***												**P200**
	Table 4.1.4.1A: COMPRESSED GASES												
1955	COMPRESSED GAS, TOXIC, N.O.S.	2.3		≤ 5000	X	X	X	X	X	5			z
1956	COMPRESSED GAS, N.O.S.	2.2			X	X	X	X	X	10			z
1957	DEUTERIUM, COMPRESSED	2.1			X	X	X	X	X	10			d
1964	HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S	2.1			X	X	X	X	X	10			z
1971	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content	2.1			X	X	X	X	X	10			
2034	HYDROGEN AND METHANE MIXTURE, COMPRESSED	2.1			X	X	X	X	X	10			d
2190	OXYGEN DIFLUORIDE, COMPRESSED	2.3	5.1 8	2.6	X			X		5	200	30	a, k, n, o
3156	COMPRESSED GAS, OXIDISING, N.O.S.	2.2	5.1		X	X	X	X	X	10			z
3303	COMPRESSED GAS, TOXIC, OXIDISING, N.O.S.	2.3	5.1	≤ 5000	X	X	X	X	X	5			z
3304	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	8	≤ 5000	X	X	X	X	X	5			z
3305	COMPRESSED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	2.1 8	≤ 5000	X	X	X	X	X	5			z
3306	COMPRESSED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	5.1 8	≤ 5000	X	X	X	X	X	5			z

Table notes:

* Where the entries are blank, the working pressure must not exceed two thirds of the test pressure.

P200	PACKING INSTRUCTION *(cont'd)*												P200
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
UN No.	**Name and description**	**Class or Division**	**Subsidiary hazard**	**LC50 ml/m³**	**Cylinders**	**Tubes**	**Pressure drums**	**Bundles of cylinders**	**MEGCs**	**Test period, years**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1001	ACETYLENE, DISSOLVED	2.1			X			X		10	60 52		c, p
1005	AMMONIA, ANHYDROUS	2.3	8	4000	X	X	X	X	X	5	29	0.54	b
1008	BORON TRIFLUORIDE	2.3	8	387	X	X	X	X	X	5	225 300	0.715 0.86	a
1009	BROMOTRIFLUORO-METHANE (REFRIGERANT GAS R 13B1)	2.2			X	X	X	X	X	10	42 120 250	1.13 1.44 1.60	
1010	BUTADIENES, STABILISED (1,2-butadiene), or	2.1			X	X	X	X	X	10	10	0.59	
1010	BUTADIENES, STABILISED (1,3-butadiene), or	2.1			X	X	X	X	X	10	10	0.55	
1010	BUTADIENES AND HIDROCARBON MIXTURE, STABILISED, containing more than 40% butadienes	2.1			X	X	X	X	X	10			z, v
1011	BUTANE	2.1			X	X	X	X	X	10	10	0.52	v
1012	BUTYLENE (butylenes mixture) or	2.1			X	X	X	X	X	10	10	0.50	z
1012	BUTYLENE (1-butylene) or	2.1			X	X	X	X	X	10	10	0.53	
1012	BUTYLENE (cis-2-butylene) or	2.1			X	X	X	X	X	10	10	0.55	
1012	BUTYLENE (trans-2 butylene)	2.1			X	X	X	X	X	10	10	0.54	

P200	**PACKING INSTRUCTION *(cont'd)***												**P200**
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
1013	CARBON DIOXIDE	2.2			X	X	X	X	X	10	190 250	0.68 0.76	
1015	CARBON DIOXIDE AND NITROUS OXIDE MIXTURE[*]	2.2			X	X	X	X	X	10	250	0.75	
1017	CHLORINE	2.3	5.1[§] 8	293	X	X	X	X	X	5	22	1.25	a
1018	CHLORODIFLUORO-METHANE (REFRIGERANT GAS R 22)	2.2			X	X	X	X	X	10	27	1.03	
1020	CHLOROPENTA-FLUOROETHANE (REFRIGERANT GAS R 115)	2.2			X	X	X	X	X	10	25	1.05	
1021	1-CHLORO-1,2,2,2-TETRAFLUORO-ETHANE (REFRIGERANT GAS R 124)	2.2			X	X	X	X	X	10	11	1.20	
1022	CHLOROTRIFLUORO-METHANE (REFRIGERANT GAS R 13)	2.2			X	X	X	X	X	10	100 120 190 250	0.83 0.90 1.04 1.11	
1026	CYANOGEN	2.3	2.1	350	X	X	X	X	X	5	100	0.70	u
1027	CYCLOPROPANE	2.1			X	X	X	X	X	10	18	0.55	
1028	DICHLORODIFLUORO-METHANE (REFRIGERANT GAS R 12)	2.2			X	X	X	X	X	10	16	1.15	
1029	DICHLOROFLUORO-METHANE (REFRIGERANT GAS R 21)	2.2			X	X	X	X	X	10	10	1.23	
1030	1,1-DIFLUOROETHANE (REFRIGERANT GAS R 152a)	2.1			X	X	X	X	X	10	16	0.79	
1032	DIMETHYLAMINE, ANHYDROUS	2.1			X	X	X	X	X	10	10	0.59	b

P200	**PACKING INSTRUCTION *(cont'd)***												**P200**
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
1033	DIMETHYL ETHER	2.1			X	X	X	X	X	10	18	0.58	
Table notes: § See Australian Special Provision, AU07.													
1035	ETHANE	2.1			X	X	X	X	X	10	95 120 300	0.25 0.30 0.40	
1036	ETHYLAMINE	2.1			X	X	X	X	X	10	10	0.61	b
1037	ETHYL CHLORIDE	2.1			X	X	X	X	X	10	10	0.80	a, ra
1039	ETHYL METHYL ETHER	2.1			X	X	X	X	X	10	10	0.64	
1040	ETHYLENE OXIDE, or ETHYLENE OXIDE WITH NITROGEN up to a total pressure of 1MPa (10 bar) at 50 °C	2.3	2.1	2900	X	X	X	X	X	5	15	0.78	l
1041	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with more than 9% ethylene oxide but not more than 87%	2.1			X	X	X	X	X	10	190 250	0.66 0.75	
1043	FERTILISER AMMONIATING SOLUTION with free ammonia	2.2			X		X	X		5			b, z
1048	HYDROGEN BROMIDE, ANHYDROUS	2.3	8	2860	X	X	X	X	X	5	60	1.51	a, d
1050	HYDROGEN CHLORIDE, ANHYDROUS	2.3	8	2810	X	X	X	X	X	5	100 120 150 200	0.30 0.56 0.67 0.74	a, d a, d a, d a, d
1053	HYDROGEN SULPHIDE	2.3	2.1	712	X	X	X	X	X	5	48	0.67	d, u
1055	ISOBUTYLENE	2.1			X	X	X	X	X	10	10	0.52	

P200	**PACKING INSTRUCTION *(cont'd)***												**P200**
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
1058	LIQUEFIED GASES, non-flammable, charged with nitrogen, carbon dioxide or air	2.2			X	X	X	X	X	10			
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILISED or	2.1			X	X	X	X	X	10			c, z
1060	METHYLACETYLENE AND PROPADIENE MIXTURE, STABILISED (Propadiene with1% to 4% methylacetylene)	2.1			X	X	X	X	X	10	22	0.52	c
1061	METHYLAMINE, ANHYDROUS	2.1			X	X	X	X	X	10	13	0.58	b
1062	METHYL BROMIDE	2.3		850	X	X	X	X	X	5	10	1.51	a
1063	METHYL CHLORIDE (REFRIGERANT GAS R 40)	2.1			X	X	X	X	X	10	17	0.81	a
1064	METHYL MERCAPTAN	2.3	2.1	1350	X	X	X	X	X	5	10	0.78	d, u
1067	DINITROGEN TETROXIDE (NITROGEN DIOXIDE)	2.3	5.1 8	115	X		X	X		5	10	1.30	k
1069	NITROSYL CHLORIDE	2.3	8	35	X			X		5	13	1.10	k
1070	NITROUS OXIDE	2.2	5.1		X	X	X	X	X	10	180 225 250	0.68 0.74 0.75	
1075	PETROLEUM GASES, LIQUEFIED	2.1			X	X	X	X	X	10			v, z
1076	PHOSGENE	2.3	8	5	X		X	X		5	20	1.23	a, k
1077	PROPYLENE	2.1			X	X	X	X	X	10	27	0.43	
1078	REFRIGERANT GAS, N.O.S.	2.2			X	X	X	X	X	10			z
1079	SULPHUR DIOXIDE	2.3	8	2520	X	X	X	X	X	5	12	1.23	

P200	PACKING INSTRUCTION *(cont'd)*												P200
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
1080	SULPHUR HEXAFLUORIDE	2.2			X	X	X	X	X	10	70 140 160	1.06 1.34 1.38	
1081	TETRAFLUORO-ETHYLENE, STABILISED	2.1			X	X	X	X	X	10	200		m, o
1082	TRIFLUOROCHLORO-ETHYLENE, STABILISED	2.3	2.1	2000	X	X	X	X	X	5	19	1.13	u
1083	TRIMETHYLAMINE, ANHYDROUS	2.1			X	X	X	X	X	10	10	0.56	b
1085	VINYL BROMIDE, STABILISED	2.1			X	X	X	X	X	10	10	1.37	a
1086	VINYL CHLORIDE, STABILISED	2.1			X	X	X	X	X	10	12	0.81	a
1087	VINYL METHYL ETHER, STABILISED	2.1			X	X	X	X	X	10	10	0.67	
1581	CHLOROPICRIN AND METHYL BROMIDE MIXTURE	2.3		850	X	X	X	X	X	5	10	1.51	a
1582	CHLOROPICRIN AND METHYL CHLORIDE MIXTURE	2.3			X	X	X	X	X	5	17	0.81	a
1589	CYANOGEN CHLORIDE, STABILISED	2.3	8	80	X			X		5	20	1.03	k
1741	BORON TRICHLORIDE	2.3	8	2541	X	X	X	X	X	5	10	1.19	a
1749	CHLORINE TRIFLUORIDE	2.3	5.1 8	299	X	X	X	X	X	5	30	1.40	a
1858	HEXAFLUORO-PROPYLENE (REFRIGERANT GAS R 1216)	2.2			X	X	X	X	X	10	22	1.11	
1859	SILICON TETRAFLUORIDE	2.3	8	922	X	X	X	X	X	5	200 300	0.74 1.10	a
1860	VINYL FLUORIDE, STABILISED	2.1			X	X	X	X	X	10	250	0.64	a
1911	DIBORANE	2.3	2.1	80	X			X		5	250	0.07	D, k, o

P200	PACKING INSTRUCTION *(cont'd)*	P200

Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES

1912	METHYL CHLORIDE AND METHYLENE CHLORIDE MIXTURE	2.1			X	X	X	X	X	10	17	0.81	a
1952	ETHYLENE OXIDE AND CARBON DIOXIDE MIXTURE with not more than 9% ethylene oxide	2.2			X	X	X	X	X	10	190 250	0.66 0.75	
1958	1,2-DICHLORO-1,1,2,2-TETRAFLUORO-ETHANE (REFRIGERANT GAS R 114)	2.2			X	X	X	X	X	10	10	1.30	
1959	1,1-DIFLUORO-ETHYLENE (REFRIGERANT GAS R 1132a)	2.1			X	X	X	X	X	10	250	0.77	
1962	ETHYLENE	2.1			X	X	X	X	X	10	225 300	0.34 0.38	
1965	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.	2.1			X	X	X	X	X	10			v, z
1967	INSECTICIDE GAS, TOXIC, N.O.S.	2.3			X	X	X	X	X	5			z
1968	INSECTICIDE GAS, N.O.S.	2.2			X	X	X	X	X	10			z
1969	ISOBUTANE	2.1			X	X	X	X	X	10	10	0.49	v
1973	CHLORODIFLUORO-METHANE AND CHLOROPENTA-FLUOROETHANE MIXTURE with fixed boiling point, with approximately 49% chlorodifluoromethane (REFRIGERANT GAS R 502)	2.2			X	X	X	X	X	10	31	1.01	
1974	CHLORODIFLUORO-BROMOMETHANE (REFRIGERANT GAS R 12B1)	2.2			X	X	X	X	X	10	10	1.61	

P200	PACKING INSTRUCTION *(cont'd)*												P200
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
1975	NITRIC OXIDE AND DINITROGEN TETROXIDE MIXTURE (NITRIC OXIDE AND NITROGEN DIOXIDE MIXTURE)	2.3	5.1 8	115	X		X	X		5			k, z
1976	OCTAFLUOROCYCLO-BUTANE (REFRIGERANT GAS RC 318)	2.2			X	X	X	X	X	10	11	1.32	
1978	PROPANE	2.1			X	X	X	X	X	10	23	0.43	v
1982	TETRAFLUORO-METHANE (REFRIGERANT GAS R 14)	2.2			X	X	X	X	X	10	200 300	0.71 0.90	
1983	1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a)	2.2			X	X	X	X	X	10	10	1.18	
1984	TRIFLUOROMETHANE (REFRIGERANT GAS R 23)	2.2			X	X	X	X	X	10	190 250	0.88 0.96	
2035	1,1,1-TRIFLUORO-ETHANE (REFRIGERANT GAS R 143a)	2.1			X	X	X	X	X	10	35	0.73	
2036	XENON	2.2			X	X	X	X	X	10	130	1.28	
2044	2,2-DIMETHYL-PROPANE	2.1			X	X	X	X	X	10	10	0.53	
2073	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water,	2.2											
2073	with more than 35% but not more than 40% ammonia	2.2			X	X	X	X	X	5	10	0.80	b
2073	with more than 40% but not more than 50% ammonia	2.2			X	X	X	X	X	5	12	0.77	b
2188	ARSINE	2.3	2.1	178	X			X		5	42	1.10	d, k
2189	DICHLOROSILANE	2.3	2.1 8	314	X	X	X	X	X	5	10 200	0.90 1.08	a

P200	PACKING INSTRUCTION *(cont'd)*	P200

Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES

2191	SULPHURYL FLUORIDE	2.3		3020	X	X	X	X	X	5	50	1.10	u
2192	GERMANE	2.3	2.1	620	X	X	X	X	X	5	250	0.064	d, q
2193	HEXAFLUOROETHANE (REFRIGERANT GAS R 116)	2.2			X	X	X	X	X	10	200	1.13	
2194	SELENIUM HEXAFLUORIDE	2.3	8	50	X			X		5	36	1.46	k
2195	TELLURIUM HEXAFLUORIDE	2.3	8	25	X			X		5	20	1.00	k
2196	TUNGSTEN HEXAFLUORIDE	2.3	8	160	X			X		5	10	3.08	a, k
2197	HYDROGEN IODIDE, ANHYDROUS	2.3	8	2860	X	X	X	X	X	5	23	2.25	a, d
2198	PHOSPHORUS PENTAFLUORIDE	2.3	8	190	X			X		5	200 300	0.90 1.25	k
2199	PHOSPHINE	2.3	2.1	20	X			X		5	225 250	0.30 0.45	d, k, q d, k, q
2200	PROPADIENE, STABILISED	2.1			X	X	X	X	X	10	22	0.50	
2202	HYDROGEN SELENIDE, ANHYDROUS	2.3	2.1	51	X			X		5	31	1.60	k
2203	SILANE	2.1			X	X	X	X	X	10	225 250	0.32 0.36	q q
2204	CARBONYL SULPHIDE	2.3	2.1	1700	X	X	X	X	X	5	30	0.87	u
2417	CARBONYL FLUORIDE	2.3	8	360	X	X	X	X	X	5	200 300	0.47 0.70	
2418	SULPHUR TETRAFLUORIDE	2.3	8	40	X			X		5	30	0.91	a, k
2419	BROMOTRIFLUORO-ETHYLENE	2.1			X	X	X	X	X	10	10	1.19	
2420	HEXAFLUORO-ACETONE	2.3	8	470	X	X	X	X	X	5	22	1.08	
2421	NITROGEN TRIOXIDE	2.3	5.1 8	57	X			X		5			k
2422	OCTAFLUOROBUT-2-ENE (REFRIGERANT GAS R 1318)	2.2			X	X	X	X	X	10	12	1.34	

P200	**PACKING INSTRUCTION *(cont'd)***	**P200**

Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES

2424	OCTAFLUORO-PROPANE (REFRIGERANT GAS R 218)	2.2			X	X	X	X	X	10	25	1.04	
2451	NITROGEN TRIFLUORIDE	2.2	5.1		X	X	X	X	X	10	200	0.50	
2452	ETHYLACETYLENE, STABILISED	2.1			X	X	X	X	X	10	10	0.57	c
2453	ETHYL FLUORIDE (REFRIGERANT GAS R 161)	2.1			X	X	X	X	X	10	30	0.57	
2454	METHYL FLUORIDE (REFRIGERANT GAS R 41)	2.1			X	X	X	X	X	10	300	0.63	
2455	METHYL NITRITE	2.2											
2517	1-CHLORO-1,1-DIFLUOROETHANE (REFRIGERANT GAS R 142b)	2.1			X	X	X	X	X	10	10	0.99	
2534	METHYLCHLORO-SILANE	2.3	2.1 8	2810	X	X	X	X	X	5			z
2548	CHLORINE PENTAFLUORIDE	2.3	5.1 8	122	X			X		5	13	1.49	a, k
2599	CHLOROTRIFLUORO-METHANE AND TRIFLUOROMETHANE AZEOTROPIC MIXTURE with approximately 60% chlorotrifluoromethane (REFRIGERANT GAS R 503)	2.2			X	X	X	X	X	10	31 42 100	0.12 0.17 0.64	
2601	CYCLOBUTANE	2.1			X	X	X	X	X	10	10	0.63	
2602	DICHLORODIFLUORO-METHANE AND DIFLUOROETHANE AZEOTROPIC MIXTURE with approximately 74% dichlorodifluoromethane (REFRIGERANT GAS R 500)	2.2			X	X	X	X	X	10	22	1.01	

P200	PACKING INSTRUCTION *(cont'd)*													P200
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES														
2676	STIBINE	2.3	2.1	178	X			X		5	200	0.49	k, r	
2901	BROMINE CHLORIDE	2.3	5.1 8	290	X	X	X	X	X	5	10	1.50	a	
3057	TRIFLUOROACETYL CHLORIDE	2.3	8	10	X		X	X		5	17	1.17	k	
3070	ETHYLENE OXIDE AND DICHLORO-DIFLUORO-METHANE MIXTURE with not more than 12,5% ethylene oxide	2.2			X	X	X	X	X	10	18	1.09		
3083	PERCHLORYL FLUORIDE	2.3	5.1	770	X	X	X	X	X	5	33	1.21	u	
3153	PERFLUORO (METHYL VINYL ETHER)	2.1			X	X	X	X	X	10	20	0.75		
3154	PERFLUORO (ETHYL VINYL ETHER)	2.1			X	X	X	X	X	10	10	0.98		
3157	LIQUEFIED GAS, OXIDISING, N.O.S.	2.2	5.1		X	X	X	X	X	10			z	
3159	1,1,1,2-TETRAFLUORO-ETHANE (REFRIGERANT GAS R 134a)	2.2			X	X	X	X	X	10	18	1.05		
3160	LIQUEFIED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1	≤ 5000	X	X	X	X	X	5			z	
3161	LIQUEFIED GAS, FLAMMABLE, N.O.S.	2.1			X	X	X	X	X	10			z	
3162	LIQUEFIED GAS, TOXIC, N.O.S.	2.3		≤ 5000	X	X	X	X	X	5			z	
3163	LIQUEFIED GAS, N.O.S.	2.2			X	X	X	X	X	10			z	
3220	PENTAFLUORO-ETHANE (REFRIGERANT GAS R 125)	2.2			X	X	X	X	X	10	49 35	0.95 0.87		
3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	2.1			X	X	X	X	X	10	48	0.78		
3296	HEPTAFLUORO-PROPANE (REFRIGERANT GAS R 227)	2.2			X	X	X	X	X	10	13	1.21		

P200	**PACKING INSTRUCTION *(cont'd)***												**P200**
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
3297	ETHYLENE OXIDE AND CHLOROTETRA-FLUOROETHANE MIXTURE with not more than 8.8% ethylene oxide	2.2			X	X	X	X	X	10	10	1.16	
3298	ETHYLENE OXIDE AND PENTAFLUORO-ETHANE MIXTURE with not more than 7.9% ethylene oxide	2.2			X	X	X	X	X	10	26	1.02	
3299	ETHYLENE OXIDE AND TETRAFLUORO-ETHANE MIXTURE with not more than 5.6% ethylene oxide	2.2			X	X	X	X	X	10	17	1.03	
3300	ETHYLENE OXIDE AND CARBON DIOXI0DE MIXTURE with more than 87% ethylene oxide	2.3	2.1	More than 2900	X	X	X	X	X	5	28	0.73	
3307	LIQUEFIED GAS, TOXIC, OXIDISING, N.O.S.	2.3	5.1	≤ 5000	X	X	X	X	X	5			z
3308	LIQUEFIED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	8	≤ 5000	X	X	X	X	X	5			z
3309	LIQUEFIED GAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	2.1 8	≤ 5000	X	X	X	X	X	5			z
3310	LIQUEFIED GAS, TOXIC, OXIDISING, CORROSIVE, N.O.S.	2.3	5.1 8	≤ 5000	X	X	X	X	X	5			z
3318	AMMONIA SOLUTION, relative density less than 0.880 at 15 °C in water, with more than 50% ammonia	2.3	8		X	X	X	X	X	5			b
3337	REFRIGERANT GAS R 404A	2.2			X	X	X	X	X	10	36	0.82	
3338	REFRIGERANT GAS R 407A	2.2			X	X	X	X	X	10	32	0.94	

P200	**PACKING INSTRUCTION *(cont'd)***												**P200**
Table 4.1.4.1B: LIQUEFIED GASES AND DISSOLVED GASES													
3339	REFRIGERANT GAS R 407B	2.2			X	X	X	X	X	10	33	0.93	
3340	REFRIGERANT GAS R 407C	2.2			X	X	X	X	X	10	30	0.95	
3354	INSECTICIDE GAS, FLAMMABLE, N.O.S	2.1			X	X	X	X	X	10			z
3355	INSECTICIDE GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1		X	X	X	X	X	5			z
3374	ACETYLENE, SOLVENT FREE	2.1			X			X		5	60 52		c, p

Cont'd on next page

P200	PACKING INSTRUCTION (Cont.)												P200
Table 4.1.4.1C: SUBSTANCES NOT IN CLASS 2													
UN No.	**Name and description**	**Class or Division**	**Subsidiary hazard**	**LC50 ml/m[3]**	**Cylinders**	**Tubes**	**Pressure drums**	**Bundles of cylinders**	**MEGCs**	**Test period, years**	**Test pressure, bar**	**Filling ratio**	**Special packing provisions**
1051	HYDROGEN CYANIDE, STABILISED containing less than 3% water	6.1	3	40	X			X		5	100	0.55	k
1052	HYDROGEN FLUORIDE, ANHYDROUS	8	6.1	966	X		X	X		5	10	0.84	a, t
1745	BROMINE PENTAFLUORIDE	5.1	6.1 8	25	X		X	X		5	10	[a].	k
1746	BROMINE TRIFLUORIDE	5.1	6.1 8	50	X		X	X		5	10	[a].	k
2495	IODINE PENTAFLUORIDE	5.1	6.1 8	120	X		X	X		5	10	[a].	k

Table note:

a. A minimum ullage of 8% by volume is required.

P201	PACKING INSTRUCTION	P201
This instruction applies to UN 3167, UN 3168 and UN 3169.		

The following packagings are authorised:

(1) Cylinders and gas receptacles conforming to the construction, testing and filling requirements approved by the competent authority.

(2) The following combination packagings provided that the general provisions of **4.1.1** and **4.1.3** are met:

Outer packagings:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

Inner packagings:

(a) For non-toxic gases, hermetically sealed inner packagings of glass or metal with a maximum capacity of 5 litres per package;

(b) For toxic gases, hermetically sealed inner packagings of glass or metal with a maximum capacity of 1 litre per package.

Packagings must conform to the packing group III performance level.

P202	PACKING INSTRUCTION	P202

<Reserved> – [by UN]

P203	PACKING INSTRUCTION	P203
This instruction applies to Class 2 refrigerated liquefied gases.		

Requirements for closed cryogenic receptacles:

(1) The general requirements of 4.1.6.1 must be met.

(2) The requirements of Chapter 6.2 must be met.

(3) The closed cryogenic receptacles must be so insulated that they do not become coated with frost.

(4) Test pressure

Refrigerated liquids must be filled in closed cryogenic receptacles with the following minimum test pressures:

(a) For closed cryogenic receptacles with vacuum insulation, the test pressure must not be less than 1.3 times the sum of the maximum internal pressure of the filled receptacle, including during filling and discharge, plus 100 kPa (1 bar);

(b) For other closed cryogenic receptacles, the test pressure must be not less than 1.3 times the maximum internal pressure of the filled receptacle, taking into account the pressure developed during filling and discharge.

P203	PACKING INSTRUCTION	P203
This instruction applies to Class 2 refrigerated liquefied gases.		

(5) Degree of filling

For non-flammable, non-toxic refrigerated liquefied gases the volume of liquid phase at the filling temperature and at a pressure of 100 kPa (1 bar) must not exceed 98% of the water capacity of the pressure receptacle.

For flammable refrigerated liquefied gases the degree of filling must remain below the level at which, if the contents were raised to the temperature at which the vapour pressure equalled the opening pressure of the relief valve, the volume of the liquid phase would reach 98% of the water capacity at that temperature.

(6) Pressure-relief devices

Closed cryogenic receptacles must be fitted with at least one pressure-relief device.

(7) Compatibility

Materials used to ensure the leakproofness of the joints or for the maintenance of the closures must be compatible with the contents. In the case of receptacles intended for the transport of oxidising gases, (i.e. with a subsidiary hazard of 5.1) these materials must not react with these gases in a dangerous manner.

(8) Periodic inspection

The periodic inspection and test frequencies of pressure relief valves in accordance with 6.2.1.6.3 must not exceed five years.

Requirements for open cryogenic receptacles:

Only the following non oxidising refrigerated liquefied gases of Division 2.2 may be transported in open cryogenic receptacles:

UN Nos. 1913, 1951, 1963, 1970, 1977, 2591, 3136 and 3158.

Open cryogenic receptacles must be constructed to meet the following requirements:

(1) The receptacles must be designed, manufactured, tested and equipped in such a way as to withstand all conditions, including fatigue, to which they will be subjected during their normal use and during normal conditions of transport.

(2) The capacity must be not more than 450 litres.

(3) The receptacle must have a double wall construction with the space between the inner and outer wall being evacuated (vacuum insulation). The insulation must prevent the formation of hoar frost on the exterior of the receptacle.

(4) The materials of construction must have suitable mechanical properties at the service temperature.

(5) Receptacles of glass double wall construction must have an outer packaging with suitable cushioning or absorbent materials which withstand the pressures and impacts liable to occur under normal conditions of transport.

(6) The receptacle must be designed to remain in an upright position during transport, e.g. have a base whose smaller horizontal dimension is greater than the height of the centre of gravity when filled to capacity or be mounted on gimbals.

(7) The receptacle must be designed to remain in an upright position during transport eg have a base whose smaller horizontal dimension is greater than the height of the centre of gravity when filled to capacity or be mounted on gimbals.

P203	**PACKING INSTRUCTION**	**P203**
This instruction applies to Class 2 refrigerated liquefied gases.		
(8) The openings of the receptacles must be fitted with devices allowing gases to escape, preventing any splashing out of liquid, and so configured that they remain in place during transport. (9) Open cryogenic receptacles must bear the following marks permanently affixed e.g. by stamping, engraving or etching: - The manufacturer's name and address; - The model number or name; - The serial or batch number; - The UN number and proper shipping name of gases for which the receptacle is intended; - The capacity of the receptacle in litres.		

P205	**PACKING INSTRUCTION**	**P205**
This instruction applies to UN No. 3468.		
(1) For metal hydride storage systems, the general packing requirements of 4.1.6.1 must be met. (2) Only pressure receptacles not exceeding 150 litres in water capacity and having a maximum developed pressure not exceeding 25 MPa are covered by this packing instruction. (3) Metal hydride storage systems meeting the applicable requirements for the construction and testing of pressure receptacles containing gas of Chapter 6.2 are authorised for the transport of hydrogen only. (4) When steel pressure receptacles or composite pressure receptacles with steel liners are used, only those bearing the "H" mark, in accordance with 6.2.2.9.1(j) must be used. (5) Metal hydride storage systems must meet the service conditions, design criteria, rated capacity, type tests, batch tests, routine tests, test pressure, rated charging pressure and provisions for pressure relief devices for transportable metal hydride storage systems specified in ISO 16111:2008 and their conformity and approval must be assessed in accordance with 6.2.2.5. (6) Metal hydride storage systems must be filled with hydrogen at a pressure not exceeding the rated charging pressure shown in the permanent mark on the system as specified by ISO 16111:2008. (7) The periodic test requirements for a metal hydride storage system must be in accordance with ISO 16111:2008 and carried out in accordance with 6.2.2.6, and the maximum interval between periodic inspections must not exceed five years.		

P206	**PACKING INSTRUCTION**	**P206**

This instruction applies to UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505.

Unless otherwise indicated in this Code, cylinders and pressure drums conforming to the applicable requirements of Chapter 6.2 are authorised.

(1) The general packing requirements of 4.1.6.1 must be met.

(2) The maximum test period for periodic inspection must be 5 years.

(3) Cylinders and pressure drums must be so filled that at 50 °C the non-gaseous phase does not exceed 95% of their water capacity and they are not completely filled at 60 °C. When filled, the internal pressure at 65 °C must not exceed the test pressure of the cylinders and pressure drums. The vapour pressures and volumetric expansion of all substances in the cylinders and pressure drums must be taken into account.
For liquids charged with a compressed gas both components – the liquid and the compressed gas – have to be taken into consideration in the calculation of the internal pressure in the pressure receptacle. When experimental data is not available, the following steps shall be carried out:

(a) Calculation of the vapour pressure of the liquid and of the partial pressure of the compressed gas at 15 °C (filling temperature);

(b) Calculation of the volumetric expansion of the liquid phase resulting from the heating from 15 °C to 65 °C and calculation of the remaining volume for the gaseous phase;

(c) Calculation of the partial pressure of the compressed gas at 65 °C considering the volumetric expansion of the liquid phase;
NOTE: The compressibility factor of the compressed gas at 15 °C and 65 °C shall be considered.

(d) Calculation of the vapour pressure of the liquid at 65 °C;

(e) The total pressure is the sum of the vapour pressure of the liquid and the partial pressure of the compressed gas at 65 °C;

(f) Consideration of the solubility of the compressed gas at 65 °C in the liquid phase.

The test pressure of the cylinders or pressure drums shall not be less than the calculated total pressure minus 100 kPa (1 bar).

If the solubility of the compressed gas in the liquid phase is not known for the calculation, the test pressure can be calculated without taking the gas solubility (sub-paragraph (f)) into account.

(4) The minimum test pressure must be in accordance with P200 for the propellant but must not be less than 20 bar.

Additional requirement:

Cylinders and pressure drums must not be offered for transport when connected with spray application equipment such as a hose and wand assembly.

Special packing provisions:

PP89 For UN 3501, 3502, 3503, 3504 and 3505, notwithstanding 4.1.6.1.9 (b), non-refillable cylinders used may have a water capacity in litres not exceeding 1 000 litres divided by the test pressure expressed in bars provided capacity and pressure restrictions of the construction standard comply with ISO 11118:1999, which limits the maximum capacity to 50 litres.

PP97 For fire extinguishing agents assigned to UN 3500 the maximum test period for periodic inspection shall be 10 years. They may be transported in tubes of a maximum water capacity of 450 l conforming to the applicable requirements of Chapter 6.2.

P207	**PACKING INSTRUCTION**	**P207**
This instruction applies to UN No. 1950.		
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: (a) Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2). Packagings must conform to the packing group II performance level. (b) Rigid outer packagings with a maximum net mass as follows: Fibreboard 55 kg Other than fibreboard 125 kg The provisions of 4.1.1.3 need not be met. The packagings must be designed and constructed to prevent excessive movement of the aerosols and inadvertent discharge during normal conditions of transport.		
Special packing provision: **PP87** For UN 1950 waste aerosols transported in accordance with special provision 327, the packagings must have a means of retaining any free liquid that might escape during transport, e.g. absorbent material. The packaging must be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.		

P208	PACKING INSTRUCTION	P208

This instruction applies to Class 2 adsorbed gases.

(1) The following packagings are authorized provided the general packing requirements of **4.1.6.1.** are met:

(a) Cylinders constructed as specified in 6.2.2 and in accordance with ISO 11513:2011 or ISO 9809-1:2010; and

(b) Cylinders constructed before 1 January 2016 in accordance with 6.2.3 and a specification approved by the competent authorities of the countries of transport and use.

(2) The pressure of each filled cylinder must be less than 101.3 kPa at 20°C and less than 300 kPa at 50°C.

(3) The minimum test pressure of the cylinder must be 21 bar.

(4) The minimum burst pressure of the cylinder must be 94.5 bar.

(5) The internal pressure at 65°C of the filled cylinder must not exceed the test pressure of the cylinder.

(6) The adsorbent material must be compatible with the cylinder and must not form harmful or dangerous compounds with the gas to be adsorbed. The gas in combination with the adsorbent material must not affect or weaken the cylinder or cause a dangerous reaction (e.g. a catalyzing reaction).

(7) The quality of the adsorbent must be verified at the time of each fill to assure the pressure and chemical stability requirements of this packing instruction are met each time an adsorbed gas package is offered for transport.

(8) The adsorbent material must not meet the criteria of any of the Classes or Divisions in this Code.

(9) Requirements for cylinders and closures containing toxic gases with an LC50 less than or equal to 200 ml/m^3 (ppm) (see Table 1) must be as follows:

(a) Valve outlets **must** be fitted with pressure retaining gas-tight plugs or caps having threads matching those of the valve outlets.

(b) Each valve **must** either be of the packless type with non-perforated diaphragm, or be of a type which prevents leakage through or past the packing.

(c) Each cylinder and closure **must** be tested for leakage after filling.

(d) Each valve **must** be capable of withstanding the test pressure of the cylinder and be directly connected to the cylinder by either a taper-thread or other means which meets the requirements of ISO 10692-2:2001.

(e) Cylinders and valves **must** not be fitted with a pressure relief device.

(10) Valve outlets for cylinders containing pyrophoric gases must be fitted with gas-tight plugs or caps having threads matching those of the valve outlets.

(11) The filling procedure must be in accordance with Annex A of ISO 11513:2011.

(12) The maximum period for periodic inspections must be 5 years.

(13) Special packing provisions that are specific to a substance (see Table 1).

Material compatibility

a: Aluminium alloy cylinders **must** not be used.

d: When steel cylinders are used, only those bearing the "H" mark in accordance with 6.2.2.7.4 (p) are permitted.

Gas specific provisions

r: The filling of this gas must be limited such that, if complete decomposition occurs, the pressure does not exceed two thirds of the test pressure of the cylinder.

Material Compatibility for N.O.S Adsorbed Gas Entries

z: The construction materials of the cylinders and their accessories must be compatible with the contents and must not react to form harmful or dangerous compounds.

P208	**PACKING INSTRUCTION (cont.)**				**P208**
Table 1: ADSORBED GASES					
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
UN No.	**Name and description**	**Class or Division**	**Subsidiary hazard**	**LC_{50} ml/m[3]**	**Special Packaging Provisions**
3510	ADSORBED GAS, FLAMMABLE, N.O.S.	2.1			z
3511	ADSORBED GAS, N.O.S.	2.2			z
3512	ADSORBED GAS, TOXIC, N.O.S.	2.3		≤ 5000	z
3513	ADSORBED GAS, OXIDIZING, N.O.S.	2.2	5.1		z
3514	ADSORBED GAS, TOXIC, FLAMMABLE, N.O.S.	2.3	2.1	≤ 5000	z
3515	ADSORBED GAS, TOXIC, OXIDIZING, N.O.S.	2.3	5.1	≤ 5000	z
3516	ADSORBED GAS, TOXIC, CORROSIVE, N.O.S.	2.3	8	≤ 5000	z
3517	ADSORBEDGAS, TOXIC, FLAMMABLE, CORROSIVE, N.O.S.	2.3	2.1 8	≤ 5000	z
3518	ADSORBED GAS, TOXIC, OXIDIZING, CORROSIVE, N.O.S.	2.3	5.1 8	≤ 5000	z
3519	BORON TRIFLUORIDE, ADSORBED	2.3	8	387	a
3520	CHLORINE, ADSORBED	2.3	5.1 8	293	a
3521	SILICON TETRAFLUORIDE, ADSORBED	2.3	8	450	a
3522	ARSINE, ADSORBED	2.3	2.1	20	d
3523	GERMANE, ADSORBED	2.3	2.1	620	d, r
3524	PHOSPHORUS PENTAFLUORIDE, ADSORBED	2.3	8	190	
3525	PHOSPHINE, ADSORBED	2.3	2.1	20	d
3526	HYDROGEN SELENIDE, ADSORBED	2.3	2.1	2	

P300	**PACKING INSTRUCTION**	**P300**
This instruction applies to UN 3064.		
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: Combination packagings consisting of inner metal cans of not more than 1 litre capacity each and outer wooden boxes (4C1, 4C2, 4D or 4F) containing not more than 5 litres of solution.		
Additional requirements: **1.** Metal cans must be completely surrounded with absorbent cushioning material. **2.** Wooden boxes must be completely lined with suitable material impervious to water and nitroglycerin.		

P301	**PACKING INSTRUCTION**	**P301**
This instruction applies to UN 3165.		
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: (1) Aluminium pressure receptacle made from tubing and having welded heads. Primary containment of the fuel within this receptacle must consist of a welded aluminium bladder having a maximum internal volume of 46 litres. The outer receptacle must have a minimum design gauge pressure of 1,275 kPa and a minimum burst gauge pressure of 2,755 kPa. Each receptacle must be leak checked during manufacture and before shipment and must be found leakproof. The complete inner primary containment must be securely packed in non-combustible cushioning material, such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings. Maximum quantity of fuel per unit and package is 42 litres. (2) Aluminium pressure receptacle. Primary containment of the fuel within this receptacle must consist of a welded vapour tight fuel compartment with an elastomeric bladder having a maximum internal volume of 46 litres. The pressure receptacle must have a minimum design gauge pressure of 2,680 kPa and a minimum burst pressure of 5,170 kPa. Each receptacle must be leak-checked during manufacture and before shipment and must be securely packed in non-combustible cushioning material such as vermiculite, in a strong outer tightly closed metal packaging which will adequately protect all fittings. Maximum quantity of fuel per primary containment and package is 42 litres.		

P302	**PACKING INSTRUCTION**	**P302**
This instruction applies to UN 3269.		
The following combination packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: Outer packagings: Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2) Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2); Inner packagings: The activator (organic peroxide) must have a maximum quantity of 125 ml per inner packaging if liquid, and 500 g per inner packaging if solid. The base material and the activator must be each separately packed in inner packagings. The components may be placed in the same outer packaging provided that they will not interact dangerously in the event of a leakage. Packagings must conform to the packing group II or III performance level according to the criteria for Class 3 applied to the base material.		

P400	**PACKING INSTRUCTION**	**P400**
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: (1) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They must be made of steel and must be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1MPa (10 bar, gauge pressure). During carriage, the liquid must be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar). (2) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F or 4G), drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1D or 1G) or jerricans (3A1, 3A2, 3B1 or 3B2) or jerricans (3A2 or 3B2) enclosing hermetically sealed metal cans with inner packagings of glass or metal, with a capacity of not more than 1 litre each, having closures with gaskets. Inner packagings must have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport. Inner packagings must be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. Inner packagings must not be filled to more than 90% of their capacity. Outer packagings must have a maximum net mass of 125 kg. (3) Steel, aluminium or metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2), jerricans (3A1, 3A2, 3B1 or 3B2) or boxes (4A, 4B or 4N) with a maximum net mass of 150 kg each with hermetically sealed inner metal cans not more than 4 litre capacity each, with closures fitted with gaskets. Inner packagings must have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport. Inner packagings must be cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents. Each layer of inner packagings must be separated by a dividing partition in addition to cushioning material. Inner packagings must not be filled to more than 90% of their capacity.		
Special packing provision: **PP86**: For UN Nos. 3392 and 3394, air must be eliminated from the vapour space by nitrogen or other means.		

P401	PACKING INSTRUCTION	P401

The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:

(1) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They must be made of steel and subjected to an initial test and periodic tests every 10 years at a pressure of not less than 0.6MPa (6 bar, gauge pressure). During carriage, the liquid must be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar).

(2) Combination packagings:

Outer packagings:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1,4H2);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

Inner packagings:

Glass, metal or plastics which have threaded closures with a maximum capacity of 1 litre.

Each inner packaging must be surrounded by inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents.

The maximum net mass per outer packaging must not exceed 30 kg

P402	PACKING INSTRUCTION	P402

The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:

(1) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They must be made of steel and subjected to an initial test and periodic tests every 10 years at a pressure of not less than 0.6MPa (6 bar, gauge pressure). During carriage, the liquid must be under a layer of inert gas with a gauge pressure of not less than 20 kPa (0.2 bar).

(2) Combination packagings:

Outer packagings:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1,4 H2);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

Inner packagings with a maximum net mass as follows:

Glass 10 kg
Metal or plastics 15 kg

Each inner packaging must be fitted with threaded closures.

Each inner packaging must be surrounded by inert cushioning and absorbent material in a quantity sufficient to absorb the entire contents.

The maximum net mass per outer packaging must not exceed 125 kg.

(3) Steel drums (1A1) with a maximum capacity of 250 litres.

(4) Composite packagings consisting of plastics receptacle in a steel or aluminium drum (6HA1 or 6HB1) with a maximum capacity of 250 litres.

P403	PACKING INSTRUCTION	P403
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met:		
Combination packagings		
Inner packagings	**Outer packagings**	**Maximum net mass**
Glass 2 kg Plastic 15 kg Metal 20 kg Inner packagings must be hermetically sealed (e.g. by taping or by threaded closures)	**Drums**	
	steel (1A1, 1A2)	400 kg
	aluminium (1B1, 1B2)	400 kg
	other metal (1N1, 1N2)	400 kg
	plastics (1H1, 1H2)	400 kg
	plywood (1D)	400 kg
	fibre (1G)	400 kg
	Boxes	
	steel (4A)	400 kg
	aluminium (4B)	400 kg
	other metal (4N)	400 kg
	natural wood (4C1)	250 kg
	natural wood with sift proof walls (4C2)	250 kg
	plywood (4D)	250 kg
	reconstituted wood (4F)	125 kg
	fibreboard (4G)	125 kg
	expanded plastics (4H1)	60 kg
	solid plastics (4H2)	250 kg
	Jerricans	
	steel (3A1, 3A2)	120 kg
	aluminium (3B1, 3B2)	120 kg
	plastics (3H1, 3H2)	120 kg
Single packagings		**Maximum net mass**
Drums		
steel(1A1, 1A2)		250 kg
aluminium (1B1, 1B2)		250 kg
metal other than steel or aluminium (1N1, 1N2)		250 kg
plastics (1H1, 1H2)		250 kg
Jerricans		
steel (3A1, 3A2)		120 kg
aluminium (3B1, 3B2)		120 kg
plastics (3H1, 3H2)		120 kg
Composite packagings		
plastics receptacle in steel or aluminium drums (6HA1 or 6HB1)		250 kg

P403	PACKING INSTRUCTION (cont.)	P403
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met:		
plastics receptacle in fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1) plastics receptacle in steel, aluminium, wood, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	75 kg 75 kg	
Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.		
Special packing provisions **PP83** deleted.		

P404	PACKING INSTRUCTION	P404
This instruction applies to pyrophoric solids: UN Nos.: 1383, 1854, 1855, 2005, 2008, 2441, 2545, 2546, 2846, 2881, 3200, 3391, 3393 and 3461.		

The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met:

(1) Combination packagings

Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1,4C2, 4D, 4F, 4G or 4H2)

Inner packagings: Metal receptacles with a maximum net mass of 15 kg each. Inner packagings shall be hermetically sealed;
Glass receptacles, with a maximum net mass of 1 kg each, having closures with gaskets, cushioned on all sides and contained in hermetically sealed metal cans.

Outer packagings shall have a maximum net mass of 125 kg.
Inner packagings shall have threaded closures or closures physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport.

(2) **Metal packagings:** (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 3A1, 3A2, 3B1 and 3B2). Maximum gross mass: 150 kg

(3) Composite packagings: Plastics receptacle in a steel or aluminium drum (6HA1 or 6HB1) Maximum gross mass: 150 kg

Pressure receptacles, provided that the general provisions of 4.1.3.6 are met.

Special packing provision:

PP86 For UN Nos. 3391 and 3393, air shall be eliminated from the vapour space by nitrogen or other means.

P405	PACKING INSTRUCTION	P405
This instruction applies to UN No. 1381.		

The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met:

(1) For UN1381, phosphorus wet:

- **(a) Combination packagings**
  - **Outer packagings:** (4A, 4B, 4N, 4C1, 4C2, 4D or 4F). Maximum net mass: 75 kg
  - **Inner packagings:**
    - (i) hermetically sealed metal cans, with a maximum net mass of 15 kg; or
    - (ii) glass inner packagings cushioned on all sides with dry, absorbent, non-combustible material in a quantity sufficient to absorb the entire contents with a maximum net mass of 2 kg; or
- (b) **Drums** (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2). Maximum net mass: 400 kg
  Jerricans (3A1 or 3B1). Maximum net mass: 120 kg.

These packagings shall be capable of passing the leakproofness test specified in 6.1.5.4 at the packing group II performance level.

(2) For UN1381, dry phosphorus:

- (a) When fused, **drums** (1A2, 1B2 or 1N2) with a maximum net mass of 400 kg; or
- (b) In projectiles or hard cased articles when transported without Class 1 components as specified by the competent authority.

P406	PACKING INSTRUCTION	P406

The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:

(1) Combination packagings
outer packagings: (4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2, 1G, 1D, 1H1, 1H2, 3H1 or 3H2)
inner packagings: water-resistant packagings.

(2) Plastics, plywood or fibreboard drums (1H2, 1D or 1G) or boxes (4A, 4B, 4N, 4C1, 4D, 4F, 4C2, 4G and 4H2) with a water resistant inner bag, plastics film lining or water resistant coating

(3) Metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2), plastics drums (1H1 or 1H2), metal jerricans (3A1, 3A2, 3B1 or 3B2), plastics jerricans (3H1 or 3H2), plastics receptacle in steel or aluminium drums (6HA1 or 6HB1), plastics receptacle in fibre, plastics or plywood drums (6HG1, 6HH1 or 6HD1), plastics receptacle in steel, aluminium, wood, plywood, fibreboard or solid plastics boxes (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2).

Additional requirements:

1. Packagings must be designed and constructed to prevent the loss of water or alcohol content or the content of the phlegmatiser.
2. Packagings must be so constructed and closed so as to avoid an explosive over pressure or pressure build-up of more than 300 kPa (3 bar).
3. The type of packaging and maximum permitted quantity per packaging are limited by the provisions of 2.1.3.5.

Special packing provisions:

PP24 UN 2852, 3364, 3365, 3366, 3367, 3368 and 3369 must not be transported in quantities of more than 500 g per package.

PP25 UN 1347 must not be transported in quantities of more than 15 kg per package.

P406	PACKING INSTRUCTION (cont.)	P406
PP26 For UN Nos. 1310, 1320, 1321, 1322, 1344, 1347, 1348, 1349, 1517, 2907, 3317, 3344 and 3376 packagings must be lead free. **PP48** For UN 3474 metal packagings must not be used. Packagings of other material with a small amount of metal, for example metal closures or other metal fittings such as those mentioned in 6.1.4, are not considered metal packagings. **PP78** UN 3370 must not be transported in quantities of more than 11.5 kg per package. **PP80** For UN Nos. 2907 and 3344, packagings must meet the packing group II performance level. Packagings meeting the test criteria of packing group I must not be used.		

P407	PACKING INSTRUCTION	P407
This instruction applies to UN Nos. 1331, 1944, 1945 and 2254.		
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: Outer packagings: Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1,4 H2); Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2). Inner packagings: Matches must be tightly packed in securely closed inner packagings to prevent accidental ignition under normal conditions of transport. The maximum gross mass of the package must not exceed 45 kg except for fibreboard boxes which must not exceed 30 kg. Packagings must conform to the packing group III performance level.		
Special packing provision: **PP27** UN 1331, Strike-anywhere matches must not be packed in the same outer packaging with any other dangerous goods other than safety matches or wax Vesta matches, which must be packed in separate inner packagings. Inner packagings must not contain more than 700 strike-anywhere matches.		

P408	PACKING INSTRUCTION	P408
This instruction applies to UN 3292.		
The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met: (1) For cells: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). There must be sufficient cushioning material to prevent contact between cells and between cells and the internal surfaces of the outer packaging and to ensure that no dangerous movement of the cells within the outer packaging occurs in transport. Packagings must conform to the packing group II performance level. (2) Batteries may be transported unpacked or in protective enclosures (e.g. fully enclosed or wooden slatted crates). The terminals must not support the weight of other batteries or materials packed with the batteries. Packagings need not meet the requirements of 4.1.1.3.		
Additional requirement: Cells and batteries must be protected against short circuit and must be isolated in such a manner as to prevent short circuits.		

P409	PACKING INSTRUCTION	P409
This instruction applies to UN Nos. 2956, 3242 and 3251.		
The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met: (1) Fibre drum (1G) which may be fitted with a liner or coating; maximum net mass: 50 kg (2) Combination packagings: Fibreboard box (4G) with a single inner plastic bag; maximum net mass 50 kg (3) Combination packagings: Fibreboard box (4G) or fibre drum (1G) with inner plastic packagings each containing a maximum of 5 kg; maximum net mass: 25 kg		

P410	PACKING INSTRUCTION		P410
The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:			
Combination packagings			
Inner packagings	**Outer packagings**	**Maximum net mass**	
		Packing group II	**Packing group III**
	Drums		
Glass 10 kg	steel (1A1, 1A2)	400 kg	400 kg
Plastics [a] 30 kg	aluminium (1B1, 1B2)	400 kg	400 kg
Metal 40 kg	other metal (1N1, 1N2)	400 kg	400 kg
Paper [a] [b] 10 kg	plastics (1H1, 1H2)	400 kg	400 kg
Fibre [a] [b] 10 kg	plywood (1D)	400 kg	400 kg
	fibre (1G) [a]	400 kg	400 kg
	Boxes		
	steel (4A)	400 kg	400 kg
	aluminium (4B)	400 kg	400 kg
	other metal (4N)	400 kg	400 kg
	natural wood (4C1)	400 kg	400 kg
	natural wood with sift proof walls (4C2)	400 kg	400 kg
	plywood (4D)	400 kg	400 kg
	reconstituted wood (4F)	400 kg	400 kg
	fibreboard (4G) [a]	400 kg	400 kg
	expanded plastics (4H1)	60 kg	60 kg
	solid plastics (4H2)	400 kg	400 kg
	Jerricans		
	steel (3A1, 3A2)	120 kg	120 kg
	aluminium (3B1, 3B2)	120 kg	120 kg
	plastics (3H1, 3H2)	120 kg	120 kg
Table notes: a Packagings must be siftproof b These inner packagings must not be used when the substances being transported may become liquid during transport (see 4.1.3.4).			

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P410	PACKING INSTRUCTION (cont.)		P410
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met:			
Single packagings			
Inner packagings / **Outer packagings**		**Maximum net mass**	
		Packing group II	**Packing group III**
Drums			
steel (1A1 or 1A2)		400 kg	400 kg
aluminium (1B1 or 1B2)		400 kg	400 kg
metal other than steel, or aluminium (1N1 or 1N2)		400 kg	400 kg
plastics (1H1 or 1H2)		400 kg	400 kg
Jerricans			
steel (3A1 or 3A2)		120 kg	120 kg
aluminium (3B1 or 3B2)		120 kg	120 kg
plastics (3H1 or 3H2)		120 kg	120 kg
Boxes			
steel (4A)[c]		400 kg	400 kg
aluminium (4B)[c]		400 kg	400 kg
other metal (4N)		400 kg	400 kg
natural wood (4C1)[c]		400 kg	400 kg
plywood (4D)[c]		400 kg	400 kg
reconstituted wood (4F)[c]		400 kg	400 kg
natural wood with sift proof walls (4C2)[c]		400 kg	400 kg
fibreboard (4G)[c]		400 kg	400 kg
solid plastics (4H2)[c]		400 kg	400 kg
Bags			
bags (5H3, 5H4, 5L3, 5M2)[c d]		50 kg	50 kg
Composite packaging			
plastics receptacle in steel, aluminium, plywood, fibre or plastics drum (6HA1, 6HB1, 6HG1, 6HD1, or 6HH1)		400 kg	400 kg
plastics receptacle in steel or aluminium crate or box, wooden box, plywood box, fibreboard box or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)		75 kg	75 kg
glass receptacle in steel, aluminium, plywood or fibre drum (6PA1, 6PB1, 6PD1 or 6PG1) or in steel, aluminium, wood, plywood or fibreboard box (6PA2, 6PB2, 6PC, 6PD2, or 6PG2) or in solid or expanded plastics packaging (6PH1 or 6PH2)		75 kg	75 kg
Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.			

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<table>
<tr><td>P410</td><td colspan="2">PACKING INSTRUCTION (cont.)</td><td colspan="2">P410</td></tr>
<tr><td colspan="5">The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:</td></tr>
<tr><td colspan="5">Single packagings</td></tr>
<tr><td rowspan="2">Inner packagings</td><td rowspan="2" colspan="2">Outer packagings</td><td colspan="2">Maximum net mass</td></tr>
<tr><td>Packing group II</td><td>Packing group III</td></tr>
<tr><td colspan="5">Special packing provisions:
PP39 For UN 1378, for metal packagings a venting device is required.
PP40 For UN Nos. 1326, 1352, 1358, 1437 and 1871, and for UN 3182, packing group II, bags are not allowed.
PP83 Deleted</td></tr>
<tr><td colspan="5">Table notes:
c These packagings must not be used when the substances being transported may become liquid during transport (see 4.1.3.4).
d For packing group II substances, these packagings may only be used when transported in a closed cargo transport unit.</td></tr>
</table>

<table>
<tr><td>P411</td><td>PACKING INSTRUCTION</td><td>P411</td></tr>
<tr><td colspan="3">This instruction applies to UN 3270.</td></tr>
<tr><td colspan="3">The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2);
provided that explosion is not possible by reason of increased internal pressure.
The maximum net mass must not exceed 30 kg.</td></tr>
</table>

<table>
<tr><td>P412</td><td>PACKING INSTRUCTION</td><td>P412</td></tr>
<tr><td colspan="3">This instruction applies to UN No. 3527</td></tr>
<tr><td colspan="3">The following combination packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:
(1) Outer packagings:
Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2)
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2);
(2) Inner packagings:
(a) The activator (organic peroxide) shall have a maximum quantity of 125 ml per inner packaging if liquid, and 500 g per inner packaging if solid.
(b) The base material and the activator shall be each separately packed in inner packagings.
The components may be placed in the same outer packaging provided that they will not interact dangerously in the event of a leakage.
Packagings shall conform to the packing group II or III performance level according to the criteria for Division 4.1 applied to the base material.</td></tr>
</table>

P500	**PACKING INSTRUCTION**	**P500**
This instruction applies to UN 3356.		
The following packagings are authorised, provided that the general provisions of **4.1.1** and **4.1.3** are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings must conform to the packing group II performance level. The generator(s) must be transported in a package which meets the following requirements when one generator in the package is actuated: (a) Other generators in the package will not be actuated; (b) Packaging material will not ignite; and (c) The outside surface temperature of the completed package must not exceed 100 °C.		

<table>
<tr><th>P501</th><th colspan="2">PACKING INSTRUCTION</th><th>P501</th></tr>
<tr><td colspan="4">This instruction applies to UN No. 2015.</td></tr>
<tr><td colspan="4">The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:</td></tr>
<tr><td colspan="2">Combination packagings</td><td>Inner packaging maximum capacity</td><td>Outer packaging maximum net mass</td></tr>
<tr><td colspan="2">(1) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4H2) or drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D) or jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2) with glass, plastics or metal inner packagings</td><td>5 L</td><td>125 kg</td></tr>
<tr><td colspan="2">(2) Fibreboard box (4G) or fibre drum (1G), with plastics or metal inner packagings each in a plastics bag</td><td>2 L</td><td>50 kg</td></tr>
<tr><td colspan="2">Single packagings</td><td colspan="2">Maximum capacity</td></tr>
<tr><td colspan="2">Drums</td><td colspan="2"></td></tr>
<tr><td colspan="2">steel (1A1)</td><td colspan="2">250 L</td></tr>
<tr><td colspan="2">aluminium (1B1)</td><td colspan="2">250 L</td></tr>
<tr><td colspan="2">metal other than steel or aluminium (1N1)</td><td colspan="2">250 L</td></tr>
<tr><td colspan="2">plastics (1H1)</td><td colspan="2">250 L</td></tr>
<tr><td colspan="2">Jerricans</td><td colspan="2"></td></tr>
<tr><td colspan="2">steel (3A1)</td><td colspan="2">60 L</td></tr>
<tr><td colspan="2">aluminium (3B1)</td><td colspan="2">60 L</td></tr>
<tr><td colspan="2">plastics (3H1)</td><td colspan="2">60 L</td></tr>
<tr><td colspan="4">Composite packagings</td></tr>
<tr><td colspan="2">plastics receptacle in steel or aluminium drum (6HA1, 6HB1)</td><td colspan="2">250 L</td></tr>
<tr><td colspan="2">plastics receptacle in fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)</td><td colspan="2">250 L</td></tr>
<tr><td colspan="2">plastics receptacle in steel or aluminium crate or box or plastic receptacle in wood, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)</td><td colspan="2">60 L</td></tr>
<tr><td colspan="2">glass receptacle in steel, aluminium, fibre or plywood drum (6PA1, 6PB1, 6PD1 or 6PG1) or in a steel, aluminium, wood or fibreboard box or in wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2) or in expanded or solid plastics packaging (6PH1 or 6PH2).</td><td colspan="2">60 L</td></tr>
<tr><td colspan="4">Additional requirements:
1. Packagings shall have a minimum ullage of 10 %.
2. Packagings shall be vented.</td></tr>
</table>

P502	PACKING INSTRUCTION	P502
The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:		
Combination packagings		
Inner packagings	**Outer packagings**	**Maximum net mass**
Glass 5 *l*	**Drums**	
Metal 5 *l*	steel (1A1, 1A2)	125 kg
Plastic 5 *l*	aluminium (1B1, 1B2)	125 kg
	other metal (1N1, 1N2)	125 kg
	plywood (1D)	125 kg
	fibre (1G)	125 kg
	plastics (1H1, 1H2)	125 kg
	Boxes	
	steel (4A)	125 kg
	aluminium (4B)	125 kg
	other metal (4N)	125 kg
	natural wood (4C1)	125 kg
	natural wood with sift proof walls (4C2)	125 kg
	plywood (4D)	125 kg
	reconstituted wood (4F)	125 kg
	fibreboard (4G)	125 kg
	expanded plastics (4H1)	60 kg
	solid plastics (4H2)	125 kg
Single packagings		**Maximum capacity**
Drums		
steel (1A1)		250 L
aluminium (1B1)		250 L
plastics (1H1)		250 L
Jerricans		
steel (3A1)		60 L
aluminium (3B1)		60 L
plastics (3H1)		60 L
Composite packagings		**Maximum capacity**
plastics receptacle in steel or aluminium drum (6HA1, 6HB1)		250 L
plastics receptacle in fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)		250 L
plastics receptacle in steel or aluminium crate or box or plastics receptacle in wood, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)		60 L
glass receptacle in steel, aluminium, fibre or plywood drum (6PA1, 6PB1, 6PD1 or 6PG1) or in a steel, aluminium, wood or fibreboard box or in wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2) or in expanded or solid plastics packaging (6PH1 or 6PH2).		60 L
Special packing provision:		
PP28 For UN No. 1873, parts of packagings which are in direct contact with perchloric acid shall be constructed of glass or plastics.		

P503	PACKING INSTRUCTION – P503		P503
The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:			
Combination packagings		**Maximum net mass**	
Inner packagings:	**Drums**		
Glass 5 kg	steel (1A1, 1A2)	125 kg	
Metal 5 kg	aluminium (1B1, 1B2)	125 kg	
Plastic 5 kg	other metal (1N1, 1N2)	125 kg	
	plywood (1D)	125 kg	
	fibre (1G)	125 kg	
	plastics (1H1, 1H2)	125 kg	
	Boxes		
	steel (4A)	125 kg	
	aluminium (4B)	125 kg	
	other metal (4N)	125 kg	
	natural wood (4C1)	125 kg	
	natural wood with sift proof walls (4C2)	125 kg	
	plywood (4D)	125 kg	
	reconstituted wood (4F)	125 kg	
	fibreboard (4G)	40 kg	
	expanded plastics (4H1)	60 kg	
	solid plastics (4H2)	125 kg	
Single packagings		**Maximum capacity**	
Drums			
Metal drums (1A1, 1A2, 1B1, 1B2, 1N1 or 1N2)		250 kg	
Fibreboard (1G) or plywood drums (1D) fitted with inner liners		200 kg	

P504	**PACKING INSTRUCTION**	**P504**
The following packagings are authorised, provided that the general provisions of 4.1.1 and 4.1.3 are met:		

Combination packagings	**Maximum net mass**
(1) Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2) Inner packagings: Glass receptacles with a maximum capacity of 5 litres	75 kg
(2) Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2) Inner packagings: Plastic receptacles with a maximum capacity of 30 litres	75 kg
(3) Outer packagings: 1G, 4F or 4G Inner packagings: Metal receptacles with a maximum capacity of 40 litres	125 kg
(4) Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 4A, 4B, 4N, 4C1, 4C2, 4D, 4H2) Inner packagings: Metal receptacles with a maximum capacity of 40 litres	225 kg

Single packagings	**Maximum capacity**
Drums	
steel, non-removable head (1A1)	250 L
aluminium, non-removable head (1B1)	250 L
metal other than steel or aluminium, non-removable head (1N1)	250 L
plastics, non-removable head (1H1)	250 L
Jerricans	
steel non-removable head (3A1)	60 L
aluminium non-removable head (3B1)	60 L
plastics non-removable head (3H1)	60 L
Composite packagings	
plastics receptacle in steel or aluminium drum (6HA1, 6HB1)	250 L
plastics receptacle in fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)	120 L
plastics receptacle in steel or aluminium crate or box or plastic receptacle in wood, plywood, fibreboard or solid plastics box (6HA2, 6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L
Glass receptacle in steel, aluminium, fibre or plywood drum (6PA1, 6PB1, 6PD1 or 6PG1) or in a steel, aluminium, wood or fibreboard box or in wickerwork hamper (6PA2, 6PB2, 6PC, 6PG2 or 6PD2) or in solid or expanded plastics packaging (6PH1 or 6PH2).	60 L

Special packing provision:

PP10 For UN Nos. 2014 and 3149, the packaging must be vented.

P505	PACKING INSTRUCTION		P505
This instruction applies to UN No. 3375			
The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met:			
Combination packagings	**Inner Packaging Maximum Capacity**	**Outer Packaging Maximum Net Mass**	
Boxes (4B, 4C1, 4C2, 4D, 4G, 4H2) or drums (1B2, 1G, 1N2, 1H2, 1D) jerricans (3B2, 3H2) with glass, plastics or metal inner packagings	5 L	125 Kg	
Single packagings:	**Maximum Capacity**		
Drums aluminium (1B1, 1B2), plastics (1H1, 1H2)	250 L		
Jerricans aluminium (3B1, 3B2), plastics (3H1, 3H2)	60 L		
Composite packagings			
plastics receptacle with outer aluminium drum (6HB1)	250 L		
plastics receptacle with outer fibre, plastics or plywood drum (6HG1, 6HH1, 6HD1)	250 L		
plastics receptacle with outer aluminium crate or box or plastics receptacle with outer wooden, plywood, fibreboard or solid plastics box (6HB2, 6HC, 6HD2, 6HG2 or 6HH2)	60 L		
glass receptacle with outer aluminium, fibre or plywood drum (6PB1, 6PG1, 6PD1) or with outer solid plastics or expanded plastics receptacles (6PH1 or 6PH2) or with outer aluminium crate or box or with outer wooden or fibreboard box or with outer wickerwork hamper (6PB2, 6PC, 6PG2 or 6PD2)	60 L		

P520	PACKING INSTRUCTION	P520

This instruction applies to organic peroxides of Division 5.2 and self-reactive substances of Division 4.1

The packagings listed below are authorised provided the general provision of **4.1.1** and **4.1.3** and special provisions of **4.1.7** are met.

The packing methods are designated OP1 to OP8. The packing methods appropriate for the individual currently assigned organic peroxides and self-reactive substances are listed in 2.4.2.3.2.3 and 2.5.3.2.4.

The quantities specified for each packing method are the maximum quantities authorised per package. The following packagings are authorised:

(1) Combination packagings with outer packagings comprising boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2), drums (1A1, 1A2, 1B1, 1B2, 1G, 1H1, 1H2 and 1D), jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2);

(2) Single packagings consisting of drums (1A1, 1A2, 1B1, 1B2, 1G, 1H1, 1H2 and 1D) and jerricans (3A1, 3A2, 3B1, 3B2, 3H1 and 3H2);

(3) Composite packagings with plastics inner receptacles (6HA1, 6HA2, 6HB1, 6HB2, 6HC, 6HD1, 6HD2, 6HG1, 6HG2, 6HH1 and 6HH2).

Maximum quantity per packaging/package[a] for packing methods OP1 to OP8

Packing Method / **Maximum Quantity**	**OP1**	**OP2[a]**	**OP3**	**OP4[a]**	**OP5**	**OP6**	**OP7**	**OP8**
Maximum mass (kg) for solids and for combination packagings (liquid and solid)	0.5	0.5/10	5	5/25	25	50	50	400[b]
Maximum contents in litres for liquids[c]	0.5	-	5	-	30	60	60	225[d]

a. If two values are given, the first applies to the maximum net mass per inner packaging and the second to the maximum net mass of the complete package.

b. 60 kg for jerricans/200 kg for boxes and, for solids, 400 kg in combination packagings with outer packagings comprising boxes (4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2) and with inner packagings of plastics or fibre with a maximum net mass of 25 kg.

c. Viscous liquids must be treated as solids when they do not meet the criteria provided in the definition for "liquids" presented in 1.2.1.

d. 60 litres for jerricans.

Additional requirements:

1. Metal packagings, including inner packagings of combination packagings and outer packagings of combination or composite packagings may only be used for packing methods OP7 and OP8;

2. In combination packagings, glass receptacles may only be used as inner packagings with a maximum content of 0.5 kg for solids or 0.5 litre for liquids.

3. In combination packagings, cushioning materials must not be readily combustible.

4. The packaging of an organic peroxide or self-reactive substance required to bear an “EXPLOSIVE” subsidiary hazard label (Model No 1, see 5.2.2.2.2) must also comply with the provisions given in 4.1.5.10 and 4.1.5.11.

Special packing provisions:

PP21 For certain self-reactive substances of types B or C, UN 3221, UN 3222, UN 3223, UN 3224, UN 3231, UN 3232, UN 3233 and UN 3234 a smaller packaging than that allowed by packing methods OP5 or OP6 respectively must be used (see 4.1.7 and 2.4.2.3.2.3).

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P520	PACKING INSTRUCTION (Cont.)	P520
PP22 UN 3241, 2-Bromo-2-nitropropane-1, 3-diol, must be packed in accordance with packing method OP6. **PP94** Very small amounts of energetic samples of section 2.0.4.3 may be carried under UN 3223 or UN 3224, as appropriate, provided that: 1. Only combination packaging with outer packaging comprising boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1 and 4H2) are used; 2. The samples are carried in microtiter plates or multi-titer plates made of plastics, glass, porcelain or stoneware as inner packaging; 3. The maximum amount per individual inner cavity does not exceed 0.01 g for solids or 0.01 ml for liquids; 4. The maximum net quantity per outer packaging is 20 g for solids or 20 ml for liquids, or in the case of mixed packing the sum of grams and millilitres does not exceed 20; and 5. When dry ice or liquid nitrogen is optionally used as a coolant for quality control measures, the requirements of 5.5.3 are complied with. Interior supports shall be provided to secure the inner packagings in their original position. The inner and outer packagings shall maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures which could result if refrigeration were lost. **PP95** Small amounts of energetic samples of section 2.0.4.3 may be carried under UN 3223 or UN 3224, as appropriate, provided that: 1. The outer packaging consist only of corrugated fibreboard of type 4G having minimum dimensions of 60 cm (length) by 40.5 cm (width) by 30 cm (height) and minimum wall thickness of 1.3 cm; 2. The individual substance is contained in an inner packaging of glass or plastics of maximum capacity 30 ml placed in an expandable polyethylene foam matrix of at least 130 mm thickness having a density of 18 ± 1 g/l; 3. Within the foam carrier, inner packagings are segregated from each other by a minimum distance of 40 mm and from the wall of the outer packaging by a minimum distance of 70 mm. The package may contain up to two layers of such foam matrices, each carrying up to 28 inner packagings; 4. The maximum content of each inner packaging does not exceed 1 g for solids or 1 ml for liquids; 5. The maximum net quantity per outer packaging is 56 g for solids or 56 ml for liquids, or in the case of mixed packing the sum of grams and millilitres does not exceed 56; and 6. When dry ice or liquid nitrogen is optionally used as a coolant for quality control measures, the requirements of 5.5.3 are complied with. Interior supports shall be provided to secure the inner packagings in their original position. The inner and outer packagings shall maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures which could result if refrigeration were lost.		

P600	PACKING INSTRUCTION	P600
This instruction applies to UN Nos. 1700, 2016 and 2017.		
The following packagings are authorised, provided the general provisions of 4.1.1 and 4.1.3 are met: Outer packagings: (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2) meeting the packing group II performance level. The articles must be individually packaged and separated from each other using partitions, dividers, inner packagings or cushioning material to prevent inadvertent discharge during normal conditions of transport. Maximum net mass: 75 kg		

P601	PACKING INSTRUCTION	P601

The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed:

(1) Combination packagings with a maximum gross mass of 15 kg, consisting of:

- one or more glass inner packaging(s) with a net quantity of 1 litre each and filled to not more than 90% of their capacity; the closure(s) of which must be physically held in place by any means capable of preventing back-off or loosening by impact or vibration during transport, individually placed in:
- metal receptacles together with cushioning and absorbent material sufficient to absorb the entire contents of the glass inner packaging(s), further packed in:
- 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings.

(2) Combination packagings consisting of metal or plastic inner packagings not exceeding 5 litres in capacity individually packed with absorbent material sufficient to absorb the contents and inert cushioning material in 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 75 kg. Inner packagings must not be filled to more than 90% of their capacity. The closure of each inner packaging must be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport.

(3) Packagings consisting of:

Outer packagings:

Steel or plastics drums (1A1, 1A2, 1H1 or 1H2), tested in accordance with the test requirements in 6.1.5 at a mass corresponding to the mass of the assembled package either as a packaging intended to contain inner packagings, or as a single packaging intended to contain solids or liquids, and marked accordingly.

Inner packagings:

Drums and composite packagings (1A1, 1B1, 1N1, 1H1 or 6HA1), meeting the requirements of Chapter 6.1 for single packagings), subject to the following conditions:

(a) The hydraulic pressure test must be conducted at a pressure of at least 3 bar (gauge pressure);

(b) The design and production leakproofness tests must be conducted at a test pressure of 0.30 bar;

(c) They must be isolated from the outer drum by the use of inert shock-mitigating cushioning material which surrounds the inner packaging on all sides;

(d) Their capacity must not exceed 125 litres;

(e) Closures must be of a screw cap type that are:

(i) physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport; and

(ii) provided with a cap seal.

(f) The outer and inner packagings must be subjected periodically to a leakproofness test according to (b) at intervals of not more than two and a half years; and

(g) The outer and inner packagings must bear in clearly legible and durable characters:

(i) the date (month, year) of the initial testing and the latest periodical test;

(ii) the name or authorised symbol of the party performing the tests and inspections.

(4) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They must be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1MPa (10 bar) (gauge pressure). Pressure receptacles may not be equipped with any pressure relief device. Each pressure receptacle containing a toxic by inhalation liquid with an LC_{50} less than or equal to 200 ml/m^3 (ppm) must be closed with a plug or valve conforming to the following:

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P601	**PACKING INSTRUCTION (Cont.)**	**P601**
(a) Each plug or valve must have a taper-threaded connection directly to the pressure receptacle and be capable of withstanding the test pressure of the pressure receptacle without damage or leakage; (b) Each valve must be of the packless type with non-perforated diaphragm, except that, for corrosive materials, a valve may be of the packed type with an assembly made gas-tight by means of a seal cap with gasket joint attached to the valve body or the pressure receptacle to prevent loss of material through or past the packing; (c) Each valve outlet must be sealed by a threaded cap or threaded solid plug and inert gasket material; (d) The materials of construction for the pressure receptacle, valves, plugs, outlet caps, luting and gaskets must be compatible with each other and with the lading. Each pressure receptacle with a wall thickness at any point of less than 2.0 mm and each pressure receptacle that does not have fitted valve protection must be transported in an outer packaging. Pressure receptacles must not be manifolded or interconnected.		

P602	**PACKING INSTRUCTION**	**P602**
The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met and the packagings are hermetically sealed: (1) Combination packagings with a maximum gross mass of 15 kg, consisting of: – one or more glass inner packaging(s) with a net quantity of 1 litre each and filled to not more than 90% of their capacity; the closure(s) of which must be physically held in place by any means capable of preventing back-off or loosening by impact or vibration during transport, individually placed in: – metal receptacles together with cushioning and absorbent material sufficient to absorb the entire contents of the glass inner packaging(s), further packed in: – 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings. (2) Combination packagings consisting of metal or plastic inner packagings individually packed with absorbent material sufficient to absorb the contents and inert cushioning material in 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 75 kg. Inner packagings must not be filled to more than 90% of their capacity. The closure of each inner packaging must be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport. Inner packagings must not exceed 5 litres in capacity. (3) Drums and composite packagings (1A1, 1B1, 1N1, 1H1, 6HA1 or 6HH1), subject to the following conditions: (a) The hydraulic pressure test must be conducted at a pressure of at least 3 bar (gauge pressure); and (b) The design and production leakproofness tests must be conducted at a test pressure of 0.30 bar; and (c) Closures must be of a screw cap type that are: (i) physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport; and (ii) provided with a cap seal.		

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P602	PACKING INSTRUCTION (cont.)	P602
(4) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met. They must be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1MPa (10 bar) (gauge pressure). Pressure receptacles may not be equipped with any pressure relief device. Each pressure receptacle containing a toxic by inhalation liquid with an LC_{50} less than or equal to 200 ml/m^3 (ppm) must be closed with a plug or valve conforming to the following: (a) Each plug or valve must have a taper-threaded connection directly to the pressure receptacle and be capable of withstanding the test pressure of the pressure receptacle without damage or leakage; (b) Each valve must be of the packless type with non-perforated diaphragm, except that, for corrosive materials, a valve may be of the packed type with an assembly made gas-tight by means of a seal cap with gasket joint attached to the valve body or the pressure receptacle to prevent loss of material through or past the packing; (c) Each valve outlet must be sealed by a threaded cap or threaded solid plug and inert gasket material; (d) The materials of construction for the pressure receptacle, valves, plugs, outlet caps, luting and gaskets must be compatible with each other and with the lading. Each pressure receptacle with a wall thickness at any point of less than 2.0 mm and each pressure receptacle that does not have fitted valve protection must be transported in an outer packaging. Pressure receptacles must not be manifolded or interconnected.		

P603	PACKING INSTRUCTION	P603
This instruction applies to UN 3507.		
The following packagings are authorized provided that the general provisions of **4.1.1** and **4.1.3** and the special packing provisions of **4.1.9.1.2**, **4.1.9.1.4** and **4.1.9.1.7** are met: Packagings consisting of: (a) Metal or plastic primary receptacle(s); in (b) Leakproof rigid secondary packaging(s); in (c) A rigid outer packaging: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2).		
Additional requirements: 1. Primary inner receptacles must be packed in secondary packagings in a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the secondary packaging. Secondary packagings must be secured in outer packagings with suitable cushioning material to prevent movement. If multiple primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated so as to prevent contact between them; 2. The contents must comply with the provisions of 2.7.2.4.5.2; 3. The provisions of 6.4.4 must be met.		
Special Packing Provision: In the case of fissile-excepted material, limits specified in 2.7.2.3.5 must be met.		

P620	**PACKING INSTRUCTION**	**P620**

This instruction applies to UN Nos. 2814 and 2900.

The following packagings are authorised provided the special packing provisions of 4.1.8 are met:

Packagings meeting the requirements of Chapter 6.3 and approved accordingly consisting of:

(a) Inner packagings comprising:

(i) leakproof primary receptacle(s);

(ii) a leakproof secondary packaging;

(iii) other than for solid infectious substances, an absorbent material in sufficient quantity to absorb the entire contents placed between the primary receptacle(s) and the secondary packaging; if multiple primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated so as to prevent contact between them;

(b) A rigid outer packaging:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);

Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);

Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2).

The smallest external dimension must be not less than 100 mm.

Additional requirements:

1. Inner packagings containing infectious substances must not be consolidated with inner packagings containing unrelated types of goods. Complete packages may be overpacked in accordance with the provisions of 1.2.1 and 5.1.2: such an overpack may contain dry ice.

2. Other than for exceptional consignments, e.g. whole organs which require special packaging, the following additional requirements must apply:

(a) Substances consigned at ambient temperatures or at a higher temperature. Primary receptacles must be of glass, metal or plastics. Positive means of ensuring a leakproof seal must be provided, e.g. a heat seal, a skirted stopper or a metal crimp seal. If screw caps are used, they must be secured by positive means, e.g., tape, paraffin sealing tape or manufactured locking closure;

(b) Substances consigned refrigerated or frozen. Ice, dry ice or other refrigerant must be placed around the secondary packaging(s) or alternatively in an overpack with one or more complete packages marked in accordance with 6.3.3. Interior supports must be provided to secure secondary packaging(s) or packages in position after the ice or dry ice has dissipated. If ice is used, the outer packaging or overpack must be leakproof. If dry ice is used, the outer packaging or overpack must permit the release of carbon dioxide gas. The primary receptacle and the secondary packaging must maintain their integrity at the temperature of the refrigerant used;

(c) Substances consigned in liquid nitrogen. Plastics primary receptacles capable of withstanding very low temperature must be used. The secondary packaging must also be capable of withstanding very low temperatures, and in most cases will need to be fitted over the primary receptacle individually. Provisions for the consignment of liquid nitrogen must also be fulfilled. The primary receptacle and the secondary packaging must maintain their integrity at the temperature of the liquid nitrogen.

(d) Lyophilised substances may also be transported in primary receptacles that are flame-sealed glass ampoules or rubber-stoppered glass vials fitted with metal seals;

3. Whatever the intended temperature of the consignment, the primary receptacle or the secondary packaging must be capable of withstanding without leakage an internal pressure producing a pressure differential of not less than 95 kPa This primary receptacle or secondary packaging shall also be capable of withstanding temperatures in the range -40 °C to +55 °C.

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P620	PACKING INSTRUCTION (cont.)	P620

4. Other dangerous goods must not be packed in the same packaging as Division 6.2 infectious substances unless they are necessary for maintaining the viability, stabilising or preventing degradation or neutralising the hazards of the infectious substances. A quantity of 30 ml or less of dangerous goods included in Classes 3, 8 or 9 may be packed in each primary receptacle containing infectious substances. These small quantities of dangerous goods of Classes 3, 8 or 9 are not subject to any additional requirements of this Code when packed in accordance with this packing instruction.

5. Alternative packagings for the transport of animal material may be authorised by the competent authority in accordance with the provisions of 4.1.3.7.

P621	PACKING INSTRUCTION	P621

This instruction applies to UN No 3291.

The following packagings are authorised provided that the general provisions of **4.1.1** except 4.1.1.15 and **4.1.3** are met:

(1) Provided that there is sufficient absorbent material to absorb the entire amount of liquid present and the packaging is capable of retaining liquids:

Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).

Packagings must conform to the packing group II performance level for solids.

(2) For packages containing larger quantities of liquid:

Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G);
Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2);
Composites (6HA1, 6HB1, 6HG1, 6HH1, 6HD1, 6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2, 6PA1, 6PB1, 6PG1, 6PD1, 6PH1, 6PH2, 6PA2, 6PB2, 6PC, 6PG2 or 6PD2).

Packagings must conform to the packing group II performance level for liquids.

Additional requirement:

Packagings intended to contain sharp objects such as broken glass and needles must be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.1.

P622	PACKING INSTRUCTION	P622
This instruction applies to waste of UN 3549 transported for disposal.		
The following packagings are authorized provided the general provisions of **4.1.1** and **4.1.3** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
metal plastics	metal plastics	**Boxes** steel (4A) aluminium (4B) plywood (4D) fibreboard (4G) other metal (4N) plastics, solid (4H2) **Drums** steel (1A2) aluminium (1B2) plywood (1D) fibre (1G) other metal (1N2) plastics (1H2) **Jerricans** steel (3A2) aluminium (3B2) plastics (3H2)
The outer packaging shall conform to the packing group I performance level for solids.		
Additional requirements:		
1. Fragile articles shall be contained in either a rigid inner packaging or rigid intermediate packagings. 2. Inner packagings containing sharps objects such as broken glass and needles shall be rigid and resistant to puncture. 3. The inner packaging, the intermediate packaging, and the outer packaging shall be capable of retaining liquids. Outer packagings that are not capable of retaining liquids by design shall be fitted with a liner or suitable measure of retaining liquids. 4. The inner packaging and/or the intermediate packaging may be flexible. When flexible packagings are used, they shall be capable of passing the impact resistance test to at least 165 g according to ISO 7765-1:1988 “Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods” and the tear resistance test to at least 480 g in both parallel and perpendicular planes with respect to the length of the bag in accordance with ISO 6383-2:1983 “Plastics – Film and sheeting – Determination of tear resistance – Part 2: Elmendorf method”. The maximum net mass of each flexible inner packaging shall be 30kg. 5. Each flexible intermediate packaging shall contain only one inner packaging. 6. Inner packagings containing a small amount of free liquid may be included in intermediate packaging provided that there is sufficient absorbent or solidifying material in the inner or intermediate packaging to absorb or solidify all the liquid content present. Suitable absorbent material which withstands the temperatures and vibrations liable to occur under normal conditions of transport shall be used. 7. Intermediate packagings shall be secured in outer packagings with suitable cushioning and/or absorbent material.		

P650	PACKING INSTRUCTION	P650
This packing instruction applies to UN 3373.		

(1) The packaging must be of good quality, strong enough to withstand the shocks and loadings normally encountered during transport, including transhipment between cargo transport units and between cargo transport units and warehouses as well as any removal from a pallet or overpack for subsequent manual or mechanical handling. Packagings must be constructed and closed to prevent any loss of contents that might be caused under normal conditions of transport by vibration or by changes in temperature, humidity or pressure.

(2) The packaging must consist of at least three components:
- (a) a primary receptacle,
- (b) a secondary packaging, and
- (c) an outer packaging.

of which either the secondary or the outer packaging must be rigid.

(3) Primary receptacles must be packed in secondary packagings in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the secondary packaging. Secondary packagings must be secured in outer packagings with suitable cushioning material. Any leakage of the contents must not compromise the integrity of the cushioning material or of the outer packaging.

(4) For transport, the mark illustrated here must be displayed on the external surface of the outer packaging on a background of a contrasting colour and must be clearly visible and legible. The mark must be in the form of a square set at an angle of 45° (diamond-shaped) with each side have a length of at least 50 mm, the width of the line must be at least 2 mm; the letters and numbers must be at least 6 mm high. The proper shipping name "BIOLOGICAL SUBSTANCE, CATEGORY B" in letters at least 6 mm high must be marked on the outer packaging adjacent to the diamond-shaped mark.

(5) At least one surface of the outer packaging must have a minimum dimension of 100 mm × 100 mm.

(6) The completed package must be capable of successfully passing the drop test in 6.3.5.3 as specified in 6.3.5.2 of this Code at a height of 1.2 m. Following the appropriate drop sequence, there must be no leakage from the primary receptacle(s) which must remain protected by absorbent material, when required, in the secondary packaging.

(7) For liquid substances
- (a) The primary receptacle(s) must be leakproof;
- (b) The secondary packaging must be leakproof;
- (c) If multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent contact between them;
- (d) Absorbent material must be placed between the primary receptacle(s) and the secondary packaging. The absorbent material must be in quantity sufficient to absorb the entire contents of the primary receptacle(s) so that any release of the liquid substance will not compromise the integrity of the cushioning material or of the outer packaging;

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P650	PACKING INSTRUCTION (cont.)	P650

(8) The primary receptacle or the secondary packaging must be capable of withstanding, without leakage, an internal pressure of 95 kPa (0.95 bar). (8) For solid substances

(a) The primary receptacle(s) must be siftproof;

(b) The secondary packaging must be siftproof;

(c) If multiple fragile primary receptacles are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent contact between them.

(d) If there is any doubt as to whether or not residual liquid may be present in the primary receptacle during transport then a packaging suitable for liquids, including absorbent materials, must be used.

(9) Refrigerated or frozen specimens: Ice, dry ice and liquid nitrogen

(a) When dry ice or liquid nitrogen is used as a coolant, the requirements of 5.5.3 apply. When used, ice must be placed outside the secondary packagings or in the outer packaging or an overpack. Interior supports must be provided to secure the secondary packagings in the original position. If ice is used, the outside packaging or overpack must be leakproof..

(b) The primary receptacle and the secondary packaging must maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures which could result if refrigeration were lost.

(10) When packages are placed in an overpack, the package markings required by this packing instruction must either be clearly visible or be reproduced on the outside of the overpack.

(11) Infectious substances assigned to UN 3373 which are packed and marked in accordance with this packing instruction are not subject to any other requirement in this Code.

(12) Clear instructions on filling and closing such packages must be provided by packaging manufacturers and subsequent distributors to the consignor or to the person who prepares the package (e.g. patient) to enable the package to be correctly prepared for transport.

(13) Other dangerous goods must not be packed in the same packaging as Division 6.2 infectious substances unless they are necessary for maintaining the viability, stabilising or preventing degradation or neutralising the hazards of the infectious substances. A quantity of 30 ml or less of dangerous goods included in Classes 3, 8 or 9 may be packed in each primary receptacle containing infectious substances. When these small quantities of dangerous goods are packed with infectious substances in accordance with this packing instruction no other requirements in this Code need be met.

Additional requirement:

Alternative packagings for the transport of animal material may be authorised by the competent authority in accordance with the provisions of 4.1.3.7.

P62A	**PACKING INSTRUCTION (Australia)**	**P62A**
This instruction applies to UN 3291 Clinical Waste that is transported in cargo transport units that are dedicated to clinical waste transport, where those units consist of a vehicle with a body that is: (a) separate to the cabin; and (b) totally enclosed, of strong, rigid, weatherproof construction with lockable doors; and (c) leak proof, bunded or configured to contain spillages.		
The following packages are authorised: Rigid packaging with a lid that is able to be secured during transport. The packages must be: (a) designed or have a means enabling them to be easily handled or moved; and (b) strong enough to withstand manual or mechanical handling and the shocks and loadings normally encountered during transport, including trans-shipment between transport units and between transport units and warehouses; and (c) able to retain liquid under normal conditions of transport; and (d) easily identifiable by their colour and have the correct labelling and symbols indicating that they contain UN3291 clinical waste.		
Additional requirement: Packagings intended to contain sharp objects such as broken glass and needles must be resistant to puncture and comply with AS 4031, AS/NZS 4261 or AS 4939, as applicable.		

P800	PACKING INSTRUCTION	P800

This instruction applies to UN Nos. 2809 and 2803.

The following packagings are authorised, provided the general provisions of **4.1.1** and **4.1.3** are met:

(1) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met,

(2) Steel flasks or bottles with threaded closures with a capacity not exceeding 3.0 L; or

(3) Combination packagings which conform to the following requirements:

(a) Inner packagings may comprise glass, metal or rigid plastics intended to contain liquids with a maximum net mass of 15 kg each.

(b) The inner packagings must be packed with sufficient cushioning material to prevent breakage.

(c) Either the inner packagings or the outer packagings must have inner liners or bags of strong leakproof and puncture-resistant material impervious to the contents and completely surrounding the contents to prevent it from escaping from the package irrespective of its position or orientation.

(d) The following outer packagings and maximum net masses are authorised:

Outer packaging:	**Maximum net mass**
Drums	
steel (1A2)	400 kg
other metal (1N2)	400 kg
plastics (1H2)	400 kg
plywood (1D)	400 kg
fibre (1G)	400 kg
Boxes	
steel (4A)	400 kg
metal, other than steel or aluminium (4N)	400 kg
natural wood (4C1)	250 kg
natural wood with sift proof walls (4C2)	250 kg
plywood (4D)	250 kg
reconstituted wood (4F)	125 kg
fibreboard (4G)	125 kg
expanded plastics (4H1)	60 kg
solid plastics (4H2)	125 kg

Special packing provision:

PP41 For UN 2803, when it is necessary to transport Gallium at low temperatures in order to maintain it in a completely solid state, the above packagings may be overpacked in a strong, water-resistant outer packaging which contains dry ice or other means of refrigeration. If a refrigerant is used, all of the above materials used in the packaging of gallium must be chemically and physically resistant to the refrigerant and must have impact resistance at the low temperatures of the refrigerant employed. If dry ice is used, the outer packaging must permit the release of carbon dioxide gas.

P801	PACKING INSTRUCTION	P801
This instruction applies to UN Nos. 2794, 2795 or 3028.		

The following packagings are authorized, provided that the provisions of **4.1.1.1, 4.1.1.2, 4.1.1.6**, and **4.1.3** are met:

(1) Rigid outer packagings, wooden slatted crates or pallets.

Additionally, the following conditions must be met:

(a) Batteries stacks must be in tiers separated by a layer of electrically non-conductive material;

(b) Battery terminals must not support the weight of other superimposed elements;

(c) Batteries must be packaged or secured to prevent inadvertent movement;

(d) Batteries must not leak under normal conditions of transport or appropriate measures must be taken to prevent the release of electrolyte from the package (e.g. individually packaging batteries or other equally effective methods); and

(e) Batteries must be protected against short circuits.

(2) Stainless steel or plastics bins may also be used to transport used batteries.

Additionally, the following conditions must be met:

(a) The bins must be resistant to the electrolyte that was contained in the batteries;

(b) The bins must not be filled to a height greater than the height of their sides;

(c) The outside of the bins must be free of residues of electrolyte contained in the batteries;

(d) Under normal conditions of transport, no electrolyte may leak from the bins;

(e) Measures must be taken to ensure that filled bins cannot lose their content; and

(f) Measures must be taken to prevent short circuits (e.g. batteries are discharged, individual protection of the battery terminals, etc.).

P802	PACKING INSTRUCTION	P802

The following packagings are authorised, provided the general provisions of 4.1.1 and 4.1.3 are met:

(1) Combination packagings
Outer packagings: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2; maximum net mass: 75 kg.
Inner packagings: glass or plastics; maximum capacity: 10 litres.

(2) Combination packagings
Outer packagings: 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2);
maximum net mass: 125 kg.
Inner packagings: metal; maximum capacity: 40 litres

(3) Composite packagings: Glass receptacle in steel, aluminium or plywood drum (6PA1, 6PB1 or 6PD1) or in a steel, aluminium or wood box or in wickerwork hamper (6PA2, 6PB2, 6PC or 6PD2) or in solid plastics packaging (6PH2); maximum capacity: 60 litres.

(4) Steel drums (1A1) with a maximum capacity of 250 litres.

(5) Pressure receptacles may be used provided that the general provisions of 4.1.3.6 are met.

Special packing provision:

PP79 For UN 1790 with more than 60% but not more than 85% hydrogen fluoride, see P001

P803	PACKING INSTRUCTION	P803
This instruction applies to UN 2028.		
The following packagings are authorised, provided the general provisions of 4.1.1 and 4.1.3 are met: (1) Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); (2) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2); Maximum net mass: 75 kg.		
The articles must be individually packaged and separated from each other using partitions, dividers, inner packagings or cushioning material to prevent inadvertent discharge during normal conditions of transport.		

P804	PACKING INSTRUCTION	P804
This instruction applies to UN 1744.		
The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met: (1) **Combination packagings** with a maximum gross mass of 25 kg, consisting of - one or more glass inner packaging(s) with a maximum capacity of 1.3 litres each and filled to not more than 90% of their capacity, the closure(s) of which must be physically held in place by any means capable of preventing back-off or loosening by impact or vibration during transport, individually placed in - metal or rigid plastics receptacles together with cushioning and absorbent material sufficient to absorb the entire contents of the glass inner packaging(s), further packed in - 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings. (2) **Combination packagings** consisting of metal or polyvinylidene fluoride (PVDF) inner packagings, not exceeding 5 litres in capacity individually packed with absorbent material sufficient to absorb the contents and inert cushioning material in 1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G, 4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G or 4H2 outer packagings with a maximum gross mass of 75 kg. Inner packagings must not be filled to more than 90% of their capacity. The closure of each inner packaging must be physically held in place by any means capable of preventing back-off or loosening of the closure by impact or vibration during transport; (3) **Packagings** consisting of: Outer packagings: Steel or plastics drums (1A1, 1A2, 1H1 or 1H2) tested in accordance with the test requirements in 6.1.5 at a mass corresponding to the mass of the assembled package either as a packaging intended to contain inner packagings, or as a single packaging intended to contain solids or liquids, and marked accordingly; Inner packagings: Drums and composite packagings (1A1, 1B1, 1N1, 1H1 or 6HA1) meeting the requirements of Chapter 6.1 for single packagings, subject to the following conditions: (a) The hydraulic pressure test must be conducted at a pressure of at least 300 kPa (3 bar) (gauge pressure); (b) The design and production leakproofness tests must be conducted at a test pressure of 30 kPa (0,3 bar); (c) They must be isolated from the outer drum by the use of inert shock-mitigating cushioning material which surrounds the inner packaging on all sides; (d) Their capacity must not exceed 125 litres; (e) Closures must be of a screw type that are: (i) physically held in place by any means capable of preventing back–off or loosening of the closure by impact or vibration during transport; (ii) provided with a cap seal; (f) The outer and inner packagings must be subjected periodically to an internal inspection and leakproofness test according to (b) at intervals of not more than two and a half years; and		

P804	PACKING INSTRUCTION (Cont.)	P804
(g) The outer and inner packagings must bear in clearly legible and durable characters: (i) the date (month, year) of the initial test and the latest periodic test and inspection of the inner packaging; and (ii) the name or authorised symbol of the expert performing the tests and inspections; (4) **Pressure receptacles**, provided that the general provisions of 4.1.3.6 are met. (a) They must be subjected to an initial test and periodic tests every 10 years at a pressure of not less than 1 MPa (10 bar) (gauge pressure); (b) They must be subjected periodically to an internal inspection and leakproofness test at intervals of not more than two and a half years; (c) They may not be equipped with any pressure relief device; (d) Each pressure receptacle must be closed with a plug or valve(s) fitted with a secondary closure device; and (e) The materials of construction for the pressure receptacle, valves, plugs, outlet caps, luting and gaskets must be compatible with each other and with the contents.		

P900	PACKING INSTRUCTION	P900
This instruction applies to UN 2216.		
The following packagings are authorised, provided the general provisions of 4.1.1 and 4.1.3 are met: (1) Packagings according to P002; or (2) Bags (5H1, 5H2, 5H3, 5H4, 5L1, 5L2, 5L3, 5M1 or 5M2) with a maximum net mass of 50 kg. Fish meal may also be transported unpackaged when it is packed in closed cargo transport units and the free air space has been restricted to a minimum.		

P901	PACKING INSTRUCTION	P901
This instruction applies to UN 3316.		
The following combination packagings are authorised provided the general provisions of **4.1.1** and **4.1.3** are met: Drums (1A1, 1A2, 1B1, 1B2, 1N1, 1N2, 1H1, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A1, 3A2, 3B1, 3B2, 3H1, 3H2). Packagings must conform to the performance level consistent with the packing group assigned to the kit as a whole (see 3.3.1, special provision 251). Where the kit contains only dangerous goods to which no packing group is assigned, packagings must meet Packing Group II performance level. Maximum quantity of dangerous goods per outer packaging: 10 kg excluding the mass of any carbon dioxide, solid (dry ice) used as a refrigerant.		
Additional requirement: Dangerous goods in kits must be packed in inner packagings must be protected from other materials in the kit.		

P902	**PACKING INSTRUCTION**	**P902**
This instruction applies to UN 3268.		
Packaged articles: The following packagings are authorised provided the general provisions of 4.1.1 and 4.1.3 are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Packagings must conform to the packing group III performance level. The packagings must be designed and constructed so as to prevent movement of the articles and inadvertent operation during normal conditions of transport. **Unpackaged articles:** The articles may also be transported unpackaged in dedicated handling devices, vehicles or containers when moved to, from, or between where they are manufactured and an assembly plant including intermediate handling locations.		
Additional requirement: Any pressure receptacle must be in accordance with the requirements of the competent authority for the substance(s) contained therein.		

P903	**PACKING INSTRUCTION**	**P903**
This instruction applies to UN Nos. 3090, 3091, 3480 and 3481.		
For the purpose of this packing instruction, "equipment" means apparatus for which the lithium cells or batteries will provide electrical power for its operation. The following packagings are authorised provided that the general provisions of **4.1.1** and **4.1.3** are met: (1) For cells and batteries: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2). Cells or batteries must be packed in packagings so that the cells or batteries are protected against damage that may be caused by the movement or placement of the cells or batteries within the packaging. Packagings must conform to the packing group II performance level. (2) In addition for cells or batteries with a gross mass of 12 kg or more employing a strong, impact resistant outer casing, and assemblies of such cells or batteries: (a) Strong outer packagings; (b) Protective enclosures (e.g., fully enclosed or wooden slatted crates); or (c) Pallets or other handling devices. Cells or batteries must be secured to prevent inadvertent movement, and the terminals must not support the weight of other superimposed elements. Packagings need not meet the requirements of 4.1.1.3. (3) For cells or batteries packed with equipment: Packagings conforming to the requirements in paragraph (1) of this packing instruction, then placed with the equipment in an outer packaging; or Packagings that completely enclose the cells or batteries, then placed with equipment in a packaging conforming to the requirements in paragraph (1) of this packing instruction. The equipment must be secured against movement within the outer packaging.		

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P903	**PACKING INSTRUCTION (Cont.)**	**P903**
(4) For cells or batteries contained in equipment: Strong outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use. They must be constructed in such a manner as to prevent accidental operation during transport. Packagings need not meet the requirements of 4.1.1.3. Large equipment can be offered for transport unpackaged or on pallets when the cells or batteries are afforded equivalent protection by the equipment in which they are contained. Devices such as radio frequency identification (RFID) tags, watches and temperature loggers, which are not capable of generating a dangerous evolution of heat, may be transported when intentionally active in strong outer packagings. When active, these devices must meet defined standards for electromagnetic radiation to ensure that the operation of the device does not interfere with aircraft systems. (5) For packaging containing both cells or batteries packed with equipment and contained in equipment: (a) For cells and batteries, packagings that completely enclose the cells or batteries, then placed with equipment in a packaging conforming to the requirements in paragraph (1) of this packing instruction; or (b) Packagings conforming to the requirements in paragraph (1) of this packing instruction, then placed with the equipment in a strong outer packaging constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use. The outer packaging shall be constructed in such a manner as to prevent accidental operation during transport and need not meet the requirements of 4.1.1.3. The equipment shall be secured against movement within the outer packaging. Devices such as radio frequency identification (RFID) tags, watches and temperature loggers, which are not capable of generating a dangerous evolution of heat, may be transported when intentionally active in strong outer packagings. When active, these devices shall meet defined standards for electromagnetic radiation to ensure that the operation of the devices does not interfere with aircraft systems.		
Additional requirement: Batteries must be protected against short circuit.		

P904	PACKING INSTRUCTION	P904

This instruction applies to UN 3245.

The following packagings are authorised:

(1) Packagings meeting the provisions of 4.1.1.1, 4.1.1.2, 4.1.1.4, 4.1.1.8 and 4.1.3 and so designed that they meet the construction requirements of 6.1.4. Outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, must be used. Where this packing instruction is used for the transport of inner packagings of combination packagings the packaging must be designed and constructed to prevent inadvertent discharge during normal conditions of transport.

(2) Packagings, which need not conform to the packaging test requirements of Part 6, but conforming to the following:

(a) An inner packaging comprising:

(i) primary receptacle(s) and a secondary packaging, the primary receptacle(s) or the secondary packaging must be leakproof for liquids or siftproof for solids;

(ii) for liquids, absorbent material placed between the primary receptacle(s) and the secondary packaging. The absorbent material must be in a quantity sufficient to absorb the entire contents of the primary receptacle(s) so that any release of the liquid substance will not compromise the integrity of the cushioning material or of the outer packaging;

(iii) if multiple fragile primary receptacles are placed in a single secondary packaging they must be individually wrapped or separated to prevent contact between them;

(b) An outer packaging must be strong enough for its capacity, mass and intended use, and with a smallest external dimension of at least 100 mm.

For transport, the mark illustrated below must be displayed on the external surface of the outer packaging on a background of a contrasting colour and must be clearly visible and legible. The mark must be in the form of a square set at an angle of 45° (diamond-shaped) with each side having a length of at least 50 mm; the width of the line must be at least 2 mm and the letters and numbers must be at least 6 mm high.

Additional requirement:

<u>Ice, dry ice and liquid nitrogen</u>

When dry ice or liquid nitrogen is used as a coolant, the requirements of 5.5.3 apply. When used, ice must be placed outside the secondary packagings or in the outer packaging or an overpack. Interior supports must be provided to secure the secondary packaging in the original position. If ice is used, the outside packaging or overpack must be leakproof.

P905	**PACKING INSTRUCTION**	**P905**
This instruction applies to UN Nos. 3072 and 2990.		
Any suitable packaging is authorised, provided the general provisions of **4.1.1** and **4.1.3** are met, except that packagings need not conform to the requirements of Part 6. When the life saving appliances are constructed to incorporate or are contained in rigid outer weatherproof casings (such as for lifeboats), they may be transported unpackaged.		
Additional requirements: (1) All dangerous substances and articles contained as equipment within the appliances must be secured to prevent inadvertent movement and in addition: (a) Signal devices of Class 1 must be packed in plastics or fibreboard inner packagings; and (b) Gases (Division 2.2) must be contained in cylinders as specified by the competent authority, which may be connected to the appliance; and (c) Electric storage batteries (Class 8) and lithium batteries (Class 9) must be disconnected or electrically isolated and secured to prevent any spillage of liquid; and (d) Small quantities of other dangerous substances (for example in Class 3 or Divisions 4.1 and 5.2) must be packed in strong inner packagings. (2) Preparation for transport and packaging must include provisions to prevent any accidental inflation of the appliance.		

P906	**PACKING INSTRUCTION**	**P906**
This instruction applies to UN Nos. 2315, 3151, 3152 and 3432.		
The following packagings are authorised, provided the general provisions of 4.1.1 and 4.1.3 are met: (1) For liquids and solids containing or contaminated with PCBs or polyhalogenated biphenyls or polyhalogenated terphenyls or halogenated monomethyldiphenylmethanes : Packagings in accordance with P001 or P002, as appropriate. (2) For transformers and condensers and other articles: (a) Packagings in accordance with packing instructions P001 or P002. The articles must be secured with suitable cushioning material to prevent inadvertent movement during normal conditions of transport; or (b) Leakproof packagings which are capable of containing, in addition to the articles, at least 1.25 times the volume of the liquid PCBs, polyhalogenated biphenyls or polyhalogenated terphenyls or halogenated monomethyldiphenylmethanes present in them. There must be sufficient absorbent material in the packagings to absorb at least 1.1 times the volume of liquid which is contained in the articles. In general, transformers and condensers must be carried in leakproof metal packagings which are capable of holding, in addition to the transformers and condensers, at least 1.25 times the volume of the liquid present in them. Notwithstanding the above, liquids and solids not packaged in accordance with P001 and P002 and unpackaged transformers and condensers may be transported in cargo transport units fitted with a leakproof metal tray to a height of at least 800 mm, containing sufficient inert absorbent material to absorb at least 1.1 times the volume of any free liquid.		
Additional requirement: Adequate provisions must be taken to seal the transformers and condensers to prevent leakage during normal conditions of transport.		

P907	**PACKING INSTRUCTION**	**P907**
This instruction applies to articles such as machinery, apparatus or devices of UN 3363		
If the article is constructed and designed so that the receptacles containing the dangerous goods are afforded adequate protection, an outer packaging is not required. Dangerous goods in an article must otherwise be packed in outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, and meeting the applicable requirements of 4.1.1.1. Receptacles containing dangerous goods must conform to the general provisions in 4.1.1, except that 4.1.1.3, 4.1.1.4, 4.1.1.12 and 4.1.1.14 do not apply. For Division 2.2 gases, the inner cylinder or receptacle, its contents and filling ratio must be to the satisfaction of the competent authority of the country in which the cylinder or receptacle is filled. In addition, the manner in which receptacles are contained within the article, must be such that under normal conditions of transport, damage to receptacles containing the dangerous goods is unlikely; and in the event of damage to receptacles containing solid or liquid dangerous goods, no leakage of the dangerous goods from the machinery or apparatus is possible (a leakproof liner may be used to satisfy this requirement). Receptacles containing dangerous goods must be so installed, secured or cushioned as to prevent their breakage or leakage and so as to control their movement within the article during normal conditions of transport. Cushioning material must not react dangerously with the content of the receptacles. Any leakage of the contents must not substantially impair the protective properties of the cushioning material.		

P908	**PACKING INSTRUCTION**	**P908**
This instruction applies to damaged or defective lithium ion cells and batteries and damaged or defective lithium metal cells and batteries, including those contained in equipment, of UN Nos. 3090, 3091, 3480 and 3481.		
The following packagings are authorized provided the general provisions of 4.1.1 and 4.1.3 are met: For cells and batteries and equipment containing cells and batteries: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G) Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2) Jerricans (3A2, 3B2, 3H2) Packagings must conform to the packing group II performance level. 1. Each damaged or defective cell or battery or equipment containing such cells or batteries must be individually packed in inner packaging and placed inside of an outer packaging. The inner packaging or outer packaging must be leak-proof to prevent the potential release of electrolyte. 2. Each inner packaging must be surrounded by sufficient non-combustible and electrically non-conductive thermal insulation material to protect against a dangerous evolution of heat. 3. Sealed packagings must be fitted with a venting device when appropriate. 4. Appropriate measures must be taken to minimize the effects of vibrations and shocks, prevent movement of the cells or batteries within the package that may lead to further damage and a dangerous condition during transport. Cushioning material that is non-combustible and electrically non-conductive may also be used to meet this requirement. 5. Non combustibility must be assessed according to a standard recognized in the country where the packaging is designed or manufactured. For leaking cells or batteries, sufficient inert absorbent material must be added to the inner or outer packaging to absorb any release of electrolyte. A cell or battery with a net mass of more than 30 kg must be limited to one cell or battery per outer packaging.		
Additional requirements: Cells or batteries must be protected against short circuit.		

P909	PACKING INSTRUCTION	P909

This packing instruction applies to UN Nos. 3090, 3091, 3480 and 3481 transported for disposal or recycling, either packed together with or packed without non-lithium batteries:

(1) Cells and batteries must be packed in accordance with the following:

(a) The following packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3, are met: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H2); and Jerricans (3A2, 3B2, 3H2).

(b) Packagings must conform to the packing group II performance level.

(c) Metal packagings must be fitted with a electrically non-conductive lining material (e.g., plastics) of adequate strength for the intended use.

(2) However, lithium ion cells with a Watt-hour rating of not more than 20 Wh, lithium ion batteries with a Watt-hour rating of not more than 100 Wh, lithium metal cells with a lithium content of not more than 1 g and lithium metal batteries with an aggregate lithium content of not more than 2 g may be packed in accordance with the following:

(a) In strong outer packaging up to 30 kg gross mass meeting the general provisions of 4.1.1, except 4.1.1.3, and 4.1.3.

(b) Metal packagings must be fitted with a electrically non-conductive lining material (e.g., plastics) of adequate strength for the intended use.

(3) For cells or batteries contained in equipment, strong outer packagings constructed of suitable material, and of adequate strength and design in relation to the packaging capacity and its intended use, may be used. Packagings need not meet the requirements of 4.1.1.3.Equipment may also be offered for transport unpackaged or on pallets when the cells or batteries are afforded equivalent protection by the equipment in which they are contained.

(4) In addition, for cells or batteries with a gross mass of 12 kg or more employing a strong, impact resistant outer casing, strong outer packagings constructed of suitable material and of adequate strength and design in relation to the packagings capacity and its intended use, may be used. Packagings need not meet the requirements of 4.1.1.3.

Additional requirements:

1. Cells and batteries must be designed or packed to prevent short circuits and the dangerous evolution of heat.
2. Protection against short circuits and the dangerous evolution of heat includes, but is not limited to,
   - individual protection of the battery terminals,
   - inner packaging to prevent contact between cells and batteries,
   - batteries with recessed terminals designed to protect against short circuits, or
   - the use of a electrically non-conductive and non-combustible cushioning material to fill empty space between the cells or batteries in the packaging.
3. Cells and batteries must be secured within the outer packaging to prevent excessive movement during transport (e.g. by using a non-combustible and electrically non-conductive cushioning material or through the use of a tightly closed plastics bag).

P910	**PACKING INSTRUCTION**	**P910**

This instruction applies to UN Nos. 3090, 3091, 3480 and 3481 production runs consisting of not more than 100 cells or batteries and to pre-production prototypes of cells or batteries when these prototypes are transported for testing**.**

The following packagings are authorized provided that the general provisions of **4.1.1** and **4.1.3** are met:

(1) For cells and batteries, including when packed with equipment:
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).

Packagings shall conform to the packing group II performance level and shall meet the following requirements:

(a) Batteries and cells, including equipment, of different sizes, shapes or masses shall be packaged in an outer packaging of a tested design type listed above provided the total gross mass of the package does not exceed the gross mass for which the design type has been tested;
(b) Each cell or battery shall be individually packed in an inner packaging and placed inside an outer packaging;
(c) Each inner packaging shall be completely surrounded by sufficient non-combustible and electrically non-conductive thermal insulation material to protect against a dangerous evolution of heat;
(d) Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent movement of the cells or batteries within the package that may lead to damage and a dangerous condition during transport. Cushioning material that is non-combustible and electrically non-conductive may be used to meet this requirement;
(e) Non-combustibility shall be assessed according to a standard recognized in the country where the packaging is designed or manufactured;
(f) A cell or battery with a net mass of more than 30 kg shall be limited to one cell or battery per outer packaging.

(2) For cells and batteries contained in equipment:
Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G);
Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2);
Jerricans (3A2, 3B2, 3H2).

Packagings shall conform to the packing group II performance level and shall meet the following requirements:

(a) Equipment of different sizes, shapes or masses shall be packaged in an outer packaging of a tested design type listed above provided the total gross mass of the package does not exceed the gross mass for which the design type has been tested;
(b) The equipment shall be constructed or packaged in such a manner as to prevent accidental operation during transport;
(c) Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent movement of the equipment within the package that may lead to damage and a dangerous condition during transport. When cushioning material is used to meet this requirement it shall be non-combustible and electrically non-conductive; and
(d) Non-combustibility shall be assessed according to a standard recognized in the country where the packaging is designed or manufactured.

(3) The equipment or the batteries may be transported unpackaged under conditions specified by the competent authority. Additional conditions that may be considered in the approval process include, but are not limited to:
(a) The equipment or the battery shall be strong enough to withstand the shocks and loadings normally encountered during transport, including trans-shipment between cargo transport units and between cargo transport units and warehouses as well as any removal from a pallet for subsequent manual or mechanical handling; and
(b) The equipment or the battery shall be fixed in cradles or crates or other handling devices in such a way that it will not become loose during normal conditions of transport.

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P910	PACKING INSTRUCTION (Cont.)	P910
Additional requirements The cells and batteries shall be protected against short circuit; Protection against short circuits includes, but is not limited to, -individual protection of the battery terminals, -inner packaging to prevent contact between cells and batteries, -batteries with recessed terminals designed to protect against short circuits, or -the use of a electrically non-conductive and non-combustible cushioning material to fill empty space between the cells or batteries in the packaging.		

P911	PACKING INSTRUCTION	P911
This instruction applies to damaged or defective cells and batteries of UN Nos. 3090, 3091, 3480 and 3481 liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of transport.		
The following packagings are authorized, provided that the general provisions of **4.1.1** and **4.1.3** are met: For cells and batteries and equipment containing cells and batteries: Drums (1A2, 1B2, 1N2, 1H2, 1D, 1G); Boxes (4A, 4B, 4N, 4C1, 4C2, 4D, 4F, 4G, 4H1, 4H2); Jerricans (3A2, 3B2, 3H2) The packagings shall conform to the packing group I performance level. (1) The packaging must be capable of meeting the following additional performance requirements in case of rapid disassembly, dangerous reaction, production of a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours of the cells or batteries: (a) The outside surface temperature of the completed package shall not have a temperature of more than 100°C. A momentary spike in temperature up to 200°C is acceptable; (b) No flame shall occur outside the package (c) No projectiles shall exit the package; (d) The structural integrity of the package shall be maintained; (e) The packagings shall have a gas management system (e.g. filter system, air circulation, containment for gas, gas tight packaging etc.), as appropriate. (2) The additional packaging performance requirements shall be verified by a test as specified by the competent authority[a]. A verification report shall be available on request. As a minimum requirement, the cell or battery name, the cell or battery number, the mass, type, energy content of the cells or batteries, the packaging identification and the test data according to the verification method as specified by the competent authority shall be listed in the verification report. (3) When dry ice or liquid nitrogen is used as a coolant, the requirements of section 5.5.3 shall apply. The inner packaging and outer packaging shall maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures which could result if refrigeration were lost. **Additional requirement:** Cells or batteries must be protected against short circuit.		

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P911	PACKING INSTRUCTION (cont.)	P911

Table note:

[a] *The following criteria, as relevant, may be considered to assess the performance of the packaging:*

(a) The assessment shall be done under a quality management system (as described e.g. in section 2.9.4 (e)) allowing for the traceability of tests results, reference data and characterization models used;

(b) The list of hazards expected in case of thermal runaway for the cell or battery type, in the condition it is transported (e.g. usage of an inner packaging, state of charge (SOC), use of sufficient non-combustible, electrically non-conductive and lkabsorbent cushioning material etc.), shall be clearly identified and quantified; the reference list of possible hazards for lithium cells or batteries (rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours) can be used for this purpose. The quantification of these hazards shall rely on available scientific literature;

(c) The mitigating effects of the packaging shall be identified and characterized, based on the nature of the protections provided and the construction material properties. A list of technical characteristics and drawings shall be used to support this assessment (Density [kg·m-3], specific heat capacity [J·kg-1·K-1], heating value [kJ·kg-1], thermal conductivity [W·m-1·K-1], melting temperature and flammability temperature [K], heat transfer coefficient of the outer packaging [W·m-2·K-1], …);

(d) The test and any supporting calculations shall assess the result of a thermal run-away of the cell or battery inside the packaging in the normal conditions of transport;

(e) In case the SOC of the cell or battery is not known, the assessment used, shall be done with the highest possible SOC corresponding to the cell or battery use conditions;

(f) The surrounding conditions in which the packaging may be used and transported shall be described (including for possible consequences of gas or smoke emissions on the environment, such as ventilation or other methods) according to the gas management system of the packaging;

(g) The tests or the model calculation shall consider the worst case scenario for the thermal runaway triggering and propagation inside the cell or battery: this scenario includes the worst possible failure in the normal transport condition, the maximum heat and flame emissions for the possible propagation of the reaction;

(h) These scenarios shall be assessed over a period long enough to allow all possible consequences to occur (e.g. 24 hours).

4.1.4.2: Packing instructions concerning the use of IBCs

IBC01	**PACKING INSTRUCTION**	**IBC01**
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: Metal (31A, 31B and 31N).		

IBC02	**PACKING INSTRUCTION**	**IBC02**
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: (1) Metal (31A, 31B and 31N); (2) Rigid plastics (31H1 and 31H2); (3) Composite (31HZ1).		
Special packing provisions: **B5** For UN Nos. 1791, 2014, 2984 and 3149, IBCs must be provided with a device to allow venting during transport. The inlet to the venting device must be sited in the vapour space of the IBC under maximum filling conditions during transport. **B7** For UN Nos. 1222 and 1865, IBCs with a capacity greater than 450 litres are not permitted due to the substance's potential for explosion when transported in large volumes. **B8** The pure form of this substance must not be transported in IBCs since it is known to have a vapour pressure of more than 110 kPa at 50 °C or 130 kP1 at 55 °C. **B15** For UN 2031 with more than 55% nitric acid, the permitted use of rigid plastics IBCs and of composite IBCs with a rigid plastics inner receptacle must not exceed two years from their date of manufacture. **B16** For UN 3375, IBCs of type 31A and 31N are not allowed without competent authority approval.		

IBC03	**PACKING INSTRUCTION**	**IBC03**
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: (1) Metal (31A, 31B and 31N); (2) Rigid plastics (31H1 and 31H2); (3) Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2).		
Special packing provisions: **B8** The pure form of this substance must not be transported in IBCs since it is known to have a vapour pressure of more than 110 kPa at 50 °C or 130 kPa at 55 °C. **B11** Notwithstanding the provisions of 4.1.1.10, UN 2672 ammonia solution in concentrations not exceeding 25% may be transported in rigid or composite plastics IBCs (31H1, 31H2 and 31HZ1). **B19** For UN Nos. 3532 and 3534**,** IBCs must be designed and constructed to permit the release of gas or vapour to prevent a build-up of pressure that could rupture the IBCs in the event of loss of stabilization.		

IBC04	PACKING INSTRUCTION	IBC04
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: Metal (11A, 11B, 11N, 21A, 21B and 21N, 31A, 31B and 31N).		
Special packing provision: **B1** For packing group I substances, IBCs must be transported in closed cargo transport units.		

IBC05	PACKING INSTRUCTION	IBC05
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: (1) Metal (11A, 11B, 11N, 21A, 21B and 21N, 31A, 31B and 31N); (2) Rigid plastics (11H1, 11H2, 21H1 and 21H2, 31H1 and 31H2); (3) Composite (11HZ1 and 21HZ1 and 31HZ1).		
Special packing provision: **B1** For packing group I substances, IBCs must be transported in closed cargo transport units. **B2** For solid substances in IBCs other than metal or rigid plastics IBCs, the IBCs must be transported in closed cargo transport units.		

IBC06	PACKING INSTRUCTION	IBC06
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: (1) Metal (11A, 11B, 11N, 21A, 21B and 21N, 31A, 31B and 31N); (2) Rigid plastics (11H1, 11H2, 21H1 and 21H2, 31H1 and 31H2); (3) Composite (11HZ1, 11HZ2 and 21HZ2, 31HZ1).		
Additional requirement: Where the solid may become liquid during transport see 4.1.3.4.		
Special packing provision: **B1** For packing group I substances, IBCs must be transported in closed cargo transport units. **B2** For solid substances in IBCs other than metal or rigid plastics IBCs, the IBCs must be transported in closed cargo transport units. **B12** For UN 2907, IBCs must meet the packing group II performance level. IBCs meeting the test criteria of packing group I must not be used.		

IBC07	PACKING INSTRUCTION	IBC07
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: (1) Metal (11A, 11B, 11N, 21A, 21B and 21N, 31A, 31B and 31N); (2) Rigid plastics (11H1, 11H2, 21H1 and 21H2, 31H1 and 31H2); (3) Composite (11HZ1, 11HZ2 and 21HZ2 , 31HZ1). (4) Wooden (11C, 11D and 11F).		
Additional requirement: 1. Where the solid may become liquid during transport see 4.1.3.4. 2. Liners of wooden IBCs must be siftproof.		
Special packing provision: **B1** For packing group I substances, IBCs must be transported in closed cargo transport units. **B2** For solid substances in IBCs other than metal or rigid plastics IBCs, the IBCs must be transported in closed cargo transport units. **B18** For UN Nos. 3531 and 3533**,** IBCs must be designed and constructed to permit the release of gas or vapour to prevent a build-up of pressure that could rupture the IBCs in the event of loss of stabilization.		

IBC08	PACKING INSTRUCTION	IBC08
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 are met: (1) Metal (11A, 11B, 11N, 21A, 21B and 21N, 31A, 31B and 31N); (2) Rigid plastics (11H1, 11H2, 21H1 and 21H2, 31H1 and 31H2); (3) Composite (11HZ1, 11HZ2 and 21HZ2, 31HZ1). (4) Fibreboard (11G); (5) Wooden (11C, 11D and 11F); (6) Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).		
Additional requirement: Where the solid may become liquid during transport see 4.1.3.4.		
Special packing provisions: **B2** For solid substances in IBCs other than metal or rigid plastics IBCs, the IBCs must be transported in closed cargo transport units. **B3** Flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner. **B4** Flexible, fibreboard or wooden IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner. **B6** For UN Nos. 1327, 1363, 1364, 1365, 1386, 1408, 1841, 2211, 2217, 2793 and 3314, IBCs are not required to meet the IBC testing requirements of Chapter 6.5. **B13** For UN Nos. 1748, 2208, 2880, 3485, 3486 and 3487, transport by sea in IBCs is prohibited.		

IBC99	PACKING INSTRUCTION	IBC99
Only IBCs which are determined to be suitable for these goods by the competent authority may be used (see **4.1.3.7**). A copy of the competent authority determination must accompany each consignment or the transport document must include an indication that the packaging was authorised by the competent authority.		

IBC100	**PACKING INSTRUCTION**	**IBC100**
This instruction applies to UN Nos. 0082, 0222, 0241, 0331 and 0332.		
The following IBCs are authorised, provided the general provisions of 4.1.1, 4.1.2 and 4.1.3 and special provisions of 4.1.5 are met: (1) Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); (2) Flexible (13H2, 13H3, 13H4, 13L2, 13L3, 13L4 and 13M2); (3) Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1,and 31H2); (4) Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2).		
Additional requirements: 1. IBCs must only be used for free flowing substances. 2. Flexible IBCs must only be used for solids.		
Special packing provisions: **B2** For UN No. 0222 in IBCs other than metal or rigid plastics IBCs, the IBCs must be transported in closed cargo transport units. **B3** Flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner. For UN No. 0222, flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner. **B9** For UN 0082, this packing instruction may only be used when the substances are mixtures of ammonium nitrate or other inorganic nitrates with other combustible substances which are not explosive ingredients. Such explosives must not contain nitroglycerin, similar liquid organic nitrates, or chlorates. Metal IBCs are not authorised. **B10** For UN 0241, this packing instruction may only be used for substances which consist of water as an essential ingredient and high proportions of ammonium nitrate or other oxidising substances some or all of which are in solution. The other constituents may include hydrocarbons or aluminium powder, but must not include nitro-derivatives such as trinitrotoluene. Metal IBCs are not authorised. **B17** For UN No. 0222, metal IBCs are not authorised.		

IBC520	**PACKING INSTRUCTION**	**IBC520**
This instruction applies to organic peroxides and self-reactive substances of type F.		
The IBCs listed below are authorised for the formulations listed, provided the general provisions of **4.1.1**, **4.1.2** and **4.1.3** and special provisions of **4.1.7.2** are met. The formulations listed below may also be transported packed in accordance with packing method OP8 of packing instruction P520 of 4.1.4.1, with the same control and emergency temperatures, if applicable. For formulations not listed below, only IBCs which are determined to be suitable by the competent authority may be used (see 4.1.7.2.2).		

UN No.	Organic peroxide	Type of IBC	Maximum quantity (litres)	Control temperature	Emergency temperature
3109	**ORGANIC PEROXIDE, TYPE F, LIQUID**				
	tert-Butyl cumyl peroxide	31HA1	1000		
	tert-Butyl hydroperoxide, not more than 72% with water	31A	1250		
		31HA1	1000		
	tert-Butyl peroxyacetate, not more than 32% in diluent type A	31A 31HA1	1250 1000		
	tert-Butyl peroxybenzoate, not more than 32% in diluent type A	31A	1250		
	tert-Butyl peroxy-3,5,5-trimethylhexanoate, not more than 37% in diluent type A	31A 31HA1	1250 1000		
	Cumyl hydroperoxide, not more than 90% in diluent type A	31HA1	1250		
	2,5-Dimethyl-2,5-di(tert-butylperoxy) hexane, not more than 52% in diluent type A	31HA1	1000		
	Dibenzoyl peroxide, not more than 42% as a stable dispersion	31H1	1000		
	Di-tert-butyl peroxide, not more than 52% in diluent type A	31A 31HA1	1250 1000		
	1,1-Di-(tert-butylperoxy) cyclohexane, not more than 42% in diluent type A	31H1	1000		
	1,1-Di-(tert-butylperoxy) cyclohexane, not more than 32% in diluent type A	31A	1250		
	Dilauroyl peroxide, not more than 42%, stable dispersion, in water	31HA1	1000		
	Isopropyl cumyl hydroperoxide, not more than 72% in diluent type A	31HA1	1250		
	p-Menthyl hydroperoxide, not more than 72% in diluent type A	31HA1	1250		
	Peroxyacetic acid, stabilised, not more than 17%	31H1 31HA1 31A 31H2	1500 1500 1500 1500		
	3,6,9-Triethyl-3,6,9-trimethyl-1,4,7-triperoxonane not more than 27% in diluent type A31HA1	31HA1	1000		

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IBC520	PACKING INSTRUCTION (cont.)				IBC520
3110	**ORGANIC PEROXIDE, TYPE F, SOLID**				
	Dicumyl peroxide	31A 31H 31HA1	2000		
3119	**ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED**				
	tert-Amyl peroxy-2-ethylhexanoate, not more than 62% in diluent type A	31HA1	1000	+15 °C	+20 °C
	tert-Amyl peroxypivalate, not more than 32% in diluent type A	31A	1250	+10 °C	+15 °C
	tert-Butyl peroxy-2-ethylhexanoate, not more than 32% in diluent type B	31HA1 31A	1000 1250	+30 °C +30 °C	+35 °C +35 °C
	tert-Butyl peroxyneodecanoate, not more than 32% in diluent type A	31A	1250	0 °C	+10 °C
	tert-Amyl peroxypivalate, not more than 42% as a stable dispersion in water	31HA1	1 000	0 ºC	+10 ºC
	tert-Butyl peroxypivalate, not more than 42% in a diluent type A	31HA1 31A	1 000 1 250	+10 ºC +10 ºC	+15 ºC +15 ºC
	tert-Butyl peroxyneodecanoate, not more than 52% stable dispersion, in water	31A	1250	- 5 °C	+5 °C
	tert-Butyl peroxypivalate, not more than 27% in diluent type B	31HA1 31A	1000 1250	+10 °C +10 °C	+15 °C +15 °C
	Cumyl peroxyneodecanoate, not more than 52%, stable dispersion, in water	31A	1250	- 15 °C	- 5 °C
	Di-(4-tert-butylcyclohexyl) peroxydicarbonate, not more than 42%, stable dispersion, in water	31HA1	1000	+30 °C	+35 °C
	Dicetyl peroxydicarbonate, not more than 42%, stable dispersion, in water	31HA1	1000	+30 °C	+35 °C
	Dicyclohexylperoxydicarbonate, not more than 42% as a stable dispersion, in water	31A	1250	+ 10 °C	+ 15 °C
	Di-(2-ethylhexyl) peroxydicarbonate, not more than 62%, stable dispersion, in water	31A 31HA1	1250 1000	- 20 °C - 20 °C	- 10 °C - 10 °C
	Dimyristyl peroxydicarbonate, not more than 42%, stable dispersion, in water	31HA1	1000	+15 °C	+20 °C
	Di-(2-neodecanoylperoxyisopropyl)benzene, not more than 42%, stable dispersion, in water	31A	1250	-15 °C	-5 °C
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 52% in diluent type A	31HA1 31A	1000 1250	+10 °C +10 °C	+15 °C +15 °C
	Di-(3,5,5-trimethylhexanoyl) peroxide, not more than 52%, stable dispersion, in water	31A	1250	+10 °C	+15 °C
	3-Hydroxy-1,1-dimethylbutyl peroxy-neodecanoate, not more than 52%, stable dispersion, in water	31A	1250	-15 °C	-5 °C
	1,1,3,3-Tetramethylbutyl peroxyneodecanoate, not more than 52%, stable dispersion, in water	31HA1 31A	1000 1250	- 5 °C - 5 °C	+ 5 °C + 5 °C

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IBC520	**PACKING INSTRUCTION (cont.)**				**IBC520**
	1,1,3,3-Tetramethylbutyl peroxy-2-ethylhexanoate, not more than 67%, in diluent type A	31HA1	1000	+15 ºC	+20 ºC
	Diisobutyryl peroxide, not more than 28% as a stable dispersion in water	31HA1 31A	1 000 1 250	-20 ºC -20 ºC	-10 ºC -10 ºC
	Diisobutyryl peroxide, not more than 42% as a stable dispersion in water	31HA1 31A	1 000 1 250	-25 ºC -25 ºC	-15 ºC -15 ºC
3120	**ORGANIC PEROXIDE, TYPE F, SOLID, TEMPERATURE CONTROLLED**				

Additional requirements:

1. IBCs must be provided with a device to allow venting during transport. The inlet to the pressure-relief device must be sited in the vapour space of the IBC under maximum filling conditions during transport.

2. To prevent explosive rupture of metal IBCs or composite IBCs with complete metal casing, the emergency-relief devices must be designed to vent all the decomposition products and vapours evolved during self-accelerating decomposition or during a period of not less than one hour of complete fire-engulfment as calculated by the formula in 4.2.1.13.8. The control and emergency temperatures specified in this packing instruction are based on a non-insulated IBC. When consigning an organic peroxide in an IBC in accordance with this instruction, it is the responsibility of the consignor to ensure that:

(a) the pressure and emergency relief devices installed on the IBC are designed to take appropriate account of the self-accelerating decomposition of the organic peroxide and of fire-engulfment; and

(b) when applicable, the control and emergency temperatures indicated are appropriate, taking into account the design (e.g. insulation) of the IBC to be used.

IBC620	**PACKING INSTRUCTION**	**IBC620**
This instruction applies to UN 3291.		
The following IBCs are authorised, provided the general provisions of **4.1.1**, except **4.1.1.15**, **4.1.2** and **4.1.3** and the special provisions of **4.1.8** are met: Rigid, leakproof IBCs conforming to the packing group II performance level.		

Additional requirements:

1. There must be sufficient absorbent material to absorb the entire amount of liquid present in the IBC.
2. IBCs must be capable of retaining liquids.
3. IBCs intended to contain sharp objects such as broken glass and needles must be resistant to puncture.

Table 4.1.4.3: Packing instructions concerning the use of large packagings

LP01	**PACKING INSTRUCTION (LIQUIDS)**			**LP01**
The following large packagings are authorised provided the general provision of **4.1.1** and **4.1.3** are met:				
Inner packagings	**Large outer packagings**	**Packing group I**	**Packing group II**	**Packing group III**
Glass 10 litre Plastics 30 litre Metal 40 litre	steel (50A) aluminium (50B) metal other than steel or aluminium (50N) rigid plastics (50H) natural wood (50C) plywood (50D) reconstituted wood (50F) rigid fibreboard (50G)	Not allowed	Not allowed	Maximum capacity: $3\ m^3$

LP02	**PACKING INSTRUCTION (SOLIDS)**			**LP02**
The following large packagings are authorised provided the general provision of **4.1.1** and **4.1.3** are met:				
Inner packagings	**Large outer packagings**	**Packing group I**	**Packing group II**	**Packing group III**
Glass 10 kg Plastics[b] 50 kg Metal 50 kg Paper[a, b] 50 kg Fibre[a, b] 50 kg	steel (50A) aluminium (50B) metal other than steel or aluminium (50N) flexible plastics (51H)[c] rigid plastics (50H) natural wood (50C) plywood (50D) reconstituted wood (50F) rigid fibreboard (50G)	Not allowed	Not allowed	Maximum capacity: $3\ m^3$
Special packing provisions: **L2** deleted **L3** For UN Nos. 2208 and 3486, transport by sea in large packagings is prohibited.				
Table notes: a. These packagings must not be used when the substances being transported may become liquid during transport. b. Packagings must be siftproof. c. To be used with flexible inner packagings only.				

LP03	**PACKING INSTRUCTION**	**LP03**
This instruction applies to UN Nos. 3537, 3538, 3540, 3541, 3546, 3547 and 3548.		
(1) The following large packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met: Rigid large packagings conforming to the packing group II performance level made of: steel (50A); aluminium (50B); metal other than steel or aluminium (50N); rigid plastics (50H); natural wood (50C); plywood (50D); reconstituted wood (50F); rigid fibreboard (50G). (2) Additionally, the following conditions shall be met: (a) Receptacles within articles containing liquids or solids shall be constructed of suitable materials and secured in the article in such a way that, under normal conditions of transport, they cannot break, be punctured or leak their contents into the article itself or the outer packaging; (b) Receptacles containing liquids with closures shall be packed with their closures correctly oriented. The receptacles shall in addition conform to the internal pressure test provisions of 6.1.5.5; (c) Receptacles that are liable to break or be punctured easily, such as those made of glass, porcelain or stoneware or of certain plastics materials shall be properly secured. Any leakage of the contents shall not substantially impair the protective properties of the article or of the outer packaging; (d) Receptacles within articles containing gases shall meet the requirements of Section 4.1.6 and Chapter 6.2 as appropriate or be capable of providing an equivalent level of protection as packing instructions P200 or P208; and (e) Where there is no receptacle within the article, the article shall fully enclose the dangerous substances and prevent their release under normal conditions of transport. (3) Articles shall be packed to prevent movement and inadvertent operation during normal conditions of transport.		

LP99	**PACKING INSTRUCTION**	**LP99**
Only large packagings which are determined to be suitable for these goods by the Competent Authority may be used (see **4.1.3.7**). A copy of the competent authority determination must accompany each consignment or the transport document must include an indication that the packaging was authorised by the competent authority.		

LP101	**PACKING INSTRUCTION**	**LP101**
The following large packagings are authorised, provided the general provisions of **4.1.1** and **4.1.3** and special provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Large packagings**
Not necessary	Not necessary	steel (50A) aluminium (50B) metal other than steel or aluminium (50N) rigid plastics (50H) natural wood (50C) plywood (50D) reconstituted wood (50F) rigid fibreboard (50G)
Special packing provision: **L1** For UN Nos. 0006, 0009, 0010, 0015, 0016, 0018, 0019, 0034, 0035, 0038, 0039, 0048, 0056, 0137, 0138, 0168, 0169, 0171, 0181, 0182, 0183, 0186, 0221, 0243, 0244, 0245, 0246, 0254, 0280, 0281, 0286, 0287, 0297, 0299, 0300, 0301, 0303, 0321, 0328, 0329, 0344, 0345, 0346, 0347, 0362, 0363, 0370, 0412, 0424, 0425, 0434, 0435, 0436, 0437, 0438, 0451, 0488,0502 and 0510: Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling devices.		

LP102	**PACKING INSTRUCTION**	**LP102**
The following large packagings are authorised, provided the general provisions of **4.1.1** and **4.1.3** and special provisions of **4.1.5** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
Bags water resistant **Receptacles** fibreboard metal plastics wood **Sheets** fibreboard, corrugated **Tubes** fibreboard	Not necessary	steel (50A) aluminium (50B) metal other than steel or aluminium (50N) rigid plastics (50H) natural wood (50C) plywood (50D) reconstituted wood (50F) rigid fibreboard (50G)

LP200	**PACKING INSTRUCTION**	**LP200**

This instruction applies to UN 1950 and UN 2037.

The following large packagings are authorized for aerosols and gas cartridges, provided that the general provisions of **4.1.1** and **4.1.3** are met:

Rigid large packagings conforming to the packing group II performance level, made of:

steel (50A);
aluminium (50B);
metal other than steel or aluminium (50N);
rigid plastics (50H);
natural wood (50C);
plywood (50D);
reconstituted wood (50F);
rigid fibreboard (50G).

Special packing provision

L2 The large packagings shall be designed and constructed to prevent dangerous movement and inadvertent discharge during normal conditions of transport. For waste aerosols transported in accordance with special provision 327, the large packagings shall have a means of retaining any free liquid that might escape during transport, e.g. absorbent material. For waste aerosols and waste gas cartridges carried in accordance with special provision 327, the large packagings shall be adequately ventilated to prevent the creation of dangerous atmospheres and the build-up of pressure.

LP621	**PACKING INSTRUCTION**	**LP621**
This instruction applies to UN 3291.		
The following large packagings are authorised, provided the general provisions of **4.1.**1 and **4.1.**3 are met: (1) For clinical waste placed in inner packagings: Rigid, leakproof large packagings conforming to the requirements of Chapter 6.6 for solids, at the packing group II performance level, provided there is sufficient absorbent material to absorb the entire amount of liquid present and the large packaging is capable of retaining liquids. (2) For packages containing larger quantities of liquid: Large rigid packagings conforming to the requirements of Chapter 6.6, at the packing group II performance level, for liquids.		
Additional requirement: Large packagings intended to contain sharp objects such as broken glass and needles must be resistant to puncture and retain liquids under the performance test conditions in Chapter 6.6.		

LP622	**PACKING INSTRUCTION**	**LP622**
This instruction applies to waste of UN 3549 transported for disposal.		
The following packagings are authorized provided the general provisions of **4.1.1** and **4.1.3** are met:		
Inner packagings	**Intermediate packagings**	**Outer packagings**
metal plastics	metal plastics	steel (50A) aluminium (50B) plywood (50D) fibreboard (50G) other metal (50N) plastics (50H)
The outer packaging shall conform to the packing group I performance level for solids.		

Additional requirements:

1. Fragile articles must be contained in either a rigid inner packaging or a rigid intermediate packagings.
2. Inner packagings containing sharps objects such as broken glass and needles must be rigid and resistant to puncture.
3. The inner packaging, the intermediate packaging and the outer packaging must be capable of retaining liquids. Outer packagings that are not capable of retaining liquids by design must be fitted with a liner or suitable measure of retaining liquids.
4. The inner packaging and/or the intermediate packaging may be flexible. When flexible packagings are used, they must be capable of passing the impact resistance test to at least 165g according to ISO 7765-1:1988 “Plastics film and sheeting – Determination of impact resistance by the free-falling dart method – Part 1: Staircase methods” and the tear resistance test to at least 480g in both parallel and perpendicular planes with respect to the length of the bag in accordance with ISO 6383-2:1983 “Plastics – Film and sheeting – Determination of tear resistance – Part 2: Elmendorf method”. The maximum net mass of each flexible inner packaging must be 30kg.
5. Each flexible intermediate packaging must contain only one inner packaging.
6. Inner packagings containing a small amount of free liquid may be included in intermediate packaging provided that there is sufficient absorbent or solidifying material in the inner or intermediate packaging to absorb or solidify all the liquid content present. Suitable absorbent material which withstands the temperatures and vibrations liable to occur under normal conditions of transport must be used.
7. Intermediate packagings must be secured in outer packagings with suitable cushioning and/or absorbent material.

LP902	PACKING INSTRUCTION	LP902
This instruction applies to UN 3268.		
Packaged articles: The following large packagings are authorised, provided the general provisions of **4.1.1** and **4.1.3** are met: Rigid large packagings conforming to the packing group III performance level, made of: steel (50A); aluminium (50B); metal other than steel or aluminium (50N); rigid plastics (50H); natural wood (50C); plywood (50D); reconstituted wood (50F); rigid fibreboard (50G). The packagings must be designed and constructed to prevent movement of the articles and inadvertent operation during normal conditions of transport. **Unpackaged articles:** The articles may also be transported unpackaged in dedicated handling devices, vehicles, containers or wagons when moved to, from, or between where they are manufactured and an assembly plant including intermediate handling locations.		
Additional requirement: Any pressure receptacle must be in accordance with the requirements of the competent authority for the substance(s) contained in the pressure receptacle(s).		

LP903	PACKING INSTRUCTION	LP903
This instruction applies to UN Nos. 3090, 3091, 3480 and 3481.		
The following large packagings are authorised for a single battery, and for a single item of equipment containing batteries, provided that the general provisions of 4.1.1 and 4.1.3 are met: Rigid large packagings conforming to the packing group II performance level, made of: steel (50A); aluminium (50B); metal other than steel or aluminium (50N); rigid plastics (50H); natural wood (50C); plywood (50D); reconstituted wood (50F); rigid fibreboard (50G). The battery or the equipment shall be packed so that the battery or the equipment is protected against damage that may be caused by its movement or placement within the large packaging.		
Additional requirement: Batteries must be protected against short circuit.		

LP904	**PACKING INSTRUCTION**	**LP904**
This instruction applies to single damaged or defective batteries and to single items of equipment containing damaged or defective cells and batteries of UN Nos. 3090, 3091, 3480 and 3481.		
The following large packagings are authorized for a single damaged or defective battery and for a single item of equipment containing damaged or defective cells and batteries, provided the general provisions of 4.1.1 and 4.1.3 are met. For batteries and equipment containing cells and batteries: Rigid large packagings conforming to the packing group II performance level, made of: steel (50A) aluminium (50B) metal other than steel or aluminium (50N) rigid plastics (50H) plywood (50D)		
1. The damaged or defective battery or equipment containing such cells or batteries shall be individually packed in an inner packaging and placed inside of an outer packaging. The inner packaging or outer packaging must be leak-proof to prevent the potential release of electrolyte. 2. The inner packaging must be surrounded by sufficient non-combustible and electrically non-conductive thermal insulation material to protect against a dangerous evolution of heat. 3. Sealed packagings must be fitted with a venting device when appropriate. 4. Appropriate measures must be taken to minimise the effects of vibrations and shocks, prevent movement of the battery or the equipment within the package that may lead to further damage and a dangerous condition during transport. Cushioning material that is non-combustible and electrically non-conductive may also be used to meet this requirement. 5. Non combustibility must be assessed according to a standard recognised in the country where the packaging is designed or manufactured. For leaking batteries and cells, sufficient inert absorbent material must be added to the inner or outer packaging to absorb any release of electrolyte.		
Additional requirement: Batteries must be protected against short circuit.		

LP905	PACKING INSTRUCTION	LP905
This instruction applies to UN Nos. 3090, 3091, 3480 and 3481 production runs consisting of not more than 100 cells or batteries and to pre-production prototypes of cells or batteries when these prototypes are transported for testing.		
The following large packagings are authorized for a single battery and for a single item of equipment containing cells or batteries, provided that the general provisions of 4.1.1 and 4.1.3 are met: (1) For a single battery: Rigid large packagings conforming to the packing group II performance level, made of: steel (50A); aluminium (50B); metal other than steel or aluminium (50N); rigid plastics (50H); natural wood (50C); plywood (50D); reconstituted wood (50F); rigid fibreboard (50G). Large packagings shall also meet the following requirements: (a) A battery of different size, shape or mass may be packed in an outer packaging of a tested design type listed above provided the total gross mass of the package does not exceed the gross mass for which the design type has been tested; (b) The battery shall be packed in an inner packaging and placed inside the outer packaging; (c) The inner packaging shall be completely surrounded by sufficient non-combustible and electrically non-conductive thermal insulation material to protect against a dangerous evolution of heat; (d) Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent movement of the battery within the package that may lead to damage and a dangerous condition during transport. When cushioning material is used to meet this requirement it shall be non-combustible and electrically non-conductive; and (e) Non-combustibility shall be assessed according to a standard recognized in the country where the large packaging is designed or manufactured. (2) For a single item of equipment containing cells or batteries: Rigid large packagings conforming to the packing group II performance level, made of: Steel (50A); Aluminium (50B); Metal other than steel or aluminium (50N); Rigid plastics (50H); Natural wood (50C); Plywood (50D); Reconstituted wood (50F); Rigid fibreboard (50G). Large packagings shall also meet the following requirements: (a) A single item of equipment of different size, shape or mass may be packed in an outer packaging of a tested design type listed above provided the total gross mass of the package does not exceed the gross mass for which the design type has been tested; (b) The equipment shall be constructed or packed in such a manner as to prevent accidental operation during transport; (c) Appropriate measures shall be taken to minimize the effects of vibration and shocks and prevent movement of the equipment within the package that may lead to damage and a dangerous condition during transport. When cushioning material is used to meet this requirement, it shall be noncombustible and electrically non-conductive; and (d) Non-combustibility shall be assessed according to a standard recognized in the country where the large packaging is designed or manufactured.		
Additional requirement: Cells and batteries shall be protected against short circuit.		

LP906	**PACKING INSTRUCTION**	**LP906**

This instruction applies to damaged or defective batteries of UN Nos. 3090, 3091, 3480 and 3481 liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours under normal conditions of transport.

The following large packagings are authorized, provided that the general provisions of 4.1.1 and 4.1.3 are met:

For a single battery and for a single item of equipment containing batteries:

Rigid large packagings conforming to the packing group I performance level, made of:

steel (50A);
aluminium (50B);
metal other than steel or aluminium (50N);
rigid plastics (50H);
plywood (50D);
rigid fibreboard (50G)

(1) The large packaging shall be capable of meeting the following additional performance requirements in case of rapid disassembly, dangerous reaction, production of a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours of the battery:
   (a) The outside surface temperature of the completed package shall not have a temperature of more than 100 °C. A momentary spike in temperature up to 200 °C is acceptable;
   (b) No flame shall occur outside the package;
   (c) No projectiles shall exit the package;
   (d) The structural integrity of the package shall be maintained; and
   (e) The large packagings shall have a gas management system (e.g. filter system, air circulation, containment for gas, gas tight packaging etc.), as appropriate.

(2) The additional large packaging performance requirements shall be verified by a test as specified by the competent authority [a].
   A verification report shall be available on request. As a minimum requirement, the battery name, the battery number, the mass, type, energy content of the batteries, the large packaging identification and the test data according to the verification method as specified by the competent authority shall be listed in the verification report.

(3) When dry ice or liquid nitrogen is used as a coolant, the requirements of section 5.5.3 shall apply. The inner packaging and outer packaging shall maintain their integrity at the temperature of the refrigerant used as well as the temperatures and the pressures which could result if refrigeration were lost.

Additional requirement:
Batteries shall be protected against short circuit.

[a] *The following criteria, as relevant, may be considered to assess the performance of the large packaging:*
   (a) The assessment shall be done under a quality management system (as described e.g. in section 2.9.4 (e)) allowing for the traceability of tests results, reference data and characterization models used;
   (b) The list of hazards expected in case of thermal runaway for the battery type, in the condition it is transported (e.g. usage of an inner packaging, state of charge (SOC), use of sufficient non-combustible, electrically nonconductive and absorbent cushioning material etc.), shall be clearly identified and quantified; the reference list of possible hazards for lithium batteries (rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapours) can be purpose. The quantification of these hazards shall rely on available scientific literature;
   (c) The mitigating effects of the large packaging shall be identified and characterized, based on the nature of the protections provided and the construction material properties. A list of technical characteristics and drawings shall be used to support this assessment (Density [kg·m^{-3}], specific heat capacity [J·kg-1·K-1], heating value [kJ·kg-1], thermal conductivity [W·m-1·K-1], melting temperature and flammability temperature [K], heat transfer coefficient of the outer packaging [W·m-2·K-1], …);
   (d) The test and any supporting calculations shall assess the result of a thermal run-away of the battery inside the large packaging in the normal conditions of transport;
   (e) In case the SOC of the battery is not known, the assessment used, shall be done with the highest possible SOC corresponding to the battery use conditions;
   (f) The surrounding conditions in which the large packaging may be used and transported shall be described (including for possible consequences of gas or smoke emissions on the environment, such as ventilation or other methods) according to the gas management system of the large packaging;

(g) The tests or the model calculation shall consider the worst case scenario for the thermal runaway triggering and propagation inside the battery: this scenario includes the worst possible failure in the normal transport condition, the maximum heat and flame emissions for the possible propagation of the reaction;
(h) These scenarios shall be assessed over a period of time long enough to allow all possible consequences to occur (e.g. 24 hours).

4.1.5 SPECIAL PACKING PROVISIONS FOR GOODS OF CLASS 1

NOTE: *These special provisions for Class 1 are included for information only.*

4.1.5.1 The general provisions of section 4.1.1 must be met.

4.1.5.2 All packagings for Class 1 goods must be so designed and constructed that:

(a) They will protect the explosives, prevent them escaping and cause no increase in the risk of unintended ignition or initiation when subjected to normal conditions of transport including foreseeable changes in temperature, humidity and pressure; and
(b) The complete package can be handled safely in normal conditions of transport; and
(c) The packages will withstand any loading imposed on them by foreseeable stacking to which they will be subject during transport so that they do not add to the risk presented by the explosives, the containment function of the packagings is not harmed, and they are not distorted in a way or to an extent which will reduce their strength or cause instability of a stack.

4.1.5.3 All explosive substances and articles, as prepared for transport, must have been classified in accordance with the procedures detailed in 2.1.3.

4.1.5.4 Class 1 goods must be packed in accordance with the appropriate packing instruction shown in Column 8 of the Dangerous Goods List, as detailed in 4.1.4.

4.1.5.5 Unless otherwise specified in this Code, packagings, including IBCs and large packagings, must conform to the requirements of chapters 6.1, 6.5 or 6.6, as appropriate, and must meet their test requirements for packing group II.

4.1.5.6 The closure device of packagings containing liquid explosives must ensure a double protection against leakage.

4.1.5.7 The closure device of metal drums must include a suitable gasket; if a closure device includes a screw-thread, the ingress of explosive substances into the screw-thread must be prevented.

4.1.5.8 Packagings for water soluble substances must be water resistant. Packagings for desensitised or phlegmatised substances must be closed to prevent changes in concentration during transport.

4.1.5.9 When the packaging includes a double envelope filled with water which may freeze during transport, a sufficient quantity of an anti-freeze agent must be added to the water to prevent freezing. Anti-freeze that could create a fire hazard because of its inherent flammability must not be used.

4.1.5.10 Nails, staples and other closure devices made of metal without protective covering must not penetrate to the inside of the outer packaging unless the inner packaging adequately protects the explosives against contact with the metal.

4.1.5.11 Inner packagings, fittings and cushioning materials and the placing of explosive substances or articles in packages must be accomplished in a manner which prevents the explosive substances or articles from becoming loose in the outer packaging under normal conditions of transport. Metallic components of articles must be prevented from making contact with metal packagings. Articles containing explosive substances not enclosed in an outer casing must be separated from each other in order to prevent friction and impact. Padding, trays, partitioning in the inner or outer packaging, mouldings or receptacles may be used for this purpose.

4.1.5.12 Packagings must be made of materials compatible with, and impermeable to, the explosives contained in the package, so that neither interaction between the explosives and the packaging materials, nor leakage, causes the explosive to become unsafe to transport, or the hazard division or compatibility group to change.

4.1.5.13 The ingress of explosive substances into the recesses of seamed metal packagings must be prevented.

4.1.5.14 Plastics packagings must not be liable to generate or accumulate sufficient static electricity so that a discharge could cause the packaged explosive substances or articles to initiate, ignite or function.

4.1.5.15 Large and robust explosives articles, normally intended for military use, without their means of initiation or with their means of initiation containing at least two effective protective features, may be carried unpackaged. When such articles have propelling charges or are self-propelled, their ignition systems must be protected against stimuli encountered during normal conditions of transport. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for transport unpackaged. Such unpackaged articles may be fixed to cradles or contained in crates or other suitable handling, storage or launching devices in such a way that they will not become loose during normal conditions of transport.

Where such large explosive articles are as part of their operational safety and suitability tests subjected to test regimes that meet the intentions of UN21 and such tests have been successfully undertaken, the competent authority may approve such articles to be transported under the relevant Regulations.

4.1.5.16 Explosive substances must not be packed in inner or outer packagings where the differences in internal and external pressures, due to thermal or other effects, could cause an explosion or rupture of the package.

4.1.5.17 Whenever loose explosive substances or the explosive substance of an uncased or partly cased article may come into contact with the inner surface of metal packagings (1A1, 1A2, 1B1, 1B2, 4A, 4B and metal receptacles), the metal packaging shall be provided with an inner liner or coating (see 4.1.1.2).

4.1.5.18 Packing instruction P101 may be used for any explosive provided the package has been approved by a competent authority regardless of whether the packaging complies with the packing instruction assignment in the Dangerous Goods List.

4.1.6 SPECIAL PACKING PROVISIONS FOR GOODS OF CLASS 2

4.1.6.1 General requirements

4.1.6.1.1 This section provides general requirements applicable to the use of pressure receptacles for the transport of Class 2 gases and other dangerous goods in pressure receptacles (e.g. UN 1051 hydrogen cyanide, stabilised). Pressure receptacles must be constructed and closed so as to prevent any loss of contents which might be caused under normal conditions of transport, including by vibration, or by changes in temperature, humidity or pressure (resulting from change in altitude, for example).

4.1.6.1.2 Parts of pressure receptacles which are in direct contact with dangerous goods must not be affected or weakened by those dangerous goods and must not cause a dangerous effect (e.g. catalysing a reaction or reacting with the dangerous goods). The provisions of ISO 11114-1:2012 + Amd 1:2017 and ISO 11114-2:2013 must be met as applicable.

4.1.6.1.3 Pressure receptacles, including their closures, must be selected to contain a gas or a mixture of gases according to the requirements of 6.2.1.2 and the requirements of the specific packing instructions of 4.1.4.1. This section also applies to pressure receptacles which are elements of MEGCs.

4.1.6.1.4 Refillable pressure receptacles must not be filled with a gas or gas mixture different from that previously contained unless the necessary operations for change of gas service have been performed. The change of service for compressed and liquefied gases must be in accordance with ISO 11621:1997 or AS 2030.1, as applicable. In addition, a pressure receptacle that previously contained a Class 8 corrosive substance or a substance of another class with a corrosive subsidiary hazard must not be authorised for the transport of a Class 2 substance unless the necessary inspection and testing as specified in 6.2.1.6 have been performed.

4.1.6.1.5 Prior to filling, the filler must perform an inspection of the pressure receptacle and ensure that the pressure receptacle is authorised for the gas and, in case of a chemical under pressure, for the propellant, to be transported and that the provisions of this Code have been met. Shut-off valves must be closed after filling and remain closed during transport. The consignor must verify that the closures and equipment are not leaking.

4.1.6.1.6 Pressure receptacles must be filled according to the working pressures, filling ratios and provisions specified in the appropriate packing instruction for the specific substance being filled. Reactive gases and gas mixtures must be filled to a pressure such that if complete decomposition of the gas occurs, the working pressure of the pressure receptacle must not be exceeded. Bundles of cylinders must not be filled in excess of the lowest working pressure of any given cylinder in the bundle.

4.1.6.1.7 Pressure receptacles, including their closures, must conform to the design, construction, inspection and testing requirements detailed in Chapter 6.2. When outer packagings are prescribed, the pressure receptacles must be firmly secured therein. Unless otherwise specified in the detailed packing instructions, one or more inner packagings may be enclosed in an outer packaging.

4.1.6.1.8 Valves must be designed and constructed in such a way that they are inherently able to withstand damage without release of the contents or must be protected from damage which could cause inadvertent release of the contents of the pressure receptacle, by one of the following methods:

(a) Valves are placed inside the neck of the pressure receptacle and protected by a threaded plug or cap; or

(b) Valves are protected by caps. Caps must possess vent-holes of sufficient cross-sectional area to evacuate the gas if leakage occurs at the valves; or

(c) Valves are protected by shrouds or guards; or

(d) Pressure receptacles are transported in frames, (e.g. bundles); or

(e) Pressure receptacles are transported in an outer packaging. The packaging as prepared for transport must be capable of meeting the drop test specified in 6.1.5.3 at the packing group I performance level.

For pressure receptacles with valves as described in (b) and (c), the requirements of either ISO 11117:1998 or ISO 11117:2008 + Cor 1:2009 must be met; for valves with inherent protection, the requirements of annex A of ISO 10297:2006, annex A of ISO 10297:2014 or annex A of ISO 10297 + Amd 1:2017 must be met. For pressure receptacles with self-closing valves with inherent protection, the requirements of annex A of ISO 17879:2017 must be met.

For metal hydride storage systems, the valve protection requirements specified in ISO 16111:2008 must be met.

4.1.6.1.9 Non-refillable pressure receptacles must:

(a) be transported in an outer packaging, such as a box, or crate, or in shrink-wrapped trays or stretch- wrapped trays; and

(b) be of a water capacity less than or equal to 1.25 litres when filled with flammable or toxic gas; and

(c) not be used for toxic gases with an LC_{50} less than or equal to 200 ml/m^3; and

(d) not be repaired after being put into service.

4.1.6.1.10 Refillable pressure receptacles, other than cryogenic receptacles, must be periodically inspected according to the provisions of 6.2.1.6 and packing instruction P200, P205 or P206, as applicable. Pressure relief valves for closed cryogenic receptacles must be subject to periodic inspections and tests according to the provisions of 6.2.1.6.3 and packing instruction P203.

4.1.6.1.11 Repairs must be consistent with the fabrication and testing requirements of the applicable design and construction standards and are only permitted as indicated in the relevant periodic inspection standards specified in AS 2030.

4.1.6.1.12 Pressure receptacles must not be offered for filling:

(a) when damaged to such an extent that the integrity of the pressure receptacle or its service equipment may be affected; or
(b) unless the pressure receptacle and its service equipment has been examined and found to be in good working order; or
(c) unless the required certification, retest, and filling marks are legible.

4.1.6.1.13 Filled pressure receptacles must not be offered for transport;

(a) when leaking; or
(b) when damaged to such an extent that the integrity of the pressure receptacle or its service equipment may be affected; or
(c) unless the pressure receptacle and its service equipment has been examined and found to be in good working order; or
(d) unless the required certification, retest, and filling marks are legible.

4.1.7 SPECIAL PACKING PROVISIONS FOR ORGANIC PEROXIDES (DIVISION 5.2) AND SELF-REACTIVE SUBSTANCES OF DIVISION 4.1

4.1.7.0.1 For organic peroxides, all receptacles must be "effectively closed". Where significant internal pressure may develop in a package by the evolution of a gas, a vent may be fitted, provided the gas emitted will not cause danger, otherwise the degree of filling must be limited. Any venting device must be so constructed that liquid will not escape when the package is in an upright position and it must be able to prevent ingress of impurities. The outer packaging, if any, must be so designed as not to interfere with the operation of the venting device.

4.1.7.1 Use of Packagings (Except IBCS)

4.1.7.1.1 Packagings for organic peroxides and self-reactive substances must conform to the requirements of Chapter 6.1 and must meet its test requirements for packing group II.

4.1.7.1.2 The packing methods for organic peroxides and self-reactive substances are listed in packing instruction P520 and are designated OP1 to OP8. The quantities specified for each packing method are the maximum quantities authorised per package.

4.1.7.1.3 The packing methods appropriate for the individual currently assigned organic peroxides and self-reactive substances are listed in 2.4.2.3.2.3 and 2.5.3.2.4.

4.1.7.1.4 For new organic peroxides, new self-reactive substances or new formulations of currently assigned organic peroxides or self-reactive substances, the following procedure must be used to assign the appropriate packing method:

(a) ORGANIC PEROXIDE, TYPE B or SELF-REACTIVE SUBSTANCE, TYPE B:

Packing method OP5 must be assigned, provided that the organic peroxide (or self-reactive substance) satisfies the criteria of 2.5.3.3.2(b) (resp. 2.4.2.3.3.2(b)) in a packaging authorised by the packing method. If the organic peroxide (or self-reactive substance) can only satisfy these criteria in a smaller packaging than those authorised by packing method OP5 (viz. one of the packagings listed for OP1 to OP4), then the corresponding packing method with the lower OP number is assigned;

(b) ORGANIC PEROXIDE, TYPE C or SELF-REACTIVE SUBSTANCE, TYPE C:

Packing method OP6 must be assigned, provided that the organic peroxide (or self-reactive substance) satisfies the criteria of 2.5.3.3.2(c) (resp. 2.4.2.3.3.2(c)) in packaging authorised by the packing method. If the organic peroxide (or self-reactive substance) can only satisfy these criteria in a smaller packaging than those authorised by packing method OP6 then the corresponding packing method with the lower OP number is assigned;

(c) ORGANIC PEROXIDE, TYPE D or SELF-REACTIVE SUBSTANCE, TYPE D:

Packing method OP7 must be assigned to this type of organic peroxide or self-reactive substance;

(d) ORGANIC PEROXIDE, TYPE E or SELF-REACTIVE SUBSTANCE, TYPE E:

Packing method OP8 must be assigned to this type of organic peroxide or self-reactive substance;

(e) ORGANIC PEROXIDE, TYPE F or SELF-REACTIVE SUBSTANCE, TYPE F:

Packing method OP8 must be assigned to this type of organic peroxide or self-reactive substance.

4.1.7.2 Use of intermediate bulk containers

4.1.7.2.1 The currently assigned organic peroxides specifically listed in packing instruction IBC520 may be transported in IBCs in accordance with this packing instruction. IBCs must conform to the requirements of Chapter 6.5 and must meet its test requirements for packing group II.

4.1.7.2.2 Other organic peroxides and self-reactive substances of type F may be transported in IBCs under conditions determined by the competent authority of the jurisdiction of origin when, on the basis of the appropriate tests, that competent authority is satisfied that such transport may be safely conducted. The tests undertaken must include those necessary:

(a) to prove that the organic peroxide (or self-reactive substance) complies with the principles for classification given in 2.5.3.3.2(f), exit box F of Figure 2.5.1; (resp. 2.4.2.3.3.2 (f), exit box F of Figure 2.4.1); and

(b) to prove the compatibility of all materials normally in contact with the substance during the transport; and

(c) to determine, when applicable, the control and emergency temperatures associated with the transport of the product in the IBC concerned as derived from the SADT; and

(d) to design, when applicable, pressure and emergency relief devices; and

(e) to determine if any special provisions are necessary for safe transport of the substance.

4.1.7.2.3 For self-reactive substances temperature control is required according to 2.4.2.3.4. For organic peroxides temperature control is required according to 2.5.3.4.1. Temperature control provisions are given in 7.1.5.3.1.

4.1.7.2.4 Emergencies to be taken into account are self-accelerating decomposition and fire engulfment. To prevent explosive rupture of metal IBCs with a complete metal casing, the emergency-relief devices must be designed to vent all the decomposition products and vapours evolved during self-accelerating decomposition or during a period of not less than one hour of complete fire engulfment calculated by the equations given in 4.2.1.13.8.

4.1.8 SPECIAL PACKING PROVISIONS FOR INFECTIOUS SUBSTANCES OF CATEGORY A (DIVISION 6.2, UN 2814 AND UN 2900)

4.1.8.1 Packages of infectious substances must be prepared in such a manner that they arrive at their destination in good condition and present no hazard to persons or animals during transport.

4.1.8.2 The definitions in 1.2.1 and the general packing provisions of 4.1.1.1 to 4.1.1.14, except 4.1.1.10 to 4.1.1.12, apply to infectious substances packages. However, liquids must only be filled into packagings, which have an appropriate resistance to the internal pressure that may develop under normal conditions of transport.

4.1.8.3 An itemised list of contents must be enclosed between the secondary packaging and the outer packaging. When the infectious substances to be transported are unknown, but suspected of meeting the criteria for inclusion in category A, the words "suspected category A infectious substance" must be shown, in parentheses, following the proper shipping name on the document inside the outer packaging.

4.1.8.4 Before an empty packaging is returned to the consignor, or sent elsewhere, it must be disinfected or sterilised to nullify any hazard and any label or mark indicating that it had contained an infectious substance must be removed or obliterated.

4.1.8.5 Provided an equivalent level of performance is maintained, the following variations in the primary receptacles placed within a secondary packaging are allowed without further testing of the completed package:

(a) Primary receptacles of equivalent or smaller size as compared to the tested primary receptacles may be used provided:

(i) The primary receptacles are of similar design to the tested primary receptacle (e.g. shape: round, rectangular, etc.);

(ii) The material of construction of the primary receptacle (glass, plastics, metal, etc.) offers resistance to impact and stacking forces equal to or greater than that of the originally tested primary receptacle;

(iii) The primary receptacles have the same or smaller openings and the closure is of similar design (e.g. screw cap, friction lid, etc.);

(iv) Sufficient additional cushioning material is used to take up void spaces and to prevent significant movement of the primary receptacles; and

(v) Primary receptacles are oriented within the secondary packaging in the same manner as in the tested package;

(b) A lesser number of the tested primary receptacles, or of the alternative types of primary receptacles identified in (a) above, may be used provided sufficient cushioning is added to fill the void space(s) and to prevent significant movement of the primary receptacles.

4.1.9 SPECIAL PACKING PROVISIONS FOR RADIOACTIVE MATERIAL

<Reserved>

NOTE: *The following information from the Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) now replaces the information found in earlier editions of the ADG Code.*

RPS 2 Code of Practice for the Safe Transport of Radioactive Material

RPS No. 2.1 - Safety Guide for the Safe Transport of Radioactive Material

RPS No. 2.2 - Safety Guide for the Approval Processes for the Safe Transport of Radioactive Materials (2012)

See general comments on page xivi.

CHAPTER 4.2 - USE OF PORTABLE TANKS AND MULTIPLE-ELEMENT GAS CONTAINERS (MEGCS)

4.2.1 GENERAL PROVISIONS FOR THE USE OF PORTABLE TANKS FOR THE TRANSPORT OF SUBSTANCES OF CLASS 1 AND CLASSES 3 TO 9

4.2.1.1 This section provides general requirements applicable to the use of portable tanks for the transport of substances of Classes 1, 3, 4, 5, 6, 7, 8 and 9. In addition to these general requirements, portable tanks must conform to the design, construction, inspection and testing requirements detailed in 6.7.2. Substances must be transported in portable tanks conforming to the applicable portable tank instruction identified in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6 (T1 to T23) and the portable tank special provisions assigned to each substance in Column 11 of the Dangerous Goods List and described in 4.2.5.3.

For Classes 1 and 7 see general comments on page xivi.

4.2.1.2 During transport, portable tanks must be adequately protected against damage to the shell and service equipment resulting from lateral and longitudinal impact and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning it need not be protected in this way. Examples of such protection are given in 6.7.2.17.5.

4.2.1.3 Certain substances are chemically unstable. They are accepted for transport only when the necessary steps have been taken to prevent their dangerous decomposition, transformation or polymerisation during transport. To this end, care must in particular be taken to ensure that shells do not contain any substances liable to promote these reactions.

4.2.1.4 The temperature of the outer surface of the shell excluding openings and their closures or of the thermal insulation must not exceed 70 °C during transport. When necessary, the shell must be thermally insulated.

4.2.1.5 Empty portable tanks not cleaned and not gas-free must comply with the same requirements as portable tanks filled with the previous substance.

4.2.1.6 Substances must not be transported in the same or adjoining compartments of shells when they may react dangerously with each other and cause:

(a) combustion and/or evolution of considerable heat;

(b) evolution of flammable, toxic or asphyxiant gases;

(c) the formation of corrosive substances;

(d) the formation of unstable substances;

(e) dangerous rise in pressure.

4.2.1.7 **<Reserved>**

4.2.1.8 **<Reserved>**

4.2.1.9 **Degree of Filling**

4.2.1.9.1 Prior to filling, steps must be taken to ensure that the appropriate portable tank is used and that the portable tank is not loaded with substances which in contact with the materials of the shell, gaskets, service equipment and any protective linings, are likely to react dangerously with them to form dangerous products or appreciably weaken these materials. It may be necessary to consult the manufacturer of the substance in conjunction with the competent authority for guidance on the compatibility of the substance with the portable tank materials.

4.2.1.9.1.1 Portable tanks must not be filled above the extent provided in 4.2.1.9.2 to 4.2.1.9.6. The applicability of 4.2.1.9.2, 4.2.1.9.3 or 4.2.1.9.5.1 to individual substances is specified in the applicable portable tank instructions or special provisions in 4.2.5.2.6 or 4.2.5.3 and Columns 10 or 11 of the Dangerous Goods List.

4.2.1.9.2 The maximum degree of filling (in %) for general use is determined by the formula:

$$\text{Degree of filling} = \frac{97}{1+\alpha\,(t_r - t_f)}$$

4.2.1.9.3 The maximum degree of filling (in %) for liquids of Division 6.1 and Class 8, in packing groups I and II, and liquids with an absolute vapour pressure of more than 175 kPa (1.75 bar) at 65 °C, is determined by the formula:

$$\text{Degree of filling} = \frac{95}{1+\alpha\,(t_r - t_f)}$$

4.2.1.9.4 In these formulae, α is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transport (tr) (both in °C). For liquids transported under ambient conditions α could be calculated by the formula:

$$\alpha = \frac{d_{15} - d_{50}}{35 d_{50}}$$

in which d_{15} and d_{50} are the densities of the liquid at 15 °C and 50 °C, respectively.

4.2.1.9.4.1 The maximum mean bulk temperature (tr) must be taken as 50 °C except that, for journeys under temperate or extreme climatic conditions, the competent authorities concerned may agree to a lower or require a higher temperature, as appropriate.

4.2.1.9.5 The requirements of 4.2.1.9.2 to 4.2.1.9.4.1 do not apply to portable tanks which contain substances maintained at a temperature above 50 °C during transport (e.g. by means of a heating device). For portable tanks equipped with a heating device, a temperature regulator must be used to ensure the maximum degree of filling is not more than 95% full at any time during transport.

4.2.1.9.5.1 The maximum degree of filling (in %) for solids transported above their melting points and for elevated temperature liquids must be determined by the following formula:

$$\text{Degree of filling} = 95\,\frac{d_r}{d_f}$$

in which d_f and d_r are the densities of the liquid at the mean temperature of the liquid during filling and the maximum mean bulk temperature during transport respectively.

4.2.1.9.6 Portable tanks must not be offered for transport:

(a) with a degree of filling, for liquids having a viscosity less than 2,680 mm^2/s at 20 °C or maximum temperature of the substance during transport in the case of the heated substance, of more than 20% but less than 80% unless the shells of portable tanks are divided, by partitions or surge plates, into sections of not more than 7,500 litres capacity; or

(b) with residue of substances previously transported adhering to the outside of the shell or service equipment; or

(c) when leaking or damaged to such an extent that the integrity of the portable tank or its lifting or securing arrangements may be affected; and

(d) unless the service equipment has been examined and found to be in good working order.

4.2.1.9.7 Forklift pockets of portable tanks must be closed off when the tank is filled. This provision does not apply to portable tanks which according to 6.7.2.17.4 need not be provided with a means of closing off the forklift pockets.

4.2.1.10 Additional provisions applicable to the transport of Class 3 substances in portable tanks

4.2.1.10.1 All portable tanks intended for the transport of flammable liquids must be closed and be fitted with relief devices in accordance with 6.7.2.8 to 6.7.2.15.

4.2.1.10.1.1 <Reserved>

4.2.1.11 Additional provisions applicable to the transport of Class 4 substances (other than Division 4.1 self-reactive substances) in portable tanks

<Reserved> (by UN)

NOTE: *For Division 4.1 self-reactive substances, see 4.2.1.13.1.*

4.2.1.12 Additional provisions applicable to the transport of Division 5.1 substances in portable tanks

<Reserved> (by UN>

4.2.1.13 Additional provisions applicable to the transport of Division 5.2 substances and Division 4.1 self-reactive substances in portable tanks

4.2.1.13.1 Each substance must have been tested as necessary:

(a) to prove the compatibility of all materials normally in contact with the substance during transport; and

(b) to provide data for the design of the pressure and emergency relief devices taking into account the design characteristics of the portable tank.

Any additional provision necessary for safe transport of the substance must be clearly described in the test report.

4.2.1.13.2 The following provisions apply to portable tanks intended for the transport of Type F organic peroxides or Type F self-reactive substances with a Self-Accelerating Decomposition Temperature (SADT) of 55 °C or more. In case of conflict these provisions prevail over those specified in section 6.7.2. Emergencies to be taken into account are self-accelerating decomposition of the substance and fire-engulfment as described in 4.2.1.13.8.

4.2.1.13.3 The additional provisions for transport of organic peroxides or self-reactive substances with an SADT less than 55 °C in portable tanks must be determined by the competent authority of the jurisdiction of origin. Notification thereof must be sent to the competent authority of the jurisdiction of destination.

4.2.1.13.4 The portable tank must be designed for a test pressure of at least 0.4 MPa (4 bar).

4.2.1.13.5 Portable tanks must be fitted with temperature sensing devices.

4.2.1.13.6 Portable tanks must be fitted with pressure-relief devices and emergency-relief devices. Vacuum-relief devices may also be used. Pressure-relief devices must operate at pressures determined according to both the properties of the substance and the construction characteristics of the portable tank. Fusible elements are not allowed in the shell.

4.2.1.13.7 The pressure-relief devices must consist of spring-loaded valves fitted to prevent significant build-up within the portable tank of the decomposition products and vapours released at a temperature of 50 °C. The capacity and start-to-discharge pressure of the relief valves must be based on the results of the tests specified in 4.2.1.13.1. The start-to-discharge pressure must, however, in no case be such that liquid would escape from the valve(s) if the portable tank were overturned.

4.2.1.13.8 The emergency-relief devices may be of the spring-loaded or frangible types, or a combination of the two, designed to vent all the decomposition products and vapours evolved during a period of not less than one hour of complete fire-engulfment as calculated by the following formula:

$$q = 70961 \times F \times A^{0.82}$$

where:

q = heat absorption (W)

A = wetted area [m^2]

F = insulation factor

F = 1 for non-insulated shells, or

$$F = \frac{U(923 - T)}{47032} \text{ for insulated shells}$$

where:

K = heat conductivity of insulation layer [$W\ m^{-1}\ K^{-1}$]

L = thickness of insulation layer [m]

U = K/L = heat transfer coefficient of the insulation [$W\ m^{-2}\ K^{-1}$]

T = temperature of substance at relieving conditions [K]

The start-to-discharge pressure of the emergency-relief device(s) must be higher than that specified in 4.2.1.13.7 and based on the results of the tests referred to in 4.2.1.13.1. The emergency-relief devices must be dimensioned in such a way that the maximum pressure in the portable tank never exceeds the test pressure of the tank.

NOTE: An example of a method to determine the size of emergency-relief devices is given in Appendix 5 of the Manual of Tests and Criteria.

4.2.1.13.9 For insulated portable tanks the capacity and setting of emergency-relief device(s) must be determined assuming a loss of insulation from 1% of the surface area.

4.2.1.13.10 Vacuum-relief devices and spring-loaded valves must be provided with flame arresters. Due attention must be paid to the reduction of the relief capacity caused by the flame arrester.

4.2.1.13.11 Service equipment such as valves and external piping must be so arranged that no substance remains in them after filling the portable tank.

4.2.1.13.12 Portable tanks may be either insulated or protected by a sun-shield. If the SADT of the substance in the portable tank is 55 °C or less, or the portable tank is constructed of aluminium, the portable tank must be completely insulated. The outer surface must be finished in white or bright metal.

4.2.1.13.13 The degree of filling must not exceed 90% at 15°C.

4.2.1.13.14 The mark as required in 6.7.2.20.2 must include the UN number and the technical name with the approved concentration of the substance concerned.

4.2.1.13.15 Organic peroxides and self-reactive substances specifically listed in portable tank instruction T23 in 4.2.5.2.6 may be transported in portable tanks.

4.2.1.14 Additional provisions applicable to the transport of Division 6.1 substances in portable tanks

<Reserved> (by UN)

4.2.1.15 Additional provisions applicable to the transport of Division 6.2 substances in portable tanks

<Reserved> (by UN)

4.2.1.16 Additional provisions applicable to the transport of Class 7 substances in portable tanks

4.2.1.16.1 Portable tanks used for the transport of radioactive material must not be used for the transport of other goods.

4.2.1.16.2 <Reserved>

4.2.1.17 Additional provisions applicable to the transport of Class 8 substances in portable tanks

4.2.1.17.1 Pressure-relief devices of portable tanks used for the transport of Class 8 substances must be inspected at intervals not exceeding one year.

4.2.1.18 Additional provisions applicable to the transport of Class 9 substances in portable tanks

<Reserved> (by UN)

4.2.1.19 Additional provisions applicable to the transport of solid substances transported above their melting point

4.2.1.19.1 Solid substances transported or offered for transport above their melting point which are not assigned a portable tank instruction in column (10) of the Dangerous Goods List or when the assigned portable tank instruction does not apply to transport at temperatures above their melting point may be transported in portable tanks provided that the solid substances are classified in Divisions 4.1, 4.2, 4.3, 5.1 or 6.1 or Classes 8 or 9 and have no subsidiary hazardd other than that of Division 6.1 or Class 8 and are in packing group II or III.

4.2.1.19.2 Unless otherwise indicated in the Dangerous Goods List of Chapter 3.2, portable tanks used for the transport of these solid substances above their melting point must conform to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II. A portable tank that affords an equivalent or greater level of safety may be selected according to 4.2.5.2.5. The maximum degree of filling (in %) must be determined according to 4.2.1.9.5 (TP3).

4.2.2 GENERAL PROVISIONS FOR THE USE OF PORTABLE TANKS FOR THE TRANSPORT OF NON-REFRIGERATED LIQUEFIED GASES AND CHEMICALS UNDER PRESSURE

4.2.2.1 This section provides general requirements applicable to the use of portable tanks for the transport of non-refrigerated liquefied gases and chemicals under pressure.

4.2.2.2 Portable tanks must conform to the design, construction, inspection and testing requirements detailed in 6.7.3. Non-refrigerated liquefied gases and chemicals under pressure must be transported in portable tanks conforming to portable tank instruction T50 as described in 4.2.5.2.6 and any portable tank special provisions assigned to specific non-refrigerated liquefied gases in Column 11 of the Dangerous Goods List and described in 4.2.5.3.

4.2.2.3 During transport, portable tanks must be adequately protected against damage to the shell and service equipment resulting from lateral and longitudinal impact and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning it need not be protected in this way. Examples of such protection are given in 6.7.3.13.5.

4.2.2.4 Certain non-refrigerated liquefied gases are chemically unstable. They are accepted for transport only when the necessary steps have been taken to prevent their dangerous decomposition, transformation or polymerisation during transport. To this end, care must in particular be taken to ensure that portable tanks do not contain any non-refrigerated liquefied gases liable to promote these reactions.

4.2.2.5 **<Reserved>**

4.2.2.6 Empty portable tanks not cleaned and not gas-free must comply with the same requirements as portable tanks filled with the previous non-refrigerated liquefied gas.

4.2.2.7 Filling

4.2.2.7.1 Prior to filling, steps must be taken to ensure that the portable tank is approved for the non-refrigerated liquefied gas or the propellant of the chemical under pressure to be transported and that the portable tank is not loaded with non-refrigerated liquefied gases, or with chemicals under pressure, which in contact with the materials of the shell, gaskets and service equipment, are likely to react dangerously with them to form dangerous products or appreciably weaken these materials. During filling, the temperature of the non-refrigerated liquefied gas or propellant of chemicals under pressure must fall within the limits of the design temperature range.

4.2.2.7.2 The maximum mass of non-refrigerated liquefied gas per litre of shell capacity (kg/L) must not exceed the density of the non-refrigerated liquefied gas at 50 °C multiplied by 0.95. Furthermore, the shell must not be liquid-full at 60 °C.

4.2.2.7.3 Portable tanks must not be filled above their maximum permissible gross mass and the maximum permissible load mass specified for each gas to be transported.

4.2.2.8 Portable tanks must not be offered for transport:

(a) in an ullage condition liable to produce an unacceptable hydraulic force due to surge within the portable tank; or

(b) when leaking; or

(c) when damaged to such an extent that the integrity of the tank or its lifting or securing arrangements may be affected; and

(d) unless the service equipment has been examined and found to be in good working order.

4.2.2.9 Forklift pockets of portable tanks must be closed off when the tank is filled. This provision does not apply to portable tanks which according to 6.7.3.13.4 need not be provided with a means of closing off the forklift pockets.

4.2.3 GENERAL PROVISIONS FOR THE USE OF PORTABLE TANKS FOR THE TRANSPORT OF REFRIGERATED LIQUEFIED GASES

4.2.3.1 This section provides general requirements applicable to the use of portable tanks for the transport of refrigerated liquefied gases.

4.2.3.2 Portable tanks must conform to the design, construction, inspection and testing requirements detailed in 6.7.4. Refrigerated liquefied gases must be transported in portable tanks conforming to portable tank instruction T75 as described in 4.2.5.2.6 and the portable tank special provisions assigned to each substance in Column 11 of the Dangerous Goods List and described in 4.2.5.3.

4.2.3.3 During transport, portable tanks must be adequately protected against damage to the shell and service equipment resulting from lateral and longitudinal impact and overturning. If the shell and service equipment are so constructed as to withstand impact or overturning it need not be protected in this way. Examples of such protection are provided in 6.7.4.12.5.

4.2.3.4 **<Reserved>**

4.2.3.5 Empty portable tanks not cleaned and not gas-free must comply with the same requirements as portable tanks filled with the previous substance.

4.2.3.6 **Filling**

4.2.3.6.1 Prior to filling, steps must be taken to ensure that the portable tank is approved for the refrigerated liquefied gas to be transported and that the portable tank is not loaded with refrigerated liquefied gases which in contact with the materials of the shell, gaskets and service equipment, are likely to react dangerously with them to form dangerous products or appreciably weaken these materials. During filling, the temperature of the refrigerated liquefied gas must be within the limits of the design temperature range.

4.2.3.6.2 In estimating the initial degree of filling the necessary holding time for the intended journey including any delays which might be encountered must be taken into consideration. The initial degree of filling of the shell, except as provided for in 4.2.3.6.3 and 4.2.3.6.4, must be such that if the contents, except helium, were to be raised to a temperature at which the vapour pressure is equal to the maximum allowable working pressure (MAWP) the volume occupied by liquid would not exceed 98%.

4.2.3.6.3 Shells intended for the transport of helium can be filled up to but not above the inlet of the pressure-relief device.

4.2.3.6.4 A higher initial degree of filling may be allowed, subject to competent authority exemption, when the intended duration of transport is considerably shorter than the holding time.

4.2.3.7 Actual holding time

4.2.3.7.1 The actual holding time must be calculated for each journey in accordance with a procedure recognised by the competent authority, on the basis of the following:

(a) The reference holding time for the refrigerated liquefied gas to be transported (see 6.7.4.2.8.1) (as indicated on the plate referred to in 6.7.4.15.1);

(b) The actual filling density;

(c) The actual filling pressure;

(d) The lowest set pressure of the pressure limiting device(s).

4.2.3.7.2 The actual holding time must be marked either on the portable tank itself or on a metal plate firmly secured to the portable tank, in accordance with 6.7.4.15.2.

4.2.3.7.3 The date at which the actual holding time ends must be entered in the transport document (see 11.1.1.5.13).

4.2.3.8 Portable tanks must not be offered for transport:

(a) in an ullage condition liable to produce an unacceptable hydraulic force due to surge within the shell; or

(b) when leaking; or

(c) when damaged to such an extent that the integrity of the portable tank or its lifting or securing arrangements may be affected; and

(d) unless the service equipment has been examined and found to be in good working order; and

(e) unless the actual holding time for the refrigerated liquefied gas being transported has been determined in accordance with 4.2.3.7 and the portable tank is marked in accordance with 6.7.4.15.2; and

(f) unless the duration of transport, after taking into consideration any delays which might be encountered, does not exceed the actual holding time.

4.2.3.9 Forklift pockets of portable tanks must be closed off when the tank is filled. This provision does not apply to portable tanks which according to 6.7.4.12.4 need not be provided with a means of closing off the forklift pockets.

4.2.4 GENERAL PROVISIONS FOR THE USE OF MULTIPLE-ELEMENT GAS CONTAINERS (MEGCS)

4.2.4.1 This section provides general requirements applicable to the use of multiple-element gas containers (MEGCs) for the transport of non-refrigerated gases.

4.2.4.2 MEGCs must conform to the design, construction, inspection and testing requirements detailed in 6.7.5. The elements of MEGCs must be periodically inspected according to the provisions set out in P200 and in 6.2.1.6.

4.2.4.3 During transport, MEGCs must be protected against damage to the elements and service equipment resulting from lateral and longitudinal impact and overturning. If the elements and service equipment are so constructed as to withstand impact or overturning, they need not be protected in this way. Examples of such protection are given in 6.7.5.10.4.

4.2.4.4 The periodic testing and inspection requirements for MEGCs are specified in 6.7.5.12. MEGCs or their elements must not be charged or filled after they become due for periodic inspection but may be transported after the expiry of the time limit.

4.2.4.5 Filling

4.2.4.5.1 Prior to filling, the MEGC must be inspected to ensure that it is authorised for the gas to be transported and that the applicable provisions of this Code have been met.

4.2.4.5.2 Elements of MEGCs must be filled according to the working pressures, filling ratios and filling provisions specified in packing instruction P200 for the specific gas being filled into each element. In no case must a MEGC or group of elements be filled as a unit in excess of the lowest working pressure of any given element.

4.2.4.5.3 MEGCs must not be filled above their maximum permissible gross mass.

4.2.4.5.4 Isolation valves must be closed after filling and remain closed during transport. Toxic gases of division 2.3 must only be transported in MEGCs where each element is equipped with an isolation valve.

4.2.4.5.5 The opening(s) for filling must be closed by caps or plugs. The leakproofness of the closures and equipment must be verified by the consignor after filling.

4.2.4.5.6 MEGCs must not be offered for filling:

(a) when damaged to such an extent that the integrity of the pressure receptacles or its structural or service equipment may be affected; and
(b) unless the pressure receptacles and its structural and service equipment has been examined and found to be in good working order; and
(c) unless the required certification, retest, and filling marks are legible.

4.2.4.6 Charged MEGCs must not be offered for transport:

(a) when leaking; or
(b) when damaged to such an extent that the integrity of the pressure receptacles or its structural or service equipment may be affected; and
(c) unless the pressure receptacles and its structural and service equipment have been examined and found to be in good working order; and

unless the required certification, retest, and filling marks are legible.

4.2.4.7 Empty MEGCs that have not been cleaned and purged must comply with the same requirements as MEGCs filled with the previous substance.

4.2.5 PORTABLE TANK INSTRUCTIONS AND SPECIAL PROVISIONS

NOTE: *For instructions on the use of road tank vehicles and rail tank wagons for dangerous goods, see Chapter 4.4.*

4.2.5.1 General

4.2.5.1.1 This section includes the portable tank instructions and special provisions applicable to dangerous goods authorised to be transported in portable tanks. Each portable tank instruction is identified by an alpha-numeric designation (e.g. T1). Column 10 of the Dangerous Goods List in Chapter 3.2 indicates the portable tank instruction that must be used for each substance permitted for transport in a portable tank. When no portable tank instruction appears in Column 10 for a specific dangerous goods entry then transport of the substance in portable tanks is not permitted unless a competent authority determination is granted as detailed in 6.7.1.3. Portable tank special provisions are assigned to specific dangerous goods in Column 11 of the Dangerous Goods List in Chapter 3.2.

Each portable tank special provision is identified by an alpha-numeric designation (e.g. TP1). A listing of the portable tank special provisions is provided in 4.2.5.3.

NOTE: *The gases authorised for transport in MEGCs are indicated in the column "MEGC" in Tables 1 and 2 of packing instruction P200 in 4.1.4.1.*

4.2.5.2 Portable tank instructions

4.2.5.2.1 Portable tank instructions apply to dangerous goods of Classes 1 to 9. Portable tank instructions provide specific information relevant to portable tanks provisions applicable to specific substances. These provisions must be met in addition to the general provisions of this Chapter and the general requirements of Chapter 6.7.

4.2.5.2.2 For substances of Class 1 and Classes 3 to 9, the portable tank instructions indicate the applicable minimum test pressure, the minimum shell thickness (in reference steel), bottom opening requirements and pressure relief requirements. In T23, self-reactive substances of Division 4.1 and Division 5.2 organic peroxides permitted to be transported in portable tanks are listed along with the applicable control and emergency temperatures.

4.2.5.2.3 Non-refrigerated liquefied gases are assigned to portable tank instruction T50. T50 provides the maximum allowable working pressures, bottom opening requirements, pressure relief requirements and degree of filling requirements for non-refrigerated liquefied gases permitted for transport in portable tanks.

4.2.5.2.4 Refrigerated liquefied gases are assigned to portable tank instruction T75.

4.2.5.2.5 Determination of the appropriate portable tank instructions

When a specific portable tank instruction is specified in Column 10 for a specific dangerous goods entry additional portable tanks which possess higher test pressures, greater shell thicknesses, more stringent bottom opening and pressure-relief device arrangements may be used. The following guidelines apply to determining the appropriate portable tanks which may be used for transport of particular substances:

Table 4.2.5.2.5: Determination of the appropriate portable tank instructions

Portable tank instruction specified	**Portable tank instructions also permitted**
T1	T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T2	T4, T5, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T3	T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T4	T5, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T5	T10, T14, T19, T20, T22
T6	T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T7	T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T8	T9, T10, T13, T14, T19, T20, T21, T22
T9	T10, T13, T14, T19, T20, T21, T22
T10	T14, T19, T20, T22
T11	T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22
T12	T14, T16, T18, T19, T20, T22
T13	T14, T19, T20, T21, T22
T14	T19, T20, T22
T15	T16, T17, T18, T19, T20, T21, T22
T16	T18, T19, T20, T22
T17	T18, T19, T20, T21, T22
T18	T19, T20, T22
T19	T20, T22
T20	T22
T21	T22
T22	None
T23	None

4.2.5.2.6 Portable tank instructions

Portable tank instructions specify the requirements applicable to a portable tank when used for the transport of specific substances. Portable tank instructions T1 to T22 specify the applicable minimum test pressure, the minimum shell thickness (in mm reference steel), and the pressure-relief and bottom-opening requirements.

Table 4.2.5.2.6: Portable tank instructions

T1 - T22	**PORTABLE TANK INSTRUCTIONS**			**T1 - T22**
These portable tank instructions apply to liquid and solid substances of Class 1 and Classes 3 to 9. The general provisions of section 4.2.1 and the requirements of section 6.7.2 must be met.				
Portable tank instruction	**Minimum test pressure (bar)**	**Minimum shell thickness (in mm-reference steel) (see 6.7.2.4)**	**Pressure-relief requirements[a] (see 6.7.2.8)**	**Bottom opening requirements[b] (see 6.7.2.6)**
T1	1.5	See 6.7.2.4.2	Normal	See 6.7.2.6.2
T2	1.5	See 6.7.2.4.2	Normal	See 6.7.2.6.3
T3	2.65	See 6.7.2.4.2	Normal	See 6.7.2.6.2
T4	2.65	See 6.7.2.4.2	Normal	See 6.7.2.6.3
T5	2.65	See 6.7.2.4.2	See 6.7.2.8.3	Not Allowed
T6	4	See 6.7.2.4.2	Normal	See 6.7.2.6.2
T7	4	See 6.7.2.4.2	Normal	See 6.7.2.6.3
T8	4	See 6.7.2.4.2	Normal	Not allowed
T9	4	6 mm	Normal	Not allowed
T10	4	6 mm	See 6.7.2.8.3	Not allowed
T11	6	See 6.7.2.4.2	Normal	See 6.7.2.6.3
T12	6	See 6.7.2.4.2	See 6.7.2.8.3	See 6.7.2.6.3
T13	6	6 mm	Normal	Not allowed
T14	6	6 mm	See 6.7.2.8.3	Not allowed
T15	10	See 6.7.2.4.2	Normal	See 6.7.2.6.3
T16	10	See 6.7.2.4.2	See 6.7.2.8.3	See 6.7.2.6.3
T17	10	6 mm	Normal	See 6.7.2.6.3
T18	10	6 mm	See 6.7.2.8.3	See 6.7.2.6.3
T19	10	6 mm	See 6.7.2.8.3	Not allowed
T20	10	8 mm	See 6.7.2.8.3	Not allowed
T21	10	10 mm	Normal	Not allowed
T22	10	10 mm	See 6.7.2.8.3	Not allowed

Table notes:

a When the word "Normal" is indicated, all the requirements of 6.7.2.8 apply except for 6.7.2.8.3.

b When this column indicates “not allowed”, bottom openings are not permitted when the substance to be transported is a liquid (see 6.7.2.6.1). When the substance to be transported is a solid at all temperatures encountered under normal conditions of transport, bottom openings conforming to the requirements of 6.7.2.6.2 are authorised.

NOTE: *For the selection of suitable road tank vehicles or rail tank wagons where there is a “T” entry in Column 10 of the Dangerous Goods List, see Chapter 4.4.*

T23	PORTABLE TANK INSTRUCTION	T23

This portable tank instruction applies to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2. The general provisions of section 4.2.1 and the requirements of section 6.7.2 must be met.
The provisions specific to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2 in 4.2.1.13 must also be met. The formulations listed below may also be transported packed in accordance with packing method OP8 of packing instruction P520 of 4.1.4.1, with the same control and emergency temperatures, if applicable.

UN No	Substance	Min. test pressure (bar)	Min. shell thickness (mm-reference steel)	Bottom opening requirements	Pressure-relief require-ments	Degree of filling	Control temp.	Emer-gency temp.
3109	ORGANIC PEROXIDE, TYPE F, LIQUID	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13		
	tert-Butyl hydroperoxide[a], not more than 72% with water							
	Cumyl hydroperoxide, not more than 90% in diluent type A							
	Di-tert-butyl peroxide, not more than 32% in diluent type A							
	Isopropyl cumyl hydroperoxide, not more than 72% in diluent type A							
	p-Menthyl hydroperoxide, not more than 72% in diluent type A							
	Pinanyl hydroperoxide, not more than 56% in diluent type A							
3110	ORGANIC PEROXIDE TYPE F, SOLID Dicumyl peroxide[b]	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13		

Table notes:

a. Provided that steps have been taken to achieve the safety equivalence of 65% tert-Butyl hydroperoxide and 35% water.

b. Maximum quantity per portable tank 2,000 kg.

T23	PORTABLE TANK INSTRUCTION (cont.)							T23
This portable tank instruction applies to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2. The general provisions of section 4.2.1 and the requirements of section 6.7.2 must be met. The provisions specific to self-reactive substances of Division 4.1 and organic peroxides of Division 5.2 in 4.2.1.13 must also be met.								
UN No	**Substance**	**Min. test pressure (bar)**	**Min. shell thickness (mm-reference steel)**	**Bottom opening require-ments**	**Pressure - relief require-ments**	**Degree of filling**	**Control temp.**	**Emer-gency temp.**
3119	ORGANIC PEROXIDE, TYPE F, LIQUID, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13	[c]	[c]
	tert-Amyl peroxyneodecanoate, not more than 47% in diluent type A						-10 °C	-5 °C
	tert-Butyl peroxyacetate, not more than 32% in diluent type B						+30 °C	+35 °C
	tert-Butyl peroxy-2-ethylhexanoate, not more than 32% in diluent type B						+15 °C	+20 °C
	tert-Butyl peroxypivalate, not more than 27% in diluent type B						+5 °C	+10 °C
	tert-Butyl peroxy-3,5,5-trimethyl-hexanoate, not more than 32% in diluent type B						+35 °C	+40 °C
	Di-(3,5,5-trimethyl-hexanoyl) peroxide, not more than 38% in diluent type A or Type B						0 °C	+5 °C
	Peroxyacetic acid, distilled, type F, stabilised[d]						+30 °C	+35 °C
3120	ORGANIC PEROXIDE, TYPE F, SOLID, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.13.13	[c]	[c]

Table notes:

c. As approved by the competent authority.

d. Formulation derived from distillation of peroxyacetic acid originating from peroxyacetic acid in concentration of not more than 41% with water, total active oxygen (peroxyacetic acid+H_2O_2) ≤ 9.5%, which fulfils the criteria of 2.5.3.3.2 (f) “CORROSIVE” subsidiary hazard placard required (Model No 8, see 5.2.2.2.2).

T23	PORTABLE TANK INSTRUCTION (cont.)							T23
3229	SELF-REACTIVE LIQUID TYPE F	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.1 3.13		
3230	SELF-REACTIVE SOLID TYPE F	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.1 3.13		
3239	SELF-REACTIVE LIQUID TYPE F, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.1 3.13	c	c
3240	SELF-REACTIVE SOLID TYPE F, TEMPERATURE CONTROLLED	4	See 6.7.2.4.2	See 6.7.2.6.3	See 6.7.2.8.2 4.2.1.13.6 4.2.1.13.7 4.2.1.13.8	See 4.2.1.1 3.13	c	c

Table notes:

c. As approved by the competent authority.

T50	PORTABLE TANK INSTRUCTION				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
1005	Ammonia, anhydrous	29.0 25.7 22.0 19.7	Allowed	See 6.7.3.7.3	0.53
1009	Bromotrifluoromethane (Refrigerant gas R 13B1)	38.0 34.0 30.0 27.5	Allowed	Normal	1.13
1010	Butadienes, stabilized	7.5 7.0 7.0 7.0	Allowed	Normal	0.55
1010	Butadienes and hydrocarbon mixture, stabilized	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
1011	Butane	7.0 7.0 7.0 7.0	Allowed	Normal	0.51
1012	Butylene	8.0 7.0 7.0 7.0	Allowed	Normal	0.53
1017	Chlorine	19.0 17.0 15.0 13.5	Not allowed	See 6.7.3.7.3	1.25
1018	Chlorodifluoromethane (Refrigerant gas R 22)	26.0 24.0 21.0 19.0	Allowed	Normal	1.03

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	**PORTABLE TANK INSTRUCTION *(cont'd)***				**T50**
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
1020	Chloropentafluoroethane (Refrigerant gas R 115)	23.0 20.0 18.0 16.0	Allowed	Normal	1.06
1021	1-Chloro-1,2,2,2-tetrafluoroethane (Refrigerant gas R 124)	10.3 9.8 7.9 7.0	Allowed	Normal	1.20
1027	Cyclopropane	18.0 16.0 14.5 13.0	Allowed	Normal	0.53
1028	Dichlorodifluoromethane (Refrigerant gas R 12)	16.0 15.0 13.0 11.5	Allowed	Normal	1.15
1029	Dichlorofluoromethane (Refrigerant gas R 21)	7.0 7.0 7.0 7.0	Allowed	Normal	1.23
1030	1,1-Difluoroethane (Refrigerant gas R 152a)	16.0 14.0 12.4 11.0	Allowed	Normal	0.79
1032	Dimethylamine, anhydrous	7.0 7.0 7.0 7.0	Allowed	Normal	0.59
1033	Dimethyl ether	15.5 13.8 12.0 10.6	Allowed	Normal	0.58

[a] *“Small” means tanks having a shell with a diameter of 1.5 metres or less; “Bare” means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); “Sunshield” means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); “Insulated” means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of “Design reference temperature” in 6.7.3.1).*

[b] *The word “Normal” in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
1036	Ethylamine	7.0 7.0 7.0 7.0	Allowed	Normal	0.61
1037	Ethyl chloride	7.0 7.0 7.0 7.0	Allowed	Normal	0.80
1040	Ethylene oxide with nitrogen up to a total pressure of 1MPa (10 bar) at 50 °C	- - - 10.0	Not allowed	See 6.7.3.7.3	0.78
1041	Ethylene oxide and carbon dioxide mixture with more than 9 % but not more than 87 % ethylene oxide	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
1055	Isobutylene	8.1 7.0 7.0 7.0	Allowed	Normal	0.52
1060	Methyllacetylene and propadiene mixture, stabilized	28.0 24.5 22.0 20.0	Allowed	Normal	0.43
1061	Methylamine, anhydrous	10.8 9.6 7.8 7.0	Allowed	Normal	0.58
1062	Methyl bromide with not more than 2 % chloropicrin	7.0 7.0 7.0 7.0	Not allowed	See 6.7.3.7.3	1.51

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
1063	Methyl chloride (Refrigerant gas R 40)	14.5 12.7 11.3 10.0	Allowed	Normal	0.81
1064	Methyl mercaptan	7.0 7.0 7.0 7.0	Not allowed	See 6.7.3.7.3	0.78
1067	Dinitrogen tetroxide	7.0 7.0 7.0 7.0	Not allowed	See 6.7.3.7.3	1.30
1075	Petroleum gas, liquefied	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
1077	Propylene	28.0 24.5 22.0 20.0	Allowed	Normal	0.43
1078	Refrigerant gas, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
1079	Sulphur dioxide	11.6 10.3 8.5 7.6	Not allowed	See 6.7.3.7.3	1.23
1082	Trifluorochloroethylene, stabilized (Refrigerant gas R 1113)	17.0 15.0 13.1 11.6	Not allowed	See 6.7.3.7.3	1.13
1083	Trimethylamine, anhydrous	7.0 7.0 7.0 7.0	Allowed	Normal	0.56

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
1085	Vinyl bromide, stabilized	7.0 7.0 7.0 7.0	Allowed	Normal	1.37
1086	Vinyl chloride, stabilized	10.6 9.3 8.0 7.0	Allowed	Normal	0.81
1087	Vinyl methyl ether, stabilized	7.0 7.0 7.0 7.0	Allowed	Normal	0.67
1581	Chloropicrin and methyl bromide mixture with more than 2 % chloropicrin	7.0 7.0 7.0 7.0	Not allowed	See 6.7.3.7.3	1.51
1582	Chloropicrin and methyl chloride mixture	19.2 16.9 15.1 13.1	Not allowed	See 6.7.3.7.3	0.81
1858	Hexafluoropropylene (Refrigerant gas R 1216)	19.2 16.9 15.1 13.1	Allowed	Normal	1.11
1912	Methyl chloride and methylene chloride mixture	15.2 13.0 11.6 10.1	Allowed	Normal	0.81
1958	1,2-Dichloro-1,1,2,2-tetrafluoroethane (Refrigerant gas R 114)	7.0 7.0 7.0 7.0	Allowed	Normal	1.30

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
1965	Hydrocarbon gas, mixture liquefied, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
1969	Isobutane	8.5 7.5 7.0 7.0	Allowed	Normal	0.49
1973	Chlorodifluoromethane and chloropentafluoroethane mixture with fixed boiling point, with approximately 49 % chlorodifluoromethane (Refrigerant gas R 502)	28.3 25.3 22.8 20.3	Allowed	Normal	1.05
1974	Chlorodifluorobromomethane (Refrigerant gas R 12B1)	7.4 7.0 7.0 7.0	Allowed	Normal	1.61
1976	Octafluorocyclobutane (Refrigerant gas RC 318)	8.8 7.8 7.0 7.0	Allowed	Normal	1.34
1978	Propane	22.5 20.4 18.0 16.5	Allowed	Normal	0.42
1983	1-Chloro-2,2,2-trifluoroethane (Refrigerant gas R 133a)	7.0 7.0 7.0 7.0	Allowed	Normal	1.18
2035	1,1,1-Trifluoroethane (Refrigerant gas R 143a)	31.0 27.5 24.2 21.8	Allowed	Normal	0.76

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	**PORTABLE TANK INSTRUCTION** ***(cont'd)***				**T50**
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
2424	Octafluoropropane (Refrigerant gas R 218)	23.1 20.8 18.6 16.6	Allowed	Normal	1.07
2517	1-Chloro-1,1-difluoroethane (Refrigerant gas R 142b)	8.9 7.8 7.0 7.0	Allowed	Normal	0.99
2602	Dichlorodifluoromethane and difluoroethane azeotropic mixture with approximately 74 % dichlorodifluoromethane (Refrigerant gas R 500)	20.0 18.0 16.0 14.5	Allowed	Normal	1.01
3057	Trifluoroacetyl chloride	14.6 12.9 11.3 9.9	Not allowed	6.7.3.7.3	1.17
3070	Ethylene oxide and dichlorodifluoromethane mixture with not more than 12.5 % ethylene oxide	14.0 12.0 11.0 9.0	Allowed	6.7.3.7.3	1.09
3153	Perfluoro (methyl vinyl ether)	14.3 13.4 11.2 10.2	Allowed	Normal	1.14
3159	1,1,1,2-Tetrafluoroethane (Refrigerant gas R 134a)	17.7 15.7 13.8 12.1	Allowed	Normal	1.04

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
3161	Liquefied gas, flammable, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
3163	Liquefied gas, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	Normal	See 4.2.2.7
3220	Pentafluoroethane (Refrigerant gas R 125)	34.4 30.8 27.5 24.5	Allowed	Normal	0.87
3252	Difluoromethane (Refrigerant gas R 32)	43.0 39.0 34.4 30.5	Allowed	Normal	0.78
3296	Heptafluoropropane (Refrigerant gas R 227)	16.0 14.0 12.5 11.0	Allowed	Normal	1.20
3297	Ethylene oxide and chlorotetrafluoroethane mixture, with not more than 8.8 % ethylene oxide	8.1 7.0 7.0 7.0	Allowed	Normal	1.16
3298	Ethylene oxide and pentafluoroethane mixture, with not more than 7.9 % ethylene oxide	25.9 23.4 20.9 18.6	Allowed	Normal	1.02
3299	Ethylene oxide and tetrafluoroethane mixture, with not more than 5.6 % ethylene oxide	16.7 14.7 12.9 11.2	Allowed	Normal	1.03

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
3318	Ammonia solution, relative density less than 0.880 at 15 °C in water, with more than 50 % ammonia	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	See 4.2.2.7
3337	Refrigerant gas R 404A	31.6 28.3 25.3 22.5	Allowed	Normal	0.82
3338	Refrigerant gas R 407A	31.3 28.1 25.1 22.4	Allowed	Normal	0.94
3339	Refrigerant gas R 407B	33.0 29.6 26.5 23.6	Allowed	Normal	0.93
3340	Refrigerant gas R 407C	29.9 26.8 23.9 21.3	Allowed	Normal	0.95

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

T50	PORTABLE TANK INSTRUCTION *(cont'd)*				T50
This portable tank instruction applies to non-refrigerated liquefied gases and chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505). The general provisions of section 4.2.2 and the requirements of section 6.7.3 shall be met.					
UN No	**Non-refrigerated liquefied gases**	**Max. allowable working pressure (bar) Small; Bare; Sunshield; Insulated; respectively[a]**	**Openings below liquid level**	**Pressure-relief requirements[b] (see 6.7.3.7)**	**Maximum filling ratio**
3500	Chemical under pressure, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4[c]
3501	Chemical under pressure, flammable, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4[c]
3502	Chemical under pressure, toxic, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4[c]
3503	Chemical under pressure, corrosive, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4[c]
3504	Chemical under pressure, flammable, toxic, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4[c]
3505	Chemical under pressure, flammable, corrosive, n.o.s.	See MAWP definition in 6.7.3.1	Allowed	See 6.7.3.7.3	TP4[c]

[a] *"Small" means tanks having a shell with a diameter of 1.5 metres or less; "Bare" means tanks having a shell with a diameter of more than 1.5 metres without insulation or sun shield (see 6.7.3.2.12); "Sunshield" means tanks having a shell with a diameter of more than 1.5 metres with sun shield (see 6.7.3.2.12); "Insulated" means tanks having a shell with a diameter of more than 1.5 metres with insulation (see 6.7.3.2.12); (see definition of "Design reference temperature" in 6.7.3.1).*

[b] *The word "Normal" in the pressure relief requirements column indicates that a frangible disc as specified in 6.7.3.7.3 is not required.*

[c] *For UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505, the degree of filling shall be considered instead of the maximum filling ratio.*

T75	PORTABLE TANK INSTRUCTION	T75
This portable tank instruction applies to refrigerated liquefied gases. The general provisions of section 4.2.3 and the requirements of section 6.7.4 shall be met.		

4.2.5.3 Portable tank special provisions

Portable tank special provisions are assigned to certain substances to indicate provisions which are in addition to or in lieu of those provided by the portable tank instructions or the requirements in Chapter 6.7. Portable tank special provisions are identified by an alphanumeric designation beginning with the letters "TP" (tank provision) and are assigned to specific substances in Column 11 of the Dangerous Goods List in Chapter 3.2.

The following is a list of the portable tank special provisions:

TP1 The degree of filling prescribed in 4.2.1.9.2 must not be exceeded

$$\text{Degree of filling} = \frac{97}{1+\alpha(t_r - t_f)}$$

TP2 The degree of filling prescribed in 4.2.1.9.3 must not be exceeded

$$\text{Degree of filling} = \frac{95}{1+\alpha(t_r - t_f)}$$

TP3 The maximum degree of filling (in %) for solids transported above their melting points and for elevated temperature liquids must be determined in accordance with 4.2.1.9.5.

$$\text{Degree of filling} = 95\frac{d_r}{d_f}$$

TP4 The degree of filling must not exceed 90% or, alternatively, any other value approved by the competent authority (see 4.2.1.16.2).

TP5 The degree of filling prescribed in 4.2.3.6 must be met.

TP6 To prevent the tank bursting in any event, including fire engulfment, it must be provided with pressure-relief devices which are adequate in relation to the capacity of the tank and to the nature of the substance transported. The device must also be compatible with the substance.

TP7 Air must be eliminated from the vapour space by nitrogen or other means.

TP8 The test pressure for the portable tank may be reduced to 1.5 bar when the flash point of the substances transported is greater than 0 °C.

TP9 A substance under this description may only be transported in a portable tank under a determination granted by the competent authority.

TP10 A lead lining, not less than 5 mm thick, which must be tested annually, or another suitable lining material approved by the competent authority is required. A portable tank may be offered for transport after the date of expiry of the last lining inspection for a period not to exceed three months beyond that date, after emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling.

TP13 Self-contained breathing apparatus must be provided when this substance is transported.

TP16 The tank must be fitted with a special device to prevent under-pressure and excess pressure during normal transport conditions. This device must be approved by the competent authority. Pressure-relief requirements are as indicated in 6.7.2.8.3 to prevent crystallisation of the product in the pressure-relief valve.

TP17 Only inorganic non-combustible materials must be used for thermal insulation of the tank.

TP18 Temperature must be maintained between 18 °C and 40 °C. Portable tanks containing solidified methacrylic acid must not be reheated during transport.

TP19 At the time of construction, the minimum shell thickness determined according to 6.7.3.4 shall be increased by 3 mm as a corrosion allowance. Shell thickness must be verified ultrasonically at intervals midway between periodic hydraulic tests and must never be lower than the minimum shell thickness determined according to 6.7.3.4.

TP20 This substance may only be transported in insulated tanks under a nitrogen blanket.

TP21 The shell thickness must be not less than 8 mm. Tanks must be hydraulically tested and internally inspected at intervals not exceeding 2.5 years.

TP22 Lubricant for joints or other devices must be oxygen compatible.

TP23 deleted

TP24 The portable tank may be fitted with a device located under maximum filling conditions in the vapour space of the shell to prevent the build up of excess pressure due to the slow decomposition of the substance transported. This device must also prevent an unacceptable amount of leakage of liquid in the case of overturning or entry of foreign matter into the tank. This device must be approved by the competent authority or its authorised body.

TP25 Sulphur trioxide 99.95% pure and above may be transported in tanks without an inhibitor provided that it is maintained at a temperature equal to or above 32.5 °C.

TP26 When transported under heated conditions, the heating device must be fitted outside the shell. For UN 3176 this requirement only applies when the substance reacts dangerously with water.

TP27 A portable tank having a minimum test pressure of 4 bar may be used if it is shown that a test pressure of 4 bar or less is acceptable according to the test pressure definition in 6.7.2.1.

TP28 A portable tank having a minimum test pressure of 2.65 bar may be used if it is shown that a test pressure of 2.65 bar or less is acceptable according to the test pressure definition in 6.7.2.1.

TP29 A portable tank having a minimum test pressure of 1.5 bar may be used if it is shown that a test pressure of 1.5 bar or less is acceptable according to the test pressure definition in 6.7.2.1.

TP30 This substance must be transported in insulated tanks.

TP31 This substance may only be transported in tanks in the solid state.

TP32 For UN Nos. 0331, 0332 and 3375, portable tanks may be used subject to the following conditions:

(a) To avoid unnecessary confinement, each portable tank constructed of metal must be fitted with a pressure-relief device that may be of the reclosing spring-loaded type, a frangible disc or a fusible element. The set to discharge or burst pressure, as applicable, must not be greater than 2.65 bar for portable tanks with minimum test pressures greater than 4 bar;

(b) For UN 3375 only the suitability for transport in tanks must be demonstrated. One method to evaluate this suitability is test 8 (d) in Test Series 8 (see "Manual of Tests and Criteria", Part 1, sub-section 18.7).

(c) Substances must not be allowed to remain in the portable tank for any period that could result in caking. Appropriate measures must be taken to avoid accumulation and packing of substances in the tank (e.g. cleaning, etc).

TP33 The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. For solids which are transported above their melting point see 4.2.1.19.

TP34 Portable tanks need not be subjected to the impact test in 6.7.4.14.1 if the portable tank is marked "NOT FOR RAIL TRANSPORT" on the plate specified in 6.7.4.15.1 and also in letters of at least 10 cm high on both sides of the outer jacket.

TP35 <DELETED>

TP36 Fusible elements in the vapour space may be used on portable tanks.

TP37 <DELETED>

TP38 <DELETED>

TP39 <DELETED>

TP40 Portable tanks must not be transported when connected with spray application equipment.

TP41 The 2.5 year internal examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorized body, provided that the portable tank is dedicated to the transport of the organometallic substances to which this tank special provision is assigned. However this examination is required when the conditions of 6.7.2.19.7 are met.

4.2.6 TRANSITIONAL MEASURES

Portable tanks and MEGCs manufactured before 1 January 2012, that conform to the marking requirements of 6.7.2.20.1, 6.7.3.16.1, 6.7.4.15.1 or 6.7.5.13.1 of this Code, 7th edition, as published in 2007, as relevant, may continue to be used if they comply with all other relevant requirements of the current edition of this Code including, when applicable, the requirement of 6.7.2.20.1 (g) for marking the symbol "S" on the plate when the shell or the compartment is divided by surge plates into sections of not more than 7 500 litres capacity. When the shell, or the compartment, was already divided by surge plates into sections of not more than 7 500 litres capacity before 1 January 2012, the capacity of the shell, or respectively of the compartment, need not be supplemented with the symbol “S” until the next periodic inspection or test according to 6.7.2.19.5 is performed.

Portable tanks manufactured before 1 January 2014 need not be marked with the portable tank instruction as required in 6.7.2.20.2, 6.7.3.16.2 and 6.7.4.15.2 until the next periodic inspection and test.

Portable tanks and MECGs manufactured before 1 January 2014 need not comply with the requirements of 6.7.2.13.1 (f), 6.7.3.9.1 (e), 6.7.4.8.1 (e) and 6.7.5.6.1 (d) concerning the marking of the pressure relief devices.

CHAPTER 4.3 - USE OF BULK CONTAINERS (FOR SOLIDS)

4.3.1 GENERAL PROVISIONS

4.3.1.1 *[UN 7.3.2.1 & UN 7.3.2.2]* This section provides general requirements applicable to the use of containers for the transport of solid substances in bulk. Substances must be transported in bulk containers conforming to the applicable bulk container instruction identified by the letters BK in column 10 of the Dangerous Goods List, with the following meaning:

BK1: the transport in sheeted bulk containers is permitted

BK2: the transport in closed bulk containers is permitted

BK3: the transport in flexible bulk containers is permitted

The bulk container used must conform to the requirements of Chapter 6.8.

4.3.1.2 Except as provided in 4.3.1.3, bulk containers may only be used when a substance is assigned to a bulk container code in Column 10 of the Dangerous Goods List in Chapter 3.2.

4.3.1.3 When a substance is not assigned a bulk container code in Column 10 of the Dangerous Goods List in Chapter 3.2, a determination in accordance with Regulation 1.5.1(2) may be issued by the competent authority. The determination must be included in the documentation of the consignment and contain, as a minimum, the information normally provided in the bulk container instruction and the conditions under which the substance must be transported. Appropriate measures should be initiated by the competent authority to include the assignment in the Dangerous Goods List.

4.3.1.4 *[UN 7.3.1.2]* Substances which may become liquid at temperatures likely to be encountered during transport, are not permitted in bulk containers.

4.3.1.5 *[UN 7.3.1.3]* Bulk containers must be siftproof and must be so closed that none of the contents can escape under normal conditions of transport including the effect of vibration, or by changes of temperature, humidity or pressure.

4.3.1.6 *[UN 7.3.1.4]* Bulk solids must be loaded into bulk containers and evenly distributed in a manner that minimises movement that could result in damage to the container or leakage of the dangerous goods.

4.3.1.7 *[UN 7.3.1.5]* Where venting devices are fitted they must be kept clear and operable.

4.3.1.8 *[UN 7.3.1.6]* Bulk solids must not react dangerously with the material of the bulk container, gaskets, equipment including lids and tarpaulins and with protective coatings which are in contact with the contents or significantly weaken them. Bulk containers must be so constructed or adapted that the goods can not penetrate between wooden floor coverings or come into contact with those parts of the bulk containers that may be affected by the materials or residues thereof.

4.3.1.9 Before being filled and offered for transport each bulk container must be

[UN 7.3.1.7] inspected and cleaned to ensure that it does not contain any residue on the interior or exterior of the bulk container that could:

- cause a dangerous reaction with the substance intended for transport;
- detrimentally affect the structural integrity of the bulk container; or
- affect the dangerous goods retention capabilities of the bulk container.

4.3.1.10 *[UN 7.3.1.8]* During transport, no dangerous residues may adhere to the outer surfaces of bulk containers.

4.3.1.11 *[UN 7.3.1.9]* If several closure systems are fitted in series, the system which is located nearest to the substance to be transported must be closed first before filling.

4.3.1.12 *[UN 7.3.1.10]* Empty bulk containers that have contained a dangerous substance must be treated in the same manner as is required by this Code for a filled bulk container, unless adequate measures have been taken to nullify any hazard.

4.3.1.13 *[UN 7.3.1.11]* If bulk containers are used for the carriage of bulk goods liable to cause a dust explosion, or evolve flammable vapours (e.g. for certain wastes) measures must be taken to exclude sources of ignition and prevent dangerous electrostatic discharge during transport filling or discharge of the substance.

4.3.1.14 *[UN 7.3.1.12]* Substances, for example wastes, which may react dangerously with one another and substances of different classes and goods not subject to this Code, which are liable to react dangerously with one another must not be mixed together in the same bulk container. Dangerous reactions are:

(a) combustion and/or evolution of considerable heat; or
(b) emission of flammable and/or toxic gases; or
(c) formation of corrosive liquids; or
(d) formation of unstable substances.

4.3.1.15 *[UN 7.3.1.13]* Before a bulk container is filled it must be visually examined to ensure it is structurally serviceable, its interior walls, ceiling and floors are free from protrusions or damage and that any inner liners or substance retaining equipment are free from rips, tears or any damage that would compromise its cargo retention capabilities. Structurally serviceable means the bulk container does not have major defects in its structural components, such as top and bottom side rails, top and bottom end rails, door sill and header, floor cross members, corner posts, and corner fittings in a freight container. Major defects include:

(a) bends, cracks or breaks in the structural or supporting members that affect the integrity of the container; or
(b) more than one splice or an improper splice (such as a lapped splice) in top or bottom end rails or door headers; or
(c) more than two splices in any one top or bottom side rail; or
(d) any splice in a door sill or corner post; or

(e) door hinges and hardware that are seized, twisted, broken, missing, or otherwise inoperative; or

(f) gaskets and seals that do not seal; or

(g) any distortion of the overall configuration great enough to prevent proper alignment of handling equipment, mounting and securing chassis or vehicle, or insertion into ships' cells; or

(h) any damage to lifting attachments or handling equipment interface features; or.

(i) any damage to service or operational equipment.

4.3.1.16 Before a flexible bulk container is filled it must be visually examined to ensure it is structurally serviceable, its textile slings, load-bearing structure straps, body fabric, lock device parts including metal and textile parts are free from protrusions or damage and that inner liners are free from rips, tears or any damage.

4.3.1.16.1 *[UN 7.3.2.10.2]* For flexible bulk containers, the period of use permitted for the transport of dangerous goods must be two years from the date of manufacture of the flexible bulk container.

4.3.1.16.2 *[UN 7.3.2.10.3]* A venting device must be fitted if a dangerous accumulation of gases may develop within the flexible bulk container. The vent must be so designed that the penetration of foreign substances or the ingress of water is prevented under normal conditions of transport.

4.3.2 ADDITIONAL PROVISIONS APPLICABLE TO BULK GOODS OF DIVISIONS 4.2, 4.3, 5.1, 6.2 AND CLASSES 7 AND 8

4.3.2.1 Bulk goods of Division 4.2

[UN 7.3.2.3] Only closed bulk containers (code BK2) may be used.

The total mass carried in a bulk container must be such that its spontaneous ignition temperature is greater than 55 °C.

4.3.2.2 Bulk Goods of Division 4.3

[UN 7.3.2.4] Only closed bulk containers (code BK2) and flexible bulk containers (code BK3) may be used.

These goods must be transported in bulk containers which are waterproof.

4.3.2.3 Bulk Goods of Division 5.1

Bulk containers must be so constructed or adapted that the goods cannot come into contact with wood or any other incompatible material.

4.3.2.4 Bulk goods of Division 6.2

[UN 7.3.2.6]

4.3.2.4.1 Bulk Transport of Animal Material Of Division 6.2

[UN 7.3.2.6.1]

Animal material containing infectious substances (UN Nos. 2814, 2900 and 3373) is authorised for transport in bulk containers provided the following conditions are met:

(a) Sheeted bulk containers BK1 are permitted provided that they are not filled to maximum capacity to avoid substances coming into contact with the sheeting. Closed bulk containers BK2 are also permitted.

(b) Closed and sheeted bulk containers, and their openings, must be leak-proof by design or by the fitting of a suitable liner.

(c) The animal material must be thoroughly treated with an appropriate disinfectant before loading prior to transport.

(d) Waste goods of UN Nos. 2814 and 2900 in a sheeted bulk container must be covered by an additional top liner weighted down by absorbent material treated with an appropriate disinfectant.

(e) Closed or sheeted bulk containers must not be re-used until after they have been thoroughly cleaned and disinfected.

NOTE: *Additional provisions may be required by health or environmental authorities.*

4.3.2.4.2 *Bulk wastes of Division 6.2 (UN 3291)*

[UN 7.3.2.6.2]

(a) Only closed bulk containers (BK2) are permitted;

(b) Closed bulk containers, and their openings, must be leakproof by design. These bulk containers must have non porous interior surfaces and must be free from cracks or other features that could damage packagings inside, impede disinfection or permit inadvertent release;

(c) Wastes of UN No. 3291 must be contained within the closed bulk container in UN type tested and approved sealed leakproof plastics bags tested for solids of packing group II and marked in accordance with 6.1.3.1. Such plastics bags must be capable of passing the tests for tear and impact resistance according to ISO 7765-1:1988 "Plastics film and sheeting. Determination of impact resistance by the free-falling dart method. Part 1: Staircase methods" and ISO 6383-2:1983 "Plastics. Film and sheeting. Determination of tear resistance. Part 2: Elmendorf method". Each bag must have an impact resistance of at least 165 g and a tear resistance of at least 480 g in both parallel and perpendicular planes with respect to the length of the bag. The maximum net mass of each plastics bag must be 30 kg;

(d) Single articles exceeding 30 kg such as soiled mattresses may be transported without the need for a plastics bag when authorised by the competent authority;

(e) Wastes of UN No. 3291 which contain liquids must only be transported in plastics bags containing sufficient absorbent material to absorb the entire amount of liquid without it spilling in the bulk container;

(f) Wastes of UN No. 3291 containing sharp objects must only be transported in UN type tested and approved rigid packagings meeting the provisions of packing instructions P621, IBC620 or LP621.

(g) Rigid packagings specified in packing instructions P621, IBC620 or LP621 may also be used. They must be properly secured to prevent damage during normal conditions of transport. Wastes transported in rigid packagings and plastics bags together in the same closed bulk container must be adequately segregated from each other, e.g. by suitable rigid barriers or dividers, mesh nets or otherwise securing the packagings, such that they prevent damage to the packagings during normal conditions of transport;

(h) Wastes of UN No. 3291 in plastics bags must not be compressed in a closed bulk container in such a way that bags may be rendered no longer leakproof;

(i) The closed bulk container must be inspected for leakage or spillage after each journey. If any wastes of UN No. 3291 have leaked or been spilled in the closed bulk container, it must not be re-used until after it has been thoroughly cleaned and, if necessary, disinfected or decontaminated with an appropriate agent. No other goods must be transported together with UN No. 3291 other than medical or veterinary wastes. Any such other wastes transported in the same closed bulk container must be inspected for possible contamination.

4.3.2.5 Bulk material of Class 7

<Reserved>

NOTE: *The following information from the Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) now replaces the information found in earlier editions of the ADG Code.*

RPS 2 Code of Practice for the Safe Transport of Radioactive Material

RPS No. 2.1 - Safety Guide for the Safe Transport of Radioactive Material

RPS No. 2.2 - Safety Guide for the Approval Processes for the Safe Transport of Radioactive Materials (2012)

See general comments on page xivi.

4.3.2.6 Bulk goods of Class 8

[UN 7.3.2.8] Only closed bulk containers (code BK2) may be used. These goods must be transported in bulk containers which are watertight.

CHAPTER 4.4 - USE OF VEHICLES, TANK VEHICLES, FREIGHT CONTAINERS, EQUIPMENT AND SEGREGATION DEVICES

4.4.1 GENERAL

A vehicle used to transport dangerous goods:

(a) must be suitable for transporting the goods;

(b) must be free of any defect that is likely to create a risk in transporting the goods;

(c) must be clean;

(d) in the case of a tank vehicle- must be selected and used in accordance with Section 4.4.2;

(e) in the case of a road vehicle used to transport a freight container, portable tank or bulk container fitted with corner castings - must be fitted with twistlocks or other equipment for securing a container on a vehicle set out in AS/NZS 3711.10;

(f) in the case of a road vehicle used to transport a demountable tank or bulk container without corner castings - must be fitted with devices to secure the container;

(g) in the case of a rail wagon used to transport a freight container, portable tank or bulk container - must be fitted with:

(i) twistlocks or other equipment for securing a container on a vehicle set out in AS/NZS 3711.10; or

(ii) other fittings that will prevent the movement of the container during transport.

4.4.2 USE OF TANK VEHICLES

NOTE 1: *Tank vehicles include road tank vehicles and rail tank wagons. In the case of a road tank vehicle, this includes a vehicle to which a tank, other than a portable tank, is attached. Use of portable tanks must comply with Chapter 4.2.*

NOTE 2: *A tank vehicle does not include a hopper vehicle or any other vehicle into which solid dangerous goods are directly loaded, unless the receptacle is a tank that would also be suitable for use with liquids. Use of hopper vehicles etc. must comply with Chapter 4.3.*

4.4.2.1 This Section provides requirements for the use of tank vehicles for the transport of substances of Classes 2, 3, 4, 5, 6, 8 and 9. In addition to these usage requirements, tank vehicles must conform to the design, construction, inspection, testing and approval requirements detailed in Chapter 6.9.

4.4.2.2 Except in accordance with a Competent Authority determination under Regulation 1.5.1(2), dangerous goods must not be transported in a road tank vehicle or rail tank wagon if there is no Portable Tank Instruction allocated to the substance in Column (10) of the Dangerous Goods List in 3.2.3.

4.4.2.3 Vehicle and tank selection

4.4.2.3.1 Dangerous goods must not be transported in a tank vehicle unless the compliance plate fitted to the vehicle in accordance with 6.9.2.2 indicates that the tank:

(a) is suitable for the properties of the substance to be transported; and
(b) has been maintained and tested in accordance with Chapter 6.9.

4.4.2.3.2 Dangerous goods must not be transported in a road tank vehicle unless that vehicle conforms with AS 2809 Part 1 and such other Part of AS 2809 as is applicable to the particular substance, in accordance with Table 6.1 in Chapter 6.9.

4.4.2.4 Condition of container and equipment

4.4.2.4.1 Dangerous goods must not be transported in a tank vehicle if the tank is:

(a) constructed of material which is incompatible with the goods; or
(b) leaking, defective or damaged so that it is not safe to transport the goods; or
(c) is not free from dangerous goods which are incompatible with the dangerous goods to be transported.

4.4.2.4.2 Every valve, cap, manhole cover or other closure on a tank vehicle transporting dangerous goods as a liquid or a gas, including the receptacle or any associated piping, must be kept closed and secured so as to avoid unsafe loss of containment.

4.4.2.4.3 If a tank vehicle is used to transport dangerous goods that are likely to polymerise or solidify:

(a) any fittings on the tank or vehicle that are likely to come into contact with the goods (whether in a liquid or vapour state) should not be obstructed by the goods so as to create a risk; and
(b) any material removed during cleaning operations should be kept wetted or otherwise kept safe until it has been removed to a safe place.

4.4.3 USE OF FREIGHT CONTAINERS

A freight container used to transport dangerous goods must comply with the relevant Standards specified in Chapter 6.10 and be:

(a) suitable for transporting the goods; and
(b) free of any defect that is likely to cause a hazard in transporting the goods; and
(c) clean and dry on the inside; and
(d) free of dangerous residues; and
(e) secured to the vehicle in accordance with Section 8.2.1.

4.4.4 USE OF EQUIPMENT ON VEHICLES

Any equipment that is on the vehicle and that is to be used in loading dangerous goods onto the vehicle, or unloading dangerous goods from the vehicle must be:

(a) suitable for the purpose; and
(b) free of any defect that is likely to increase risk in loading or unloading the goods.

NOTE: *For equipment used for fluid transfer, see Chapter 10.1.*

4.4.5 USE OF SEGREGATION DEVICES

4.4.5.1 Application and purpose

4.4.5.1.1 The use of segregation devices, when permitted by Section 9.2.2, applies only to transport by road and rail within Australia.

4.4.5.1.2 The purpose of a Segregation Device is to provide an additional level of all-round protection to its contents in the event of an abnormal situation. It provides an additional barrier against the contact of incompatibles or the contamination of foodstuffs, etc.

4.4.5.1.3 Subject to Section 9.2.2, dangerous goods of packing group II or III may be segregated from incompatible goods by packing either the dangerous goods or the incompatible goods in a segregation device which may be:

(a) an Overpacking Drum Segregation Device as described in 6.11.2; or
(b) a Type I Segregation Device as detailed in 6.11.3; or
(c) a Type II Segregation Device in accordance with 6.11.4; or
(d) a Non-Type I Underslung Segregation Device in accordance with 6.11.7

NOTE: *Other methods of segregation may be permitted by Section 9.2.2.*

4.4.5.2 Packing and stowage

4.4.5.2.1 Each dangerous goods package or unpackaged dangerous article that is stowed in a segregation device must be:

(a) an approved sole package or combination package, packed in accordance with Chapter 4.1, that is labelled and marked in accordance with Chapter 5.2; or
(b) an unpackaged dangerous article that is labelled and marked in accordance with Chapter 5.2; or
(c) dangerous goods packed and marked as limited quantities in accordance with Chapter 3.4.

4.4.5.2.2 Each package or article must be stowed in the segregation device so that it will remain in position during transport.

4.4.5.2.3 The segregation device must be restrained on the vehicle or in the freight container so that it will remain in position during transport.

4.4.5.2.4 All other goods on the vehicle or in the freight container must be stowed in the vehicle or container such that they will not be adversely affected in the event of leakage of any goods from the segregation device.

4.4.5.2.5 The dangerous goods and the incompatible goods must not be stowed above each other.

4.4.5.3 Marking and Labelling

4.4.5.3.1 An overpacking drum in which dangerous goods are transported must be marked and labelled as required for an Overpack in Section 5.1.2.

4.4.5.3.2 Type I and II segregation devices and Non – Type I underslung segregation devices in which dangerous goods are transported must be labelled in accordance with Section 5.2.2.

4.4.5.4 Non-Type I Underslung Segregation Device

4.4.5.4.1 Equipment such as tools or jacks must not be stored in a Non-Type I underslung segregation device at any time while the device contains dangerous goods.

PART 5: CONSIGNMENT PROCEDURES - INCLUDING LABELLING, MARKING AND PLACARDING

CHAPTER 5.1 - GENERAL PROVISIONS

5.1.1 APPLICATION AND GENERAL PROVISIONS

5.1.1.1 This Part sets forth provisions for dangerous goods consignments relative to preparation of consignments, marking, labelling, and placarding.

5.1.1.2 <Reserved>

5.1.2 USE OF OVERPACKS

NOTE: *UN20 uses the word "overpack" to describe what was known as a 'unit load' in previous editions of this Code. In the UN Model Regulations, the definition of "overpack" restricts its use to a single consignor. This Code omits that restriction for transport within Australia by road or rail, thus permitting packaged dangerous goods to be unitised in accordance with this section by transporters, freight forwarders and load consolidators.*

5.1.2.1 Overpack marking

5.1.2.1.1 Unless marks and labels representative of all dangerous goods in the overpack are visible, the overpack must be:

a. marked with the word "OVERPACK". The lettering of the "OVERPACK" mark shall be at least 12 mm high; and
b. labelled and marked with the proper shipping name, UN number and other marks, as required for packages by Chapter 5.2, for each item of dangerous goods contained in the overpack.

Labelling of overpacks containing radioactive material shall be in accordance with 5.2.2.1.12.

5.1.2.1.2 Despite 5.1.2.1.1, an overpack intended only for transport by road or rail within Australia need not be marked with the word "OVERPACK".[1]

5.1.2.1.3 Despite 5.1.2.1.1, if marks and labels representative of all dangerous goods in the overpack are not visible, and all of the dangerous goods are limited quantity items, the overpack may be marked with the limited quantity mark specified in Chapter 3.4.

5.1.2.2 Package provisions

5.1.2.2.1 Each package of dangerous goods contained in the overpack must comply with all applicable provisions of this Code. The intended function of each package must not be impaired by the overpack.

5.1.2.2.2 Except for limited quantities where 3.4.5 applies, packages containing dangerous goods which are incompatible may not be transported together in an overpack.

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[1] *However, 'OVERPACK' marking will be required on overpacks transported by sea between Australian ports.*

5.1.2.2.3 Packages transported in an overpack must be wrapped, strapped or otherwise secured in a manner that minimises the likelihood of damage to the packages during transport.

5.1.2.2.4 Paints, Adhesives, Printing Inks and Resin Solutions to which special packing provision PP1 applies (see Packing Instruction P001 in Section 4.1.4) may be transported in inner packagings in an overpack subject to the conditions of PP1.

5.1.2.3 Package orientation

Each package bearing package orientation marks as prescribed in 5.2.1.7 of this Code and which is overpacked or placed in a large packaging must be oriented in accordance with such marks.

5.1.2.4 Overpack provisions

5.1.2.4.1 The overpack must be strong enough to withstand repeated handling.

5.1.2.4.2 If the overpack is intended to support overstowage it must be of a shape suitable for this purpose and strong enough to support stacking of other loads of similar density to the height to which they are intended to be stacked during transport.

5.1.2.4.3 The materials used to enclose or secure the packages in the overpack must be capable of withstanding exposure to moisture, extremes of temperature, sunlight and minor leakages of substance in the overpack.

5.1.2.4.4 The overpack must be suitable for lifting by fork lift truck or other lifting apparatus. If the lifting points are not apparent, they must be marked on the overpack.

NOTE: *Provision is made for the transport of electric storage batteries in overpacks in Packing Instructions P003, P408, P801 and P903, as referenced from the entries for the particular types of batteries in the Dangerous Goods List.*

5.1.3 EMPTY PACKAGINGS

5.1.3.1 Other than for Class 7, a packaging which previously contained dangerous goods must be identified, marked and labelled as required for those dangerous goods unless freed from dangerous goods.

5.1.3.2 Freight containers, tanks, IBCs, as well as other packagings and overpacks, used for the transport of radioactive material must not be used for the storage or transport of other goods unless decontaminated below the level of 0.4 Bq/cm^2 for beta and gamma emitters and low toxicity alpha emitters and 0.04 Bq/cm^2 for all other alpha emitters.

5.1.3.3 Unused pre-labelled dangerous goods packagings should be clearly identified as such on any transport documentation, any outer packaging or the exterior of the cargo transport unit in order to avoid inappropriate emergency response.

5.1.4 MIXED PACKING

When two or more dangerous goods are packed within the same outer packaging, the package must be labelled and marked as required for each substance. Subsidiary hazard labels need not be applied if the hazard is already represented by a primary hazard label.

5.1.5 <RESERVED>

CHAPTER 5.2 - MARKING AND LABELLING

NOTE: *In addition to the marking and labelling required by this chapter, all placardable units (any receptacle, including an IBC, with a capacity of more than 500 kg(L)) must be placarded with emergency information panels in accordance with Chapter 5.3. Where the proper shipping name, UN number or any label required by this chapter is incorporated in the emergency information panel, the requirement of this chapter for that marking or label are met.*

5.2.1 MARKING

5.2.1.1 Unless provided otherwise in this Code (as in Chapter 3.4 for dangerous goods packed in limited quantities), the proper shipping name for the dangerous goods as determined in accordance with 3.1.2 and the corresponding UN number preceded by the letters "UN", must be displayed on each package, IBC, cylinder, pressure drum, tube, MEGC or other unpackaged article. The UN number and the letters "UN" must be at least 12 mm high, except for packages of 30 litres capacity or less or of 30 kg maximum net mass and for cylinders of 60 litres water capacity or less when they must be at least 6 mm in height and except for packages of 5 litres capacity or less or 5 kg maximum net mass when they must be of an appropriate size. In the case of unpackaged articles the mark must be displayed on the article, on its cradle or on its handling, storage or launching device. For goods of Division 1.4, Compatibility Group S, the division and compatibility group letter must also be marked unless the label for 1.4S is displayed. A typical package mark is:

"CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Caprylyl chloride) UN 3265" If a size requirement in this clause is inconsistent with a size requirement in Table 5.2, Table 5.2 prevails.

NOTE 1: *Cylinders of 60L water capacity or less marked with a UN number in accordance with the provisions of this Code up to 1 July 2015 need not comply with this provision until the next periodic inspection, or 1 July 2018, whichever occurs first.*

NOTE 2: *Packages that do not comply with this clause may not comply with marking requirements outside Australia.*

5.2.1.1.1 Unless provided otherwise in this Code (as in 5.2.1.1.2 for imported dangerous goods, Chapter 3.4 for dangerous goods packed in limited quantities), the name and address in Australia of the manufacturer or consignor of the dangerous goods, or their agent must be displayed on each package, IBC, cylinder, pressure drum, tube, MEGC or unpackaged article.

5.2.1.1.2 Clause 5.2.1.1.1 does not apply when the dangerous goods are being transported in a closed freight container that has been imported into, or is to be exported from Australia, if:

(a) no goods (dangerous or not) have been removed from or added to the freight container since:

   (i) if imported – its arrival in Australia; or

(ii) if to be exported — the load was first consigned for transport to the place from which it is to be exported; and

(b) the freight container is placarded in accordance with section 5.3.8.

5.2.1.2 All marks required by 5.2.1.1:

(a) must be readily visible and legible; and

(b) must be able to withstand open weather exposure without a substantial reduction in effectiveness; and

(c) must be displayed on a background of contrasting colour on the external surface of the package; and

(d) must not be located with other package marks that could substantially reduce their effectiveness; and.

(e) should be in letters and numbers of at least the size specified for the package in Table 5.2 (see 5.2.2.2.1.9).

5.2.1.3 Salvage packagings including large salvage packings and salvage pressure receptacles must additionally be marked with the word “SALVAGE”. The lettering of the “SALVAGE” mark must be at least 12 mm high.

NOTE: *For marking of overpacks, see 5.1.2.1.*

5.2.1.4 Large packagings must be marked on at least two opposing sides.

5.2.1.5 **<Reserved>**

5.2.1.6 **Special marking provisions for environmentally hazardous substances.**

NOTE: *The application of 5.2.1.6 is conditional on Australian Special Provision AU01 in Chapter 3.3.3*

5.2.1.6.1 Unless otherwise specified in this Code, packages containing environmentally hazardous substances meeting the criteria of 2.9.3 (UN Nos. 3077 and 3082) must be durably marked with the environmentally hazardous substance mark.

5.2.1.6.2 The environmentally hazardous substance mark must be located adjacent to the marks required by 5.2.1.1. The requirements of 5.2.1.2 and 5.2.1.4 must be met.

5.2.1.6.3 The environmentally hazardous substance mark must be as shown in Figure 5.2.2.

Figure 5.2.2: Environmentally hazardous substance mark

Environmentally hazardous substance mark
– Symbol (fish and tree): black on white or suitable contrasting background

The mark must be in the form of a square set at an angle of 45 degrees (diamond-shaped). The symbol (fish and tree) must be black on white or suitable contrasting background. The minimum dimensions must be 100 mm x 100 mm and the minimum width of line forming the diamond must be 2 mm. If the size of the package so requires, the dimensions/line thickness may be reduced, provided the marking remains clearly visible. Where dimensions are not specified, all features must be in approximate proportion to those shown.

NOTE 1: *The labelling provisions of 5.2.2 apply in addition to any requirement for packages to bear the environmentally hazardous substance mark.*

5.2.1.7 Orientation arrows

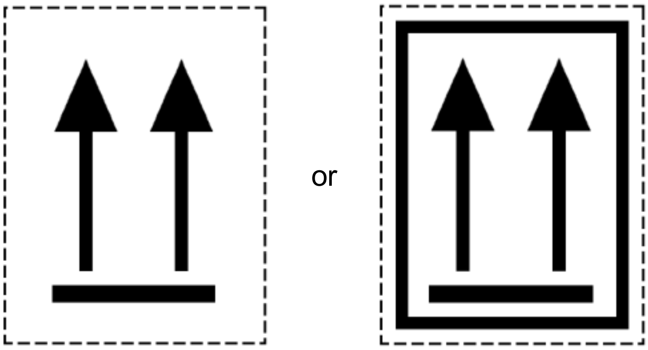
5.2.1.7.1 Except as provided in 5.2.1.7.2:

- Combination packagings having inner packagings containing liquid dangerous goods;
- Single packagings fitted with vents;
- Cryogenic receptacles intended for the transport of refrigerated liquefied gases; and
- Machinery or apparatus containing liquid dangerous goods when it is required to ensure the liquid dangerous goods remain in their intended orientation (see speial provision 301 of chapter 3.3).

must be legibly marked with package orientation arrows which are similar to the illustration shown below or with those meeting the specifications of ISO 780:1997. The orientation arrows must appear on two opposite vertical sides of the package with the arrows pointing in the correct upright direction. They must be rectangular and of a size that is clearly visible commensurate with the size of the package. Depicting a rectangular border around the arrows is optional.

Figures 5.2.3 and 5.2.4: Orientation arrows

Two black or red arrows on white or suitable contrasting background



The rectangular border is optional

All features must be in approximate proportions shown.

5.2.1.7.2 Orientation arrows are not required on:

(a) Outer packagings containing pressure receptacles except cryogenic receptacles;

(b) Outer packagings containing dangerous goods in inner packagings each containing not more than 120 ml, with sufficient absorbent material between the inner and outer packagings to completely absorb the liquid contents;

(c) Outer packagings containing Division 6.2 infectious substances in primary receptacles each containing not more than 50 ml;

(d) Type IP-2, type IP-3, type A, type B(U), type B(M) or type C packages containing Class 7 radioactive material;

(e) Outer packagings containing articles which are leak-tight in all orientations (e.g. alcohol or mercury in thermometers, aerosols, etc.); or

(f) Outer packagings containing dangerous goods in hermetically sealed inner packagings each containing not more than 500 ml.

5.2.1.7.3 Arrows for purposes other than indicating proper package orientation must not be displayed on a package marked in accordance with this sub-section.

5.2.1.8 Excepted Quantities Mark

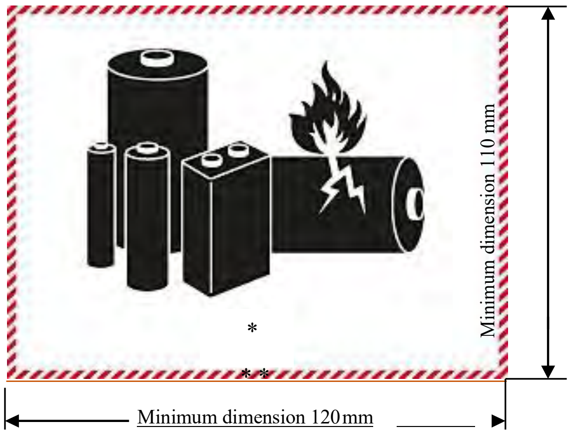
Packages containing excepted quantities of dangerous goods must be marked according to 3.5.4

5.2.1.9 Lithium battery mark

5.2.1.9.1 Packages containing lithium cells or batteries prepared in accordance with special provision 188 shall be marked as shown in Figure 5.2.5.

5.2.1.9.2 The mark must indicate the UN number preceded by the letters “UN”, i.e. ‘UN 3090’ for lithium metal cells or batteries or ‘UN 3480’ for lithium ion cells or batteries. Where the lithium cells or batteries are contained in, or packed with, equipment, the UN number, preceded by the letters “UN”, i.e. ‘UN 3091’ or ‘UN 3481’ as appropriate shall be indicated. Where a package contains lithium cells or batteries assigned to different UN numbers, all applicable UN numbers shall be indicated on one or more marks.

Figure 5.2.5: Lithium battery mark



* *Place for UN number(s)*

** *Place for telephone number for additional information*

The mark shall be in the form of a rectangle or a square with hatched edging. The dimensions shall be a minimum of 100 mm wide x 100 mm high and the minimum width of the hatching shall be 5 mm. The symbol (group of batteries, one damaged and emitting flame, above the UN number for lithium ion or lithium metal batteries or cells) shall be black on white or suitable contrasting background. The hatching shall be red. If the size of the package so requires, the dimensions may be reduced to not less than 100 mm wide x 70 mm high. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

5.2.2 LABELLING

5.2.2.1 Labelling provisions

NOTE: *These provisions relate essentially to danger labels. However, additional marks or symbols indicating precautions to be taken in handling or storing a package (e.g. a symbol representing an umbrella indicating that a package must be kept dry) may be displayed on a package if appropriate.*

5.2.2.1.1 All dangerous goods packages, cylinders, pressure drums, tubes, MEGCs, IBCs, overpacks and unpackaged articles that are subject to this Code must have a label that identifies the primary and subsidiary hazards of the dangerous goods and that conforms to models Nos. 1 to 9 illustrated in 5.2.2.2.2, except:

(a) those IBCs, pressure drums, tubes, MEGCs and articles which are placardable units that are placarded with emergency information panels in accordance with Chapter 5.3; or

(b) where there is an exemption from labelling in an applicable Special Provision in Chapter 3.3; or

(c) for dangerous goods in limited quantities that are packed and marked in accordance with Chapter 3.4; or

For the purposes of this provision, the “EXPLOSIVE” subsidiary hazard label is model No. 1.

NOTE 1: *Unlike earlier editions, in this Code a label identifying a subsidiary hazard is now identical to the Class or Division label used for the same hazard, as illustrated in 5.2.2.2.2. The appropriate Class or Division number indicating the subsidiary hazard must be displayed in the bottom corner of the label.*

5.2.2.1.2 Where articles or substances are specifically listed in the Dangerous Goods List, a danger class label must be affixed for the hazard shown in Column 3. A subsidiary hazard label must also be affixed for any hazard indicated by a class or division number in Column 4 of the Dangerous Goods List. However, special provisions indicated in Column 6 may also require a subsidiary hazard label where no subsidiary hazard is indicated in Column 4 or may exempt from the requirement for a subsidiary hazard label where such a hazard is indicated in the Dangerous Goods List.

5.2.2.1.3 Except as provided in 5.2.2.1.3.1, if a substance which meets the definition of more than one class is not specifically listed by name in the Dangerous Goods List in Chapter 3.2, the provisions in Chapter 2.0 must be used to determine the primary hazard class of the goods. In addition to the label required for that primary hazard class, subsidiary hazard labels must also be applied as specified in the Dangerous Goods List.

5.2.2.1.3.1 Packages containing substances of Class 8 need not bear subsidiary hazard label model No. 6.1 if the toxicity arises solely from the destructive effect on tissue. Packages containing substances of Division 4.2 need not bear subsidiary hazard label model No. 4.1.

5.2.2.1.4 Labels for Class 2 gases with subsidiary hazard(s)

Table 5.2.2.1.4: Labels for Class 2 gases with subsidiary hazard(s)

Division	Subsidiary hazard(s) shown in Chapter 2.2	Primary hazard label	Subsidiary hazard label(s)
2.1	None	2.1	None
2.2	None	2.2	None
	5.1	2.2[a]	5.1[a]
2.3	None	2.3	None
	2.1	2.3	2.1
	5.1	2.3	5.1
	5.1, 8	2.3	5.1, 8
	8	2.3	8
	2.1, 8	2.3	2.1, 8

Table note:
a See 5.2.2.1.5

5.2.2.1.5 Three separate labels have been provided for Class 2, one for flammable gases of Division 2.1 (red), one for non-flammable, non-toxic gases of Division 2.2 (green) and one for toxic gases of Division 2.3 (white). Where the Dangerous Goods List indicates that a Class 2 gas possesses single or multiple subsidiary hazards, labels must be used in accordance with the table in 5.2.2.1.4.

5.2.2.1.5.1 For the labelling of cylinders containing UN 1070 Nitrous Oxide or UN 1072 Oxygen, and any other gases of Division 2.2 that have a Subsidiary Hazard of 5.1, a yellow “OXIDISING GAS” label (model No. 2.5) may be used In lieu of Division 2.2 plus Subsidiary hazard 5.1 labels.

NOTE: *The use of the oxidising gas label is valid for road or rail transport in Australia. It may not be accepted internationally, or for sea or air transport within Australia.*

5.2.2.1.6 Except as provided in 5.2.2.2.1.2, each label must:

(a) be located on the same surface of the package near the proper shipping name, if the package dimensions are adequate; and

(b) be so placed on the packaging that they are not covered or obscured by any part or attachment to the packaging or any other label or mark; and

(c) when primary and subsidiary hazard labels are required, be displayed next to each other.

Where a package is of such an irregular shape or small size that a label cannot be satisfactorily affixed, the label may be attached to the package by a securely affixed tag or other suitable means.

5.2.2.1.7 <Reserved>

5.2.2.1.8 Labels must be affixed on a surface of contrasting colour, or must have either a dotted or solid outer boundary line.

5.2.2.1.9 Special provisions for the labelling of self-reactive substances

An “EXPLOSIVE" subsidiary hazard label (model No. 1) must be applied for type B self-reactive substances, unless the competent authority has exempted a specific packaging from this label because test data have proved that the self-reactive substance in such a packaging does not exhibit explosive behaviour.

5.2.2.1.10 Special provisions for the labelling of organic peroxides

The Division 5.2 label (model 5.2B) must be affixed to packages containing organic peroxides classified as types B, C, D, E or F. This label also implies that the product may be flammable and hence no “FLAMMABLE LIQUID”, subsidiary hazard label (model No. 3) is required. In addition, the following subsidiary hazard labels must be applied:

(a) an “EXPLOSIVE” subsidiary hazard label (model No. 1) for organic peroxides type B, unless the competent authority has exempted a specific packaging from this label because test data have proved that the organic peroxide in such a packaging does not exhibit explosive behaviour;

(b) a “CORROSIVE” subsidiary hazard label (model No. 8) is required when packing group I or II criteria of Class 8 are met.

5.2.2.1.11 Special provisions for the labelling of infectious substances packages

In addition to the primary hazard label (model No. 6.2), infectious substances packages must bear any other label required by the nature of the contents.

5.2.2.1.12 <Reserved>

***Note**: the requirement to label inner packages has been removed in lieu of GHS requirements.*

5.2.2.1.13 Lables for articles containing dangerous goods transported as UN Nos. 3537, 3538, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3547 and 3548

5.2.2.1.13.1 Packages containing articles or articles transported unpackaged shall bear labels according to 5.2.2.1.2 reflecting the hazards established according to 2.0.5. If the article contains one or more lithium batteries with, for lithium metal batteries, an aggregate lithium content of 2 g or less, and for lithium ion batteries, a Watt-hour rating of 100 Wh or less, the lithium battery mark (Figure 5.2.5) shall be affixed to the package or unpackaged article. If the article contains one or more lithium batteries with, for lithium metal batteries, an aggregate lithium content of more than 2 g and for lithium ion batteries, a Watt-hour rating of more than 100 Wh, the lithium battery label (5.2.2.1.2 No. 9A) shall be affixed to the package or unpackaged article.

5.2.2.1.13.2 When it is required to ensure articles containing liquid dangerous goods remain in their intended orientation, orientation marks meeting 5.2.1.7.1 shall be affixed and visible on at least two opposite vertical sides of the package or of the unpackaged article where possible, with the arrows pointing in the correct upright direction.

5.2.2.1.14 Labelling of segregation devices

Type I and II segregation devices and Non - Type I underslung segregation devices in which dangerous goods are transported in accordance with Section 4.4.5 must be labelled on each vertical side that may be exposed during loading or transport with labels in accordance with sub-section 5.2.2.1, except that each label must be at least 250 mm square.

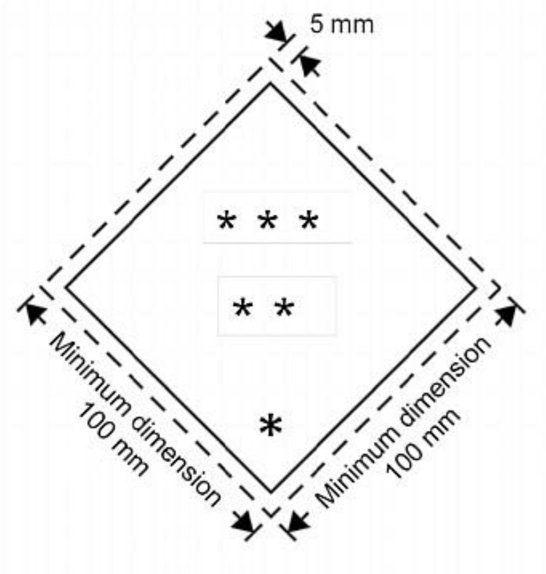
5.2.2.2 Provisions for labels

5.2.2.2.1 Labels must satisfy the provisions of this section and conform, in terms of colour, symbols and general format, to the specimen labels shown in 5.2.2.2.2, except as provided in 5.2.2.2.1.5.

NOTE: *Where appropriate, labels in 5.2.2.2.2 are shown with a dotted outer boundary as provided for in 5.2.2.2.1.1. This is not required when the label is applied on a background of contrasting colour.*

5.2.2.2.1.1 Labels must be configured as shown in Figure 5.2.6.

Figure 5.2.6: Class / Division Label



Class/ Division Label

Notes to Figure 5.2.6:

* The class or, for divisions 5.1 and 5.2, the Division number **must** be shown in the bottom corner.

** Additional text/numbers/symbol/letters **must** (if mandatory) or may (if optional) be shown in this bottom half.

*** The class or division symbol or, for divisions 1.4, 1.5 and 1.6, the division number and for Model No 7E the word “FISSILE” must be shown in the top half.

5.2.2.2.1.1.1 Labels must be displayed on a background of contrasting colour, or must have either a dotted or solid outer boundary line.

5.2.2.2.1.1.2 The label must be in the form of a square set at an angle of 45 degrees (diamond-shaped). The minimum dimensions must be 100 mm x 100 mm. There must be a line inside the edge forming the diamond which must be parallel and approximately 5 mm from the outside of that line to the edge of the label.”.

5.2.2.2.1.1.3 If the size of the package so requires the dimensions may be reduced proportionally, provided the symbols and other elements of the label remain clearly visible. Dimensions for cylinders **must** comply with 5.2.2.2.1.2.

5.2.2.2.1.2 Cylinders for Class 2 may, on account of their shape, orientation and securing mechanisms for transport, bear labels representative of those specified in this section, which have been reduced in size, according to ISO 7225:2005[1] “Gas cylinders – Precautionary labels”, for display on the non-cylindrical part (shoulder) of such cylinders. Labels may overlap to the extent provided for by ISO 7225:2005, however, in all cases, the labels

[1] *The minimum sizes for labels specified by ISO 7225 are included in Table 5.2.*

representing the primary hazard and the numbers appearing on any label must remain fully visible and the symbols recognisable.

NOTE: *When the diameter of the cylinder is too small to permit the display of the reduced size labels on the non-cylindrical upper part of the cylinder, the reduced sized labels may be displayed on the cylindrical part.*

5.2.2.2.1.3 With the exception of Divisions 1.4, 1.5 and 1.6, the upper half of the label must contain the pictorial symbol and the lower half must contain the class or division number (and for goods of Class 1, the compatibility group letter) as appropriate. However, for label model No. 9A, the upper half of the label shall only contain the seven vertical stripes of the symbol and the lower half shall contain the group of batteries of the symbol and the class number. Except for label model No. 9A, the label may include such text as the UN number, or words describing the hazard class (e.g. “flammable”) in accordance with 5.2.2.2.1.5 provided that the text does not obscure or detract from the other required label elements.

5.2.2.2.1.4 In addition, except for Divisions 1.4, 1.5 and 1.6, labels for Class 1 must show in the lower half, above the class number, the division number and compatibility group letter for the substance or article. Labels for Divisions 1.4, 1.5 and 1.6 must show in the upper half the division number and in the lower half the compatibility group letter. For Division 1.4, Compatibility Group S, no label is generally required. However, in cases where a label is considered necessary for such goods, it should be based on model No. 1.4.

5.2.2.2.1.5 On labels other than those for material of Class 7, the insertion of any text (other than the class or division number) in the space below the symbol must be confined to particulars indicating the nature of the hazard and precautions to be taken in handling. In this Code, text indicating the nature of the risk (e.g. “FLAMMABLE GAS”, or “CORROSIVE”), is depicted on all specimen labels in 5.2.2.2.2. This text must be included on labels for material of Class 7 and on label model No. 2.5, and should be included on the other labels where practicable. For label 9A. no text other than the class mark must be included in the bottom part of the label.

NOTE 1: *In UN 21, the IMDG Code, ICAO Rules, IATA Regulations, ADR and RID, text indicating the nature of the risk, while permitted, is not included in the illustrated labels other than those for material of Class 7. Often therefore labels on imported packages and IBCs, or used as placards on imported freight containers or portable tanks, will not incorporate text indicating the nature of the risk, or may incorporate this text in another language. Such labels are acceptable for continued transport within Australia. Text is more frequently omitted where the UN number is incorporated in a label used as a placard as shown in Figure 5.3.3.*

NOTE 2: *Notwithstanding Note 1, the continuing display on labels of text indicating the nature of the risk is strongly encouraged for use within Australia, particularly when used as placards on vehicles and freight containers, to assist with hazard recognition in an emergency.*

5.2.2.2.1.6 The symbols, text and numbers must be shown in black on all labels except for:

(a) the Class 8 label, where the text (if any) and class number must appear in white; and

(b) labels with entirely green, red or blue backgrounds where they may be shown in white; and

(c) the new Division 5.2 label, where the symbol may be shown in white; and

(d) the Division 2.1 label displayed on cylinders and gas cartridges for liquefied petroleum gases, where they may be shown in the background colour of the receptacle if adequate contrast is provided.

5.2.2.2.1.7 All labels must be able to withstand open weather exposure without a substantial reduction in effectiveness.

5.2.2.2.1.8 Where the colour orange, red, green, blue or yellow is specified for use in labels in 5.2.2.2 or in placards in Chapter 5.3, the colour of the label or placard must be the relevant colour as displayed and identified in Figure 5.3.7 (at the end of Chapter 5.3).

5.2.2.2.1.9 Where the size of a package is such that it is impracticable to apply a label of 100 mm x 100 mm as required by 5.2.2.2.1.1, the label must be of at least the dimensions specified for the package in Table 5.2. In each instance, the minimum dimensions apply to each side of the outer border set at 45°.

Table 5.2: Minimum Dimensions of Labels

Class or Article	Package, Packaging or Article	Minimum dimensions of labels (mm)	Recommended minimum size of lettering [a] [see 5.2.1.2(d)] (mm)
Class 2 (other than Aerosols)	Cylinder of outside diameter: < 75 mm	10 x 10	2.5
	≥ 75 mm < 180 mm	15 x 15	3
	≥ 180 mm	25 x 25	5
	Pressure drum or tube ≤ 500 L [b]	100 x 100	7
BATTERIES, WET, FILLED WITH ACID, electric storage (UN 2794)	Battery with a gross mass of 65kg or less, but top surface only	20 x 20	3
All others	Package containing: ≤ 0.5 kg(L)	15 x 15	2.5
	> 0.5 kg(L) ≤ 5 kg(L)	20 x 20	3
	> 5 kg(L) ≤ 25 kg(L)	50 x 50	5
	> 25 kg(L)	100 x 100	7
	IBC ≤ 500 kg(L) [b]	100 x 100	7
	Large packaging, overpack, segregation device	100 x 100	12

Table notes:

a Where the space available on the package for labelling is limited and the Proper Shipping Name of the dangerous goods must be supplemented by a Technical Name (where special provision 274 is assigned to the particular entry in the Dangerous Goods List – see 3.1.2.8), the minimum height of the letters of the Technical Name or names may be reduced to not less than half the size stated in this table or 1.5 mm, whichever is the greater.

b IBCs, pressure drums and tubes of capacity > 500 kg(L) are placardable units that must be placarded with emergency information panels in accordance with 5.3.3

5.2.2.2.2 Specimen labels

Label model No.	**Division or Category**	**Symbol and symbol colour**	**Background**	**Figure in bottom corner (and figure colour)**	**Specimen labels**	**Note**
Class 1: Explosive substances or articles						
1	Divisions 1.1, 1.2, 1.3	Exploding bomb: black	Orange	I (black)		* * Place for division – to be left blank if EXPLOSIVE is the subsidiary risk * Place for compatibility group – to be left blank if EXPLOSIVE is the subsidiary risk
1.4	Division 1.4	1.4: black Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm x 100 mm)	Orange	1 (black)		* Place for compatibility group
1.5	Division 1.5	1.5: black Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm x 100 mm)	Orange	1 (black)		* Place for compatibility group
1.6	Division 1.6	1.6: black Numerals shall be about 30 mm in height and be about 5 mm thick (for a label measuring 100 mm x 100 mm)	Orange	1 (black)		* Place for compatibility group

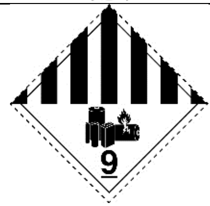
Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
Class 2: Gases						
2.1	Division 2.1: Flammable gases	Flame: black or white (except as provided for in 5.2.2.2.1.6 (d))	Red	2 (black or white) (except as provided for in 5.2.2.2.1.6 (d))	 	-
2.2	Division 2.2: Non-flammable, non-toxic gases	Gas cylinder: black or white	Green	2 (black or white)	 	-
2.3	Division 2.3: Toxic gases	Skull and crossbones: black	White	2 (black)		-
2.5	Division 2.2 / Sub-hazard 5.1: Oxidising gases					- Label model No. 2.5 is valid only for land transport within Australia. - Hazard description on label may alternatively read 'OXIDIZING GAS'

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels		Note
Class 3: Flammable liquids							
3	-	Flame: black or white	Red	3 (black or white)			-
Class 4: Flammable solids; substances liable to spontaneous combustions; substances which, in contact with water, emit flammable gases							
4.1	Division 4.1: Flammable solids, self-reactive substances, polymerizing substances and solid desensitized explosives	Flame: black	White with 7 vertical red stripes	4 (black)			-
4.2	Division 4.2: Substances liable to spontaneous combustion	Flame: black	Upper half white, lower half red	4 (black)			-
4.3	Division 4.3: Substances which, in contact with water, emit flammable gases	Flame: black or white	Blue	4 (black or white)			-

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels		Note
Class 5: Oxidising substances and organic peroxides							
5.1	Division 5.1: Oxidising substances	Flame over circle: black	Yellow	5.1 (black)			-
5.2	Division 5.2: Organic peroxides	Flame: black or white	Upper half red, lower half yellow	5.2 (black)			-
Class 6: Toxic substances and infectious substances							
6.1	Division 6.1: Toxic substances	Skull and crossbones: black	White	6 (black)			
6.2	Division 6.2: Infectious substances	Three crescents superimposed on a circle: black	White	6 (black)			The lower half of the label may bear the inscription: 'In the case of damage or leakage immediately notify Public Health Authority' in black colour

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
Class 7: Radioactive material						
7A	Category I - WHITE	Trefoil: black	White	7 (black)		Text (mandatory), black in lower half of label: ‘RADIOACTIVE’ ‘CONTENTS ….’ ‘ACTIVITY ….’ One red vertical bar must follow the word ‘RADIOACTIVE’
7B	Category II - YELLOW	Trefoil: black	Upper half yellow with white border, lower half white	7 (black)		Text (mandatory), black in lower half of label: ‘RADIOACTIVE’ ‘CONTENTS ….’ ‘ACTIVITY ….’ In a black outlined box: ‘TRANSPORT INDEX’ Two red vertical bars must follow the word ‘RADIOACTIVE’
7C	Category III - YELLOW	Trefoil: black	Upper half yellow with white border, lower half white	7 (black)		Text (mandatory), black in lower half of label: ‘RADIOACTIVE’ ‘CONTENTS ….’ ‘ACTIVITY ….’ In a black outlined box: ‘TRANSPORT INDEX’ Three red vertical bars must follow the word ‘RADIOACTIVE’

7E	Fissile material	-	White	7 (black)		Text (mandatory), black in upper half of label: 'FISSILE' In a black outlined box in the lower half of label: 'CRITICALITY SAFETY INDEX'

Label model No.	Division or Category	Symbol and symbol colour	Background	Figure in bottom corner (and figure colour)	Specimen labels	Note
8	-	Liquids, spilling from two glass vessels and attacking a hand and a metal: black	Upper half white, lower half black with white border	8 (white)		-
Class 9: Miscellaneous dangerous substances and articles, including environmentally hazardous substances						
9	-	7 vertical stripes in upper half: black	White	9 underlined (black)		-
9A	-	7 vertical stripes in upper half: black; Battery group, one broken and emitting flame in lower half: black	White	9 underlined (black)		-

5.2.2.2.3 Mixed Class Label

NOTE: *The Mixed Class Label is used as a placard on cargo transport units transporting more than one class or division of dangerous goods, or a load that requires placarding based on the combined quantity calculation specified in Note 5 of Table 5.3. It is not a package label.*

The Mixed Class Label depicted here is not part of the UN labelling system and is not included in the modal codes. Its use as a transport placard and is therefore valid only for road or rail transport within Australia.

Figure 5.2.7: Mixed load label

Background: orange
4 x horizontal stripes: black
Text: white or orange

(also referred to as a
Mixed Class Placard)

(Model No. 10)

5.2.2.2.4 Limited Quantity Label

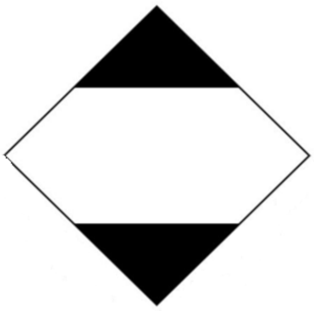
a) The Limited Quantity Label or Mark's use is described in 3.4.

b) It is the applicable placard for cargo transport units transporting a placard load of limited quantities and/or domestic consumable dangerous goods that meet the requirements of Chapter 3.4

Figure 5.2.8: Limited Quantity label

Background: white
2 x black triangles on the
top and bottom of the diamond

(also referred to as a
Limited Quantity Placard)



(Model No. 11)

CHAPTER 5.3 - PLACARDING AND MARKING OF CARGO TRANSPORT UNITS, PLACARDABLE UNITS AND BULK CONTAINERS

Introductory Note

Section 5.3.1 *Details the placarding requirements applicable to all cargo transport units, bulk containers and placardable units and provides the specifications for placards.*

Section 5.3.2 *Specifies additional marking that is required on some cargo transport units, bulk containers or placardable units when they contain particular loads of dangerous goods.*

Sections 5.3.3–5.3.9 *Specify detailed placarding requirements for different types of cargo transport units, bulk containers, placardable units and loads.*

5.3.1 GENERAL PLACARDING REQUIREMENTS

5.3.1.1 Placarding Principles

5.3.1.1.1[1] Placards must be affixed to the exterior surface of cargo transport units that contain a placard load of dangerous goods as determined from Table 5.3, and to bulk containers and placardable units. A placard warns others that the cargo transport unit contains dangerous goods and it presents risks.

Table 5.3: Placard Load (Minimum Quantities)
(A placard load is defined in 1.2.1.1)

Note: the load must be assessed against both Table 5.3.1 and Table 5.3.2

Table 5.3.1 – Dangerous goods not transported under Chapter 3.4

Dangerous Goods in Cargo Transport Unit		Placard Load Quantity
(a)	Any dangerous goods in a receptacle (other than an article) with a: • capacity > 500 L; or • net mass > 500 kg	One or more such receptacles (i.e. one or more placardable units)
(b)	Any quantity of: • Division 2.1 (except Aerosols); or • Division 2.3; or • Packing group I of any Class or Division	Aggregate quantity of all dangerous goods (other than LQ) in the cargo transport unit ≥ 250 kg(L) (see Note 5)
(c)	Division 6.2 Category A	All quantities

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[1] *The terms 'placardable unit' and 'transport unit' used throughout this Chapter are defined in 1.2.1.1 and 1.2.1.2.10 respectively.*

(d)	Division 6.2 (other than Category A)	≥ 10 kg(L)
(e)	Loads where (a) – (d) do not apply	Aggregate quantity of dangerous goods (other than LQ) ≥ 1,000 kg(L) (see Note 5) - unless the load is a Fumigated Unit (UN 3359 –see Note 3),
Table 5.3.2 – Dangerous goods transported under Chapter 3.4		
Dangerous goods packed in limited quantities and/or domestic consumable dangerous goods. Note: these placarding thresholds are separate to and in addition to the above placarding thresholds. In practice, this may mean a single vehicle is required to be placarded with both a placard for the fully regulated DG in the load and an LQ placard.		
(f)	Limited quantities dangerous goods and / or domestic consumable dangerous goods (defined in 1.2.1)	The load includes limited quantities dangerous goods and/or domestic consumable dangerous goods that includes an aggregate quantity of any one UN number from a single place of consignment of ≥ 2,000kg(L)
(g)	Loads where (f) does not apply Limited quantities dangerous goods and / or domestic consumable dangerous goods (defined in 1.2.1)	The gross mass of the limited quantities dangerous goods and/or domestic consumable dangerous goods is > 8 tonnes (see Note 5)

Table 5.3 - Notes

NOTE 1: For placarding quantities of Class 1, see the Australian Explosives Code.

NOTE 2: For placarding quantities of Class 7, see the Codes of Practice for the Safe Transport of Radioactive Substances.

NOTE 3: A Fumigated Unit (UN 3359) complying with Chapter 5.5 that does not contain any other dangerous goods is not a placard load and should not be included in the aggregate quantity of dangerous goods when determining a placard load.

NOTE 4: For land transport wholly within Australia, this Code requires placards to be displayed on cargo transport units if they contain a placard load, as determined from Table 5.3. It should be noted that cargo transport units containing lesser quantities may need to be placarded in accordance with the IMDG Code before they are acceptable for transport by sea, even within Australian waters.

NOTE 5: When transporting a load that contains dangerous goods specified in (b) or (e) of Table 5.3.1 and dangerous goods specified in (g) of Table 5.3.2, each of which are below a placard load, the combined quantity of dangerous goods in the load must be calculated and the result assessed against the relevant threshold in Table 5.3.1.

Calculation of combined quantity

(i) If the relevant threshold for the dangerous goods in Table 5.3.1 is (b) - the combined quantity = the aggregate qty regulated DG + 10% of the Gross weight of the LQ/DC; or

(ii) If the relevant threshold for the dangerous goods in Table 5.3.1 is (e) - the combined quantity = the aggregate qty regulated DG + 25% of the Gross weight of the LQ/DC

5.3.1.1.2 Placards must correspond to the primary hazard of the goods contained in the cargo transport unit, bulk container or placardable unit except that:

(a) placards are not required on cargo transport units carrying any quantity of explosives of Division 1.4, Compatibility Group S, unless they are also carrying other dangerous goods; and

(b) where the load is a placard load under Table 5.3.1 and there is more than one class or division in a cargo transport unit, a placard in the form of a mixed class label (model No. 10 in 5.2.2.2.3) may be used in lieu of multiple placards where permitted in Sections 5.3.3 to 5.3.7 inclusive.

(c) where the load is a placard load under Table 5.3.2, the cargo transport unit must be placarded with a limited quantity label (model No. 11 in 5.2.2.2.4)

(d) where the cargo transport unit requires placarding under both Table 5.3.1 and Table 5.3.2, it must be placarded with both labels.

(e) where the load is a placard load based on the calculation in Table 5.3, Note 5, the cargo transport unit must be placarded with a mixed class label (model No. 10 in 5.2.2.2.3) and the calculation shown on the dangerous goods transport document.

NOTE: *The use of the mixed class label as a placard is valid only in Australia, for road or rail transport.*

5.3.1.1.3 Placards must also be displayed for those subsidiary hazard for which a subsidiary hazard label is required according to 5.2.2.1.2. However, cargo transport units containing goods of more than one class or division need not bear a subsidiary hazard placard if the hazard represented by that placard is already indicated by a primary hazard placard or where a mixed class placard is displayed where permitted in this chapter.

5.3.1.1.4 Placards must be displayed on:

(a) all placardable units containing dangerous goods or the residue of dangerous goods, in accordance with Section 5.3.3; and

(b) portable tanks and bulk containers containing dangerous goods or the residue of dangerous goods, in accordance with Section 5.3.4; and

(c) freight containers containing a placard load of dangerous goods for transport, in accordance with Section 5.3.5; and

(d) road vehicles transporting a placard load of dangerous goods, in accordance with Section 5.3.6; and

(e) rail wagons transporting a placard load of dangerous goods, in accordance with Section 5.3.7.

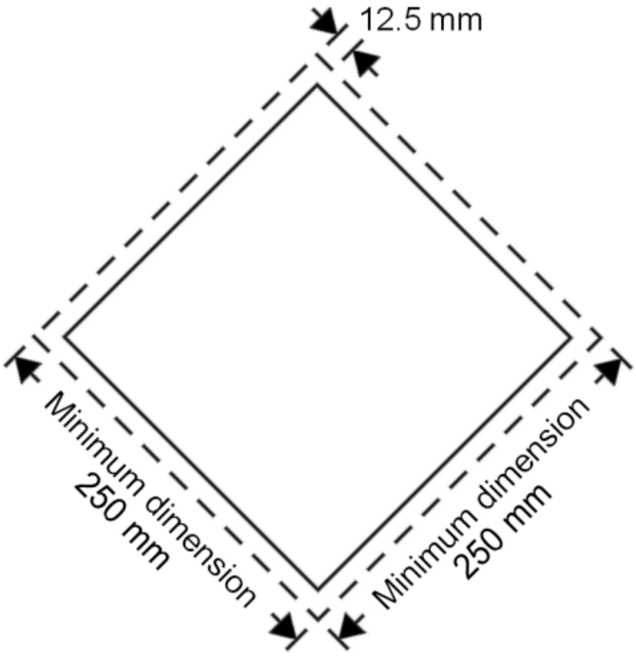
5.3.1.1.5 *<Reserved>*

5.3.1.1.6 If a class or division label is incorporated in an emergency information panel displayed on a face of a cargo transport unit in accordance with this Chapter, the cargo transport unit need not on that face display additional placards for the hazard represented by that label for any other goods in the cargo transport unit.

5.3.1.2 Specifications for placards

5.3.1.2.1 Except as provided in 5.3.1.2.2 for the Class 7 placard, and in 5.3.2.3.2 for the environmentally hazardous substance mark a placard must be configured as shown in figure 5.3.0.

Figure 5.3.0: Specimen for placards



Placard (except for class 7)

The placard must be in the form of a square set at an angle of 45 degrees (diamond-shaped). The minimum dimensions must be 250 mm x 250 mm (to the edge of the placard). The line inside the edge must be parallel and 12.5 mm from the outside of that line to the edge of the placard. The symbol and line inside the edge must correspond in colour to the label for the class or division of the dangerous goods in question. The class or division symbol/numeral must be positioned and sized in proportion to those prescribed in 5.2.2.2 for the corresponding class or division of the dangerous goods in question. The placard must display the number of the class or division (and for goods in Class 1, the compatibility group letter) of the dangerous goods in question in the manner prescribed in 5.2.2.2 for the corresponding label, in digits not less than 25 mm high. Where dimensions are not specified, all features must be in approximate proportion to those shown.

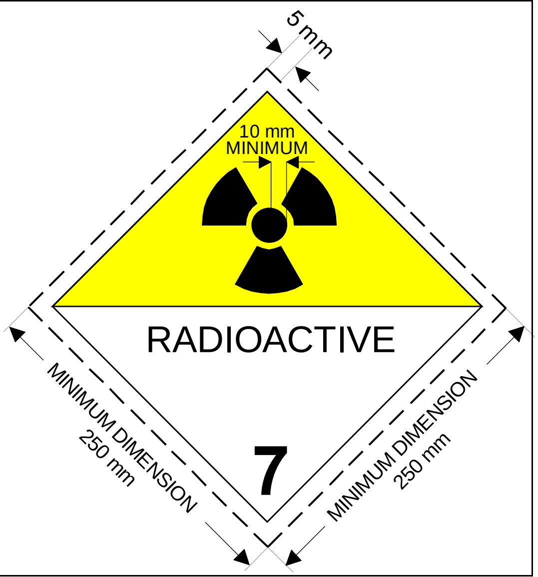
5.3.1.2.2 *Placard for radioactive material of Class 7*

For Class 7, the placard must have minimum overall dimensions of 250 mm by 250 mm (except as permitted by 5.3.1.1.5.2 of UN20) with a black line running 5 mm inside the edge and parallel with it, and must be otherwise as shown in Figure 5.3.1 below. When different dimensions are used, the relative proportions must be maintained. The number “7” must not be less than 25 mm high. The background colour of the upper half of the placard must be yellow and of the lower half white, the colour of the trefoil and the printing must be black. The use of the word “RADIOACTIVE” in the bottom half is optional to allow the use of this placard to display the appropriate United Nations number for the consignment.

NOTE: *5.3.1.2.2 and Figure 5.3.1 are reproduced from UN20 for information only.*

Figure 5.3.1: Placard for radioactive material of Class 7(No. 7D)

Symbol (trefoil): black;
Background: upper half yellow with white border, lower half white;
The lower half must show the word RADIOACTIVE; or
alternatively, when required (see 5.3.2.1),
the appropriate UN number; and
the figure “7” in the bottom corner



5.3.1.3 Emergency Information Panels

The loads that require an Emergency Information Panel are defined in Sections 5.3.3 to 5.3.8.

5.3.1.3.1 An emergency information panel is a placard that is substantially of the colour (unless otherwise exempted by the Competent Authority), format and design specified in Figure 5.3.2 and that, except as provided in 5.3.1.3.2, 5.3.1.3.3 and 5.3.1.3.4, includes the following particulars:

(a) in space (a)

- the proper shipping name for the dangerous goods being transported; except that where the proper shipping name includes the expression “N.O.S.”, that expression and the names of substances which contribute to the hazard of the goods may be omitted;

(b) in space (b)

- the UN Number for the dangerous goods;

(c) in space (c)

- any Hazchem Code assigned to the dangerous goods in Appendix C;

(d) in space (d)

- the expression: "IN EMERGENCY DIAL 000, POLICE or FIRE BRIGADE";

(e) in space (e)

- the class or division label for the dangerous goods and any subsidiary hazard label or labels applicable to the dangerous goods;

(f) in space (f)

- the name of an organisation responsible for providing the telephone advisory service, and a telephone number of the service, including (STD) area code,

NOTE: *Figure 5.3.2 is in three parts as follows:*

– Figure 5.3.2(a) shows the layout and dimensions of an emergency information panel;

– Figure 5.3.2(b) is an example of a completed emergency information panel;

– Figure 5.3.2(c) provides examples of a completed emergency information panel for substances having one or more subsidiary hazards.

5.3.1.3.2 *Multi-load Emergency Information Panel*

A multi-load emergency information panel is a placard substantially of the colour (unless otherwise exempted by the Competent Authority), format and design specified in Figure 5.3.2 that includes the following particulars:

(a) in space (a)

- nothing, the space is to be left blank;

(b) in space (b)

- the expression "MULTI-LOAD";

(c) in space (c)

- the multi-load Hazchem Code ascertained in accordance with Appendix C for the combination of the dangerous goods being transported in the cargo transport unit or placardable unit;

(d) in space (d)

- the expression: "In emergency dial 000, POLICE or FIRE BRIGADE";

(e) in space (e):

(i) if the dangerous goods all belong to the same class or division:

- the label appropriate to that class or division; or

(ii) if the dangerous goods do not all belong to the same class or division

- the mixed class label (Model No. 10 in 5.2.2.2.3);

(f) in space (f)

- the name of an organisation responsible for providing the telephone advisory service and a telephone number of the service, including (STD) area Code.

5.3.1.3.3 *Mixed Load (Refined Petroleum Product) Emergency Information Panel*

A mixed load (refined petroleum product) emergency information panel, the use of which is subject to the conditions of 3.2.5.4, is a placard substantially of the colour (unless otherwise exempted by the Competent Authority), format and design specified in Figure 5.3.2 that includes the following particulars:

(a) in space (a)

- the expression “PETROLEUM FUEL”; or

- if ethanol is included on the vehicle the following expressions may also be used: PETROL AND ETHANOL / PETROL MIXTURE or DIESEL AND ETHANOL / PETROL MIXTURE or PETROLEUM FUEL AND ETHANOL / PETROL MIXTURE

(b) in space (b)

- the expression “1270”

- for PETROL AND ETHANOL / PETROL MIXTURE “1203 / 3475”

- for PETROLEUM FUEL AND ETHANOL / PETROL MIXTURE “1270 / 3475”

(c) in space (c)

- the multi-load Hazchem Code ascertained in accordance with Appendix C for the combination of the dangerous goods being transported in the cargo transport unit or placardable unit;

- note if ethanol is on the load the ethanol specific Hazchem code must be used

(d) in space (d)

- the expression: “In emergency dial 000, POLICE or FIRE BRIGADE”;

(e) in space (e)

- a Class 3 label (model No. 3, see 5.2.2.2.2);

(f) in space (f)

- the name of an organisation responsible for providing the telephone advisory service and a telephone number of the service, including (STD) area Code.

5.3.1.3.4 *Emergency Information Panel for Unodourised LP Gas, Butane or Propane*

Where an emergency information panel is required by this Code for a portable tank, tank vehicle or placardable unit that contains the following substances, the following particulars must be included:

	Unodourised LP gas	Unodourised Butane	Unodourised Propane
in space (a) in lieu of the proper shipping name, the expression	"UNODOURISED LP GAS" or "LP GAS, UNODOURISED"	"UNODOURISED BUTANE" or "BUTANE, UNODOURISED"	"UNODOURISED PROPANE" or "PROPANE, UNODOURISED"
in space (b), the expression	"1075"	"1011"	"1978"

***NOTE**: UNODOURISED" may alternatively be spelled 'UNODOURIZED'*
In all other respects, the emergency information panel must comply with 5.3.1.3.1.

NOTE: *The transport of unodourised LP Gas, Butane and Propane are subject to Special Provision AU03 in Chapter 3.3.*

5.3.1.3.5 *Dimensions of an Emergency Information Panel*

Except where permitted by Section 5.3.3, an emergency information panel must be of the dimensions specified in Figure 5.3.2.

5.3.1.3.6 *Dividing an Emergency Information Panel*

If, because of an obstruction on the vehicle, container or unit, it is not reasonably practicable to mount an emergency information panel as a whole, the panel may be divided vertically into two parts and mounted on either side of the obstruction.

5.3.1.4 Placarding Methods

5.3.1.4.1 If a cargo transport unit, bulk container or placardable unit must be placarded, the placard must be displayed in a substantially vertical plane and:

(a) securely fixed to the unit; or
(b) stencilled onto or printed on the unit; or
(c) placed securely in a frame that is securely fixed to the unit.

5.3.1.4.2 The placard must:

(a) be durable and weather resistant; and
(b) have letters and numerals that are legible; and
(c) not be obscured.

5.3.1.4.3 The part of the unit immediately behind the placard must be of a contrasting colour to the colour of the placard unless:

(a) the border of the placard is of a contrasting colour and design; or

(b) the placard is a label having a dotted or solid outer boundary line in accordance with 5.2.2.2.1.1.

Figure 5.3.2(a): Format and Colour of Emergency Information Panel

Background: white

Lines and text: black

All measurements in millimetres

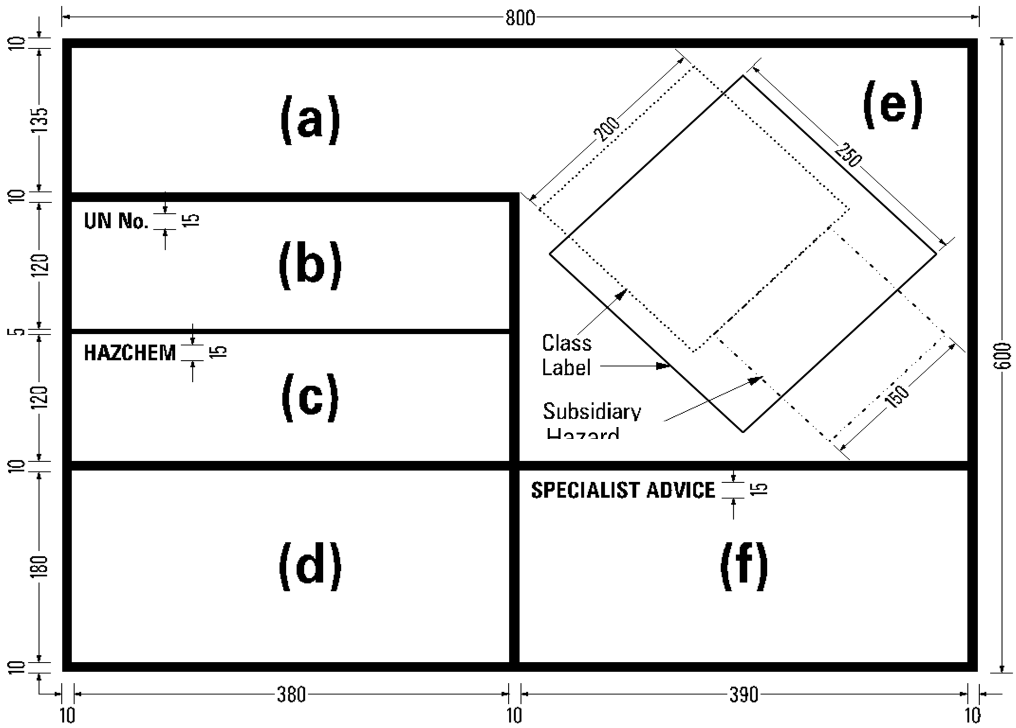


Figure 5.3.2(b): Example of Completed Emergency Information Panel

All measurements in millimetres

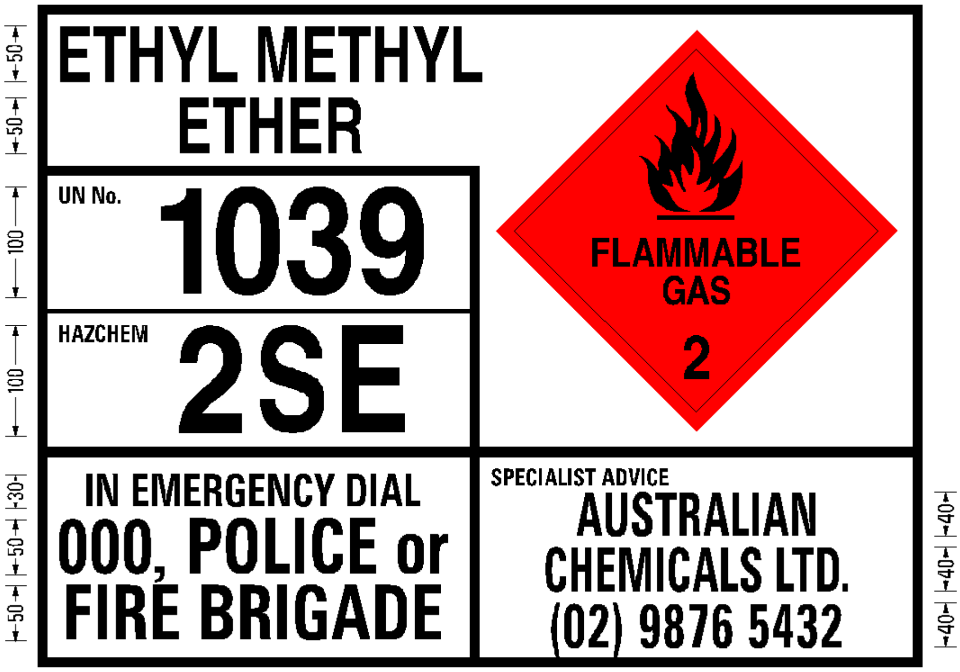
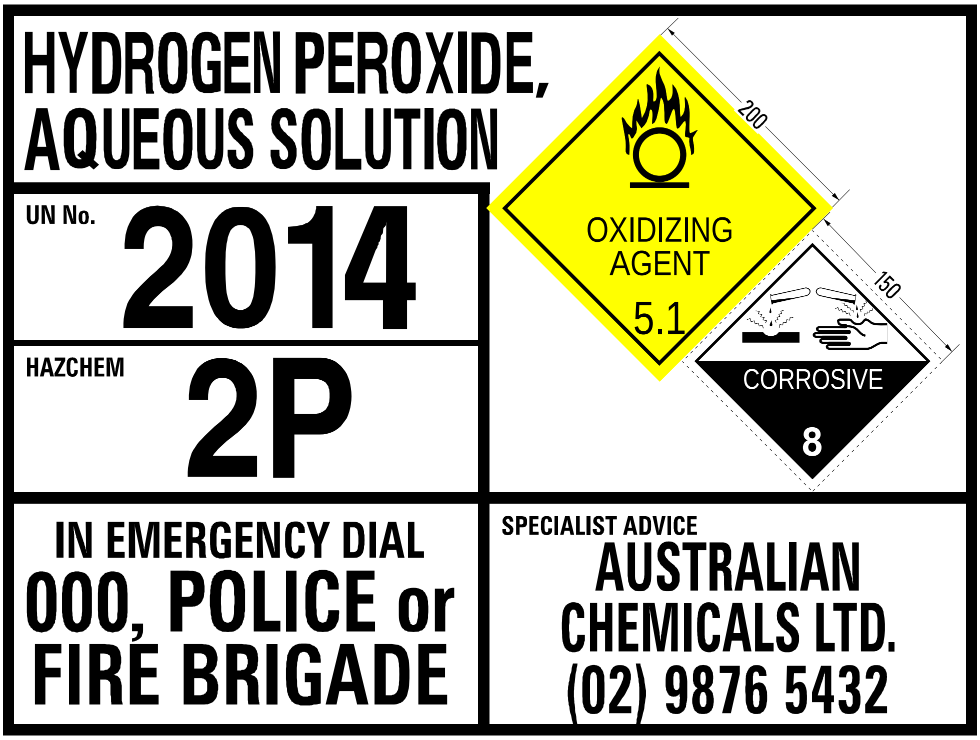


Figure 5.3.2(c): Examples of Completed Emergency Information Panels

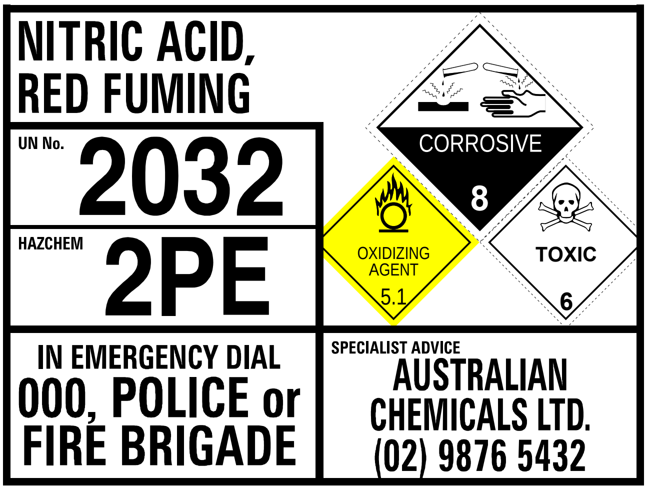
(i) Single Sub-Hazard



(ii) Two Sub-Hazards

Permissible alternatives

A.



B.

200 mm square Primary Hazard Label, 150 mm square Sub-Hazard Labels

A. trimmed to fit

B. permitted to overlap borders

5.3.2 MARKING

5.3.2.1 Display of UN numbers

The requirements of this sub-section 5.3.2.1 do not apply to consignments of dangerous goods being transported only by road or rail within Australia.

NOTE: *5.3.2.1 is a requirement of UN20, the IMDG Code, ICAO Rules and IATA Regulations and therefore applies to all transport by sea and air. It is included here for the information of exporters or those intending to transport dangerous goods domestically by sea or air, and to assist in interpreting placarding and marking of containers arriving by sea or air.*

5.3.2.1.1 For transport by sea or air, the IMDG Code, ICAO Rules and IATA Regulations require that, except for goods of Class 1, the UN number must be displayed as described in this section on consignments of:

(a) solids, liquids or gases transported in tank cargo transport units including on each component of a multi-compartment tank cargo transport unit; and

(b) solids in bulk containers; and

(c) packaged dangerous goods of a single commodity which constitute a full load for the cargo transport unit; and

(d) unpackaged LSA-I material, SCO-I or SCO-III of Class 7 in or on a vehicle, or in a freight container, or in a tank; and

(e) packaged radioactive material with a single UN number in or on a vehicle, or in a freight container, when required to be transported under exclusive use.

5.3.2.1.2 When required for intermodal transport, the UN number for the goods must be displayed in black digits not less than 65 mm high, either:

(a) against a white background in the area below the pictorial symbol and above the class or division number and the compatibility group letter in a manner that does not obscure or detract from the other required label elements; or

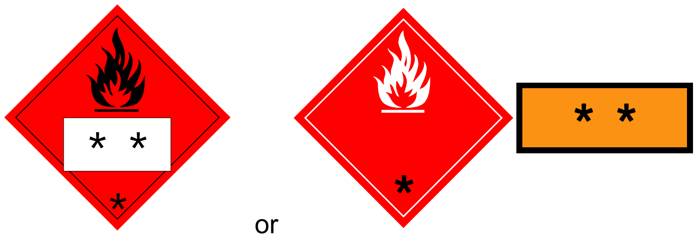
(b) on an orange rectangular panel not less than 120 mm high and 300 mm wide, with a 10 mm black border, to be placed immediately adjacent to each placard. For portable tanks with a capacity of not more than 3000 litres and with an available surface area insufficient to affix the prescribed placards the UN number may be displayed on an orange rectangular panel of appropriately reduced size on the external surface of the tank in characters not less than 25 mm high.

5.3.2.1.3 Examples of display of UN numbers

Figure 5.3.3: Examples of display of UN numbers

(a) (b)

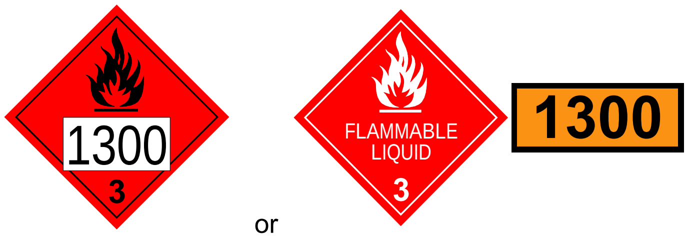
(Division 2.1 or Class 3 example)



or

* location of class or division number
** location of UN number

Completed example for UN 1300 Turpentine Substitute



or

5.3.2.2 Elevated temperature substance mark

5.3.2.2.1 Cargo transport units containing a substance that is transported or offered for transport in a liquid state at a temperature equal to or exceeding 100 °C, in a solid state at a temperature equal to or exceeding 240 °C must bear on each side and on each end the mark shown in Figure 5.3.4.

5.3.2.2.2 Despite 5.3.2.2.1, where the prescribed mark for carriage at elevated temperature is incorporated as a subsidiary hazard label in an emergency information panel, the sides of the triangle must measure at least 150 mm.

Figure 5.3.4: Mark for carriage at elevated temperature

The mark must be an equilateral triangle. The colour of the mark must be red. The minimum dimension of the sides must be 250 mm. For portable tanks with a capacity of not more than 3 000 litres and with an available surface area insufficient to affix the prescribed marks, the minimum dimensions of the sides may be reduced to 100 mm. Where dimensions are not specified, all features must be in approximate proportion to those shown.

5.3.2.3 Environmentally hazardous substance mark

5.3.2.3.1 Subject to Special Provision AU01 in Chapter 3.3, a cargo transport unit or bulk container containing environmentally hazardous substances meeting the criteria of 2.9.3 (UN Nos. 3077 and 3082) must be marked with the environmentally hazardous substance mark (Figure 5.2.2). The mark must be placed on each surface of the cargo transport unit or bulk container that is required by this Chapter to be placarded, as near as is practicable to the class or division label.

5.3.2.3.2 The environmentally hazardous substance mark for cargo transport units and bulk containers must be as described in 5.2.1.6.3 and Figure 5.2.2, except that the minimum dimensions must be 250 mm x 250 mm. For portable tanks with a capacity of not more than 3 000 litres and with an available surface area insufficient to affix the prescribed marks, the minimum dimensions may be reduced to 100 mm x 100 mm.

5.3.2.3.3 If the environmentally hazardous substance mark is incorporated in an emergency information panel, the sides of the mark must measure at least 150 mm.

5.3.3 PLACARDING PLACARDABLE UNITS

5.3.3.1 Except as provided in 5.3.3.6, this section applies to placardable units, being all receptacles, other than cargo transport units, that have a capacity > 500 kg(L), including:

(a) IBCs; and
(b) pressure drums; and
(c) tubes; and
(d) MEGCs; and
(e) demountable tanks.

5.3.3.2 A placardable unit that contains dangerous goods, or has contained dangerous goods and is not free from dangerous goods, must be placarded with emergency information panels as specified in 5.3.1.3.

5.3.3.3 Except where 5.3.3.4 applies, two emergency information panels must be displayed in accordance with 5.3.1.4, in a substantially vertical plane. Panels should, where practicable, be displayed on opposite sides, so as to be best seen:

(a) from a forklift when approaching to pick up the unit; and
(b) when loaded onto a vehicle.

5.3.3.4 Despite 5.3.3.3, only one emergency information panel is required on pressure drums, tubes and other placardable units having a diameter or side dimension of less than 1 metre.

5.3.3.5 Despite 5.3.1.3.5, if a placardable unit has a capacity of not more than 3 cubic metres, an emergency information panel fixed to the unit may have dimensions not less than half those shown in Figure 5.3.2[1] , in which case the size of each label and the height of lettering and numerals on the panel must be reduced in proportion to the reduced dimensions of the panel.

5.3.3.6 Exception to placarding with EIPs

This section 5.3.3 does not apply to a placardable unit that is being transported in a closed freight container that has been imported into, or is to be exported from Australia, if:

(a) the placardable unit is marked and labelled in accordance with the applicable modal code (IMDG Code, ICAO Rules or IATA Regulations); and

(b) the freight container is placarded in accordance with the applicable modal code (IMDG Code, ICAO Rules or IATA Regulations); and

(c) no goods (dangerous or not) have been removed from or added to the freight container since:

(i) if imported:

- its arrival in Australia; or

(ii) if to be exported:

- the load was first consigned for transport to the place from which it is to be exported.

5.3.4 PLACARDING PORTABLE TANKS AND BULK CONTAINERS

5.3.4.1 Except as exempted by 5.3.8, a portable tank or bulk container that contains dangerous goods, or has contained dangerous goods and has not been cleaned free from dangerous goods, must be placarded with emergency information panels that are:

(a) selected in accordance with 5.3.4.2; and

(b) displayed in accordance with 5.3.1.4; and

(c) located on two sides of the tank or container so that, when it is placed on a vehicle, the emergency information panels will, as far as practicable, be visible from both sides of the vehicle.

5.3.4.2 EIP Selection

5.3.4.2.1 A portable tank or bulk container that contains only one type of dangerous goods must be placarded with emergency information panels describing those dangerous goods in accordance with 5.3.1.3.1.

5.3.4.2.2 A multi-compartment tank or bulk container that contains different types of dangerous goods in different compartments must:

(a) have, at each outlet point of each compartment of the tank or container, a mark identifying the dangerous goods contained in that compartment; and

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[1] *An Emergency Information Panel printed on an A3 sheet with minimum printing margins all round is deemed to meet this minimum size requirement.*

(b) be placarded with the following:

  (i) if the dangerous goods in the compartments constitute a mixed load of refined petroleum products - mixed load (refined petroleum product) emergency information panels in accordance with 5.3.1.3.3; or

  (ii) if the dangerous goods in the compartments have different UN Numbers and are not a mixed load of refined petroleum products - multi-load emergency information panels in accordance with 5.3.1.3.2; or emergency information panels for each compartment containing dangerous goods, together with a rear facing multi-load information panel.

5.3.5 PLACARDING FREIGHT CONTAINERS

NOTE 1: *This Section 5.3.5 applies to the placarding of freight containers loaded with dangerous goods in packages, large packages, overpacks, IBCs and other placardable units. Section 5.3.4 applies to freight containers that are used as bulk containers in accordance with Chapter 4.3.*

NOTE 2: *If the loaded container is intended for transport by sea or air, then:*

(a) the placarding threshold of this Code does not apply and placarding may be required for all loads that include dangerous goods (reference should be made to the IMDG Code, ICAO Rules or IATA Regulations as applicable); and

(b) see 5.3.2.1.1 to determine if the UN Number must also be displayed.

5.3.5.1 A freight container that contains a placard load of dangerous goods, as determined from Table 5.3, must be placarded in accordance with 5.3.1.4, on both long sides, with placards indicating what dangerous goods are contained, selected in accordance with 5.3.5.2.

5.3.5.2 Placard selection

5.3.5.2.1 Where all of the dangerous goods are of a single class or division, except where 5.3.8.2 applies, the placards required by 5.3.5.1 must include:

(a) the class or division label; and
(b) any subsidiary hazard label that is applicable to the goods.

5.3.5.2.2 Where there is more than one class or division in the freight container, except where 5.3.8.2 applies, the placards required by 5.3.5.1 must include either or both of the following:

(a) a mixed class label (model No. 10 in 5.2.2.2.3);
(b) all class and division labels for each primary and subsidiary hazard of the dangerous goods in the container, in accordance with 5.3.1.1.2 and 5.3.1.1.3.

5.3.5.2.3 Where any dangerous goods are transported in one or more placardable units, the placards required on the freight container by 5.3.5.1 must, except where 5.3.8 applies, include emergency information panels selected in accordance with 5.3.5.3.

5.3.5.2.4 The requirement of 5.3.5.2.1 or 5.3.5.2.2 for a label is met if it is included in an emergency information panel required by 5.3.5.2.3.

5.3.5.3 EIP Selection

5.3.5.3.1 A freight container in which only one type of dangerous goods is transported in placardable units must be placarded with emergency information panels describing those dangerous goods in accordance with 5.3.1.3.1.

5.3.5.3.2 A freight container in which different types of dangerous goods are transported in placardable units must be placarded with either:

(a) multi-load emergency information panels in accordance with 5.3.1.3.2; or

(b) emergency information panels for each of the dangerous goods in accordance with 5.3.1.3.1.

5.3.5.4 Placard location

When a freight container must be placarded with class, division or mixed class labels, or with emergency information panels, each placard must be placed on the sides of the container so that when the container is placed on the vehicle, each different placard is visible from either side of the vehicle and in accordance with 5.3.1.4.

5.3.6 PLACARDING ROAD VEHICLES

NOTE: *Some illustrations of the placement of placards for typical vehicle configurations are set out in Figure 5.3.6 at the end of this Chapter.*

5.3.6.1 All placard loads

5.3.6.1.1 All road vehicles transporting a placard load of dangerous goods, as determined from Table 5.3, must be placarded in accordance with 5.3.1.4 on the front and rear with placards indicating what dangerous goods are being carried.

5.3.6.1.2 Where all of the dangerous goods are of a single class or division, the placards required by 5.3.6.1.1 are:

(a) the class or division label; and

(b) any subsidiary hazard labels applicable to the goods

5.3.6.1.3 Where there is more than one class of dangerous goods on the vehicle during the journey, the placards required by 5.3.6.1.1 are either or both of the following:

(a) mixed class labels (model No. 10 in 5.2.2.2.3);

(b) all class and division labels for each primary and subsidiary hazard of the dangerous goods on the vehicle, in accordance with 5.3.1.1.2 and 5.3.1.1.3.

5.3.6.1.4 If the vehicle is a combination road vehicle, additional placards must be fitted when required by 5.3.6.2.

5.3.6.1.5 Where some or all of the dangerous goods are carried in placardable units, bulk containers, portable tanks or tanks which are integral with the vehicle, additional placards must be fitted when required by 5.3.6.3.

5.3.6.2 Combination Road Vehicles

5.3.6.2.1 Sub-section 5.3.6.2 applies to a combination road vehicle where the aggregate quantity of dangerous goods carried on all units of the combination comprises a placard load.

5.3.6.2.2 The placards that must be fitted in accordance with 5.3.6.1 and 5.3.6.3 to the front and rear of a combination vehicle must be determined based on the aggregate load carried on all units of the combination vehicle.

5.3.6.2.3 In addition, placards must be fitted to both sides of each trailer or rigid vehicle that forms part of the combination and is individually carrying a placard load, indicating the dangerous goods that are carried on the individual unit.

5.3.6.2.4 Placards fitted to the sides of a unit in accordance with 5.3.6.2.3 must include:

(a) class, division and/or mixed class labels determined in accordance with 5.3.6.1.2 and 5.3.6.1.3; and

(b) emergency information panels determined in accordance with 5.3.6.3 if any of the dangerous goods on the unit are carried in bulk containers, tanks or placardable units.

5.3.6.3 Dangerous goods in bulk containers, tanks or placardable units

5.3.6.3.1 In addition to placards required by 5.3.6.1, a road vehicle on which any dangerous goods are carried in bulk containers, tanks or placardable units must be placarded with emergency information panels in accordance with this sub-section 5.3.6.3.

5.3.6.3.2 Placement of Emergency Information Panels

5.3.6.3.2.1 Except as provided in 5.3.6.4, emergency information panels, selected in accordance with 5.3.6.3.3, must be fitted:

(a) on the rear of a vehicle or vehicle combination on any part of which dangerous goods are carried in one or more bulk containers, tanks or placardable units; and

(b) on the sides of each trailer or rigid vehicle on which dangerous goods are carried in bulk containers, tanks or placardable units.

5.3.6.3.2.2 Emergency information panels required by 5.3.6.3 must be placed on the vehicle:

(a) in a substantially vertical plane; and

(b) with the lower edge at least 450 millimetres[1] above the ground; and

(c) when fitted to the sides of the vehicle, as close as practicable to the front of the loading area of the vehicle[2] ; and

(d) in accordance with 5.3.1.4.

5.3.6.3.3 EIP Selection

5.3.6.3.3.1 A road vehicle transporting only one type of dangerous goods in bulk containers, tanks or placardable units must be placarded with emergency information panels describing those dangerous goods in accordance with 5.3.1.3.1.

5.3.6.3.3.2 A road vehicle transporting different types of dangerous goods in placardable units, bulk containers or tanks (including multi-compartment tanks, containers or units) must:

(a) be placarded with:

(i) if the dangerous goods constitute a mixed load of refined petroleum products:

- mixed load (refined petroleum product) emergency information panels in accordance with 5.3.1.3.3; or

(ii) if the goods are not a mixed load of refined petroleum products:

- multi-load emergency information panels in accordance with 5.3.1.3.2; or

(iii) in lieu of either (i) or (ii):

- individual emergency information panels describing each of the dangerous goods in accordance with 5.3.1.3.3, displayed in such a way that it is clear which goods are in what units; and

(b) have at each outlet point of each tank or compartment of a multi-compartmented tank, a mark identifying the dangerous goods contained in that tank or compartment.

5.3.6.4 Exceptions to placarding road vehicles

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[1] *This minimum of 450 mm above ground is intended to accommodate the sides of step-deck trailers transporting portable tanks and other vehicles where location of the emergency information panel in the normal line of vision is not practicable. On road tankers and, where practicable, on other vehicles, it is recommended that panels be at least 1 m above the ground. information panel in the normal line of vision is not practicable.*

[2] *Except where this is inconsistent with the placement of a placardable unit on the vehicle, as illustrated in Figure 5.3.6(e).*

5.3.6.4.1 Where a class, division or mixed class label is required to be displayed on the rear of a vehicle or side of a trailer or rigid vehicle by 5.3.6.1 or 5.3.6.2, it is sufficient compliance with those clauses if the label is incorporated in:

(a) an emergency information panel displayed on the vehicle in accordance with 5.3.6.3; or

(b) a placard in accordance with 5.3.3 on a placardable unit carried on the vehicle; or

(c) a placard in accordance with 5.3.4 on a portable tank or bulk container carried on the vehicle; or

(d) a placard in accordance with 5.3.5 on a freight container carried on the vehicle; or

that in each case faces, and is clearly visible from, the rear or side, as applicable, of the vehicle where it is required to be displayed.

5.3.6.4.2 Where a road vehicle is transporting dangerous goods in a portable tank, bulk container, freight container or placardable unit, it is sufficient compliance with 5.3.6.3 if the emergency information panel required by that sub-section is placarded on the tank, container or unit such that it faces, and is clearly visible from, the side of the unit or rear of the vehicle where it is required to be displayed.

5.3.6.4.3 Despite 5.3.6.3, emergency information panels are not required on a road vehicle transporting dangerous goods that are all in freight containers, portable tanks or bulk containers to which Section 5.3.8 applies.

5.3.6.4.4 A multi-load or mixed load (refined petroleum product) emergency information panel is not required on a side or rear of a road vehicle transporting different types of dangerous goods in portable tanks, bulk containers or placardable units, if:

(a) all portable tanks, bulk containers and placardable units are placarded in accordance with Section 5.3.5; and

(b) at least one emergency information panel for each of the dangerous goods is facing, and is clearly visible from, that side or rear of the vehicle on which:

   (i) the dangerous goods are being transported; and

   (ii) the multi-load or mixed load (refined petroleum product) emergency information panel would otherwise be required.

5.3.6.4.5 Emergency information panels on a spray vehicle may be removed or covered during spraying operations.

5.3.7 PLACARDING RAIL WAGONS

5.3.7.1 Rail tank wagons

5.3.7.1.1 A rail tank wagon transporting only one type of dangerous goods must be placarded on both sides with an emergency information panel describing those goods in accordance with 5.3.1.3.1.

5.3.7.1.2 A rail tank wagon transporting different types of dangerous goods in different compartments must:

(a) be placarded on both sides with either:

(i) if the goods are a mixed load of refined petroleum products:

- mixed load (refined petroleum product) emergency information panels in accordance with 5.3.1.3.3; or

(ii) if the goods are not a mixed load of refined petroleum products:

- multi-load emergency information panels in accordance with 5.3.1.3.2; and

(b) have at each outlet point of each tank or compartment of a multi-compartmented tank, a mark identifying the dangerous goods contained in that tank or compartment.

5.3.7.2 Other rail wagons

5.3.7.2.1 Where the only dangerous goods transported on a rail wagon are in freight containers, portable tanks, bulk containers or placardable units, no additional wagon placarding is required provided:

(a) each placardable unit that contains dangerous goods is either:

(i) placarded in accordance with 5.3.3; or

(ii) transported in a freight container that is placarded in accordance with sub-clause (b); and

(b) each freight container in which there is a placard load of dangerous goods is placarded in accordance with 5.3.5 or 5.3.8; and

(c) each portable tank or bulk container that contains dangerous goods is placarded in accordance with 5.3.4 or 5.3.8; and

(d) the placards on the tanks, containers and units face both sides of the wagon and are not obscured except as permitted by sub-clause (a)(ii).

5.3.7.2.2 A rail wagon transporting a placard load of dangerous goods, which are not all in cargo transport units or placardable units that are placarded in accordance 5.3.7.2.1, must be placarded on both sides with:

(a) if there is only one class or division of dangerous goods on the wagon:

(i) the class or division label for the goods; and

(ii) any subsidiary hazard labels applicable to the goods; or

(b) if there is more than one class or division of dangerous goods on the wagon:

(iii) a mixed class label (model No. 10 in 5.2.2.2.3).

5.3.7.2.3 A closed rail wagon transporting dangerous goods in one or more placardable units must be placarded with:

(a) emergency information panels describing those goods in accordance with 5.3.1.3.1 if there is only one type of dangerous goods; or

(b) multi-load emergency information panels in accordance with 5.3.1.3.2 if there is more than one type of dangerous goods in placardable units.

5.3.7.2.4 Where a placard that is expected on a container, tank or unit in accordance with 5.3.7.2.1 is missing or obscured, the required placard must be replaced or duplicated on the container, tank, unit or wagon in such a way that it is clearly visible, and evident to which container, tank or unit it applies.

5.3.8 PLACARDING INTERMODAL LOADS

5.3.8.1 A freight container, portable tank or bulk container in which dangerous goods are being transported does not need to be placarded with emergency information panels, despite a requirement in this chapter, if:

(a) the tank or container has been:

  (i) placarded outside Australia and imported into Australia; or

  (ii) filled or packed for export from Australia, or for transport between Australian locations by sea or air; or

  (iii) placarded outside Australia and imported into Australia, emptied, and is being returned overseas while containing residues; and

(b) the tank or container is marked and placarded fully in accordance with the applicable modal code (IMDG Code, IATA Regulations or ICAO Rules); and

(c) no goods (dangerous or not) have been removed from or added to the tank or container:

  (i) if imported: since its arrival in Australia; or

  (ii) if to be exported: since the load was first consigned for transport to the place from which it is to be exported; or

  (iii) if loaded for transport between Australian locations by sea or air: the duration of the complete journey including road or rail transport to and from the nominated ports or airports.

5.3.8.2 Despite anything to the contrary in this Chapter, a freight container in which the only dangerous goods being transported are in limited quantities may be placarded with the marking shown in 3.4.6 or 3.4.8, if the conditions specified in paragraphs (a), (b) and (c) of 5.3.8.1 apply.

5.3.9 PLACARD REMOVAL

5.3.9.1 Placards must not be removed from a placardable unit, portable tank, bulk container, road tank vehicle or rail tank wagon that has contained dangerous goods unless all receptacles, tanks and compartments are free from dangerous goods.

5.3.9.2 Placards must be removed from a placardable unit or cargo transport unit that has transported dangerous goods when it has been freed from dangerous goods.

5.3.9.3 Placards indicating a particular hazard must be removed from a placardable unit or cargo transport unit that is free from dangerous goods with that hazard.

NOTE: *See 7.1.7.1.2 regarding restrictions on placard removal from contaminated cargo transport units.*

Figure 5.3.6: Illustrations of Placarding Typical Road Vehicle Configurations

NOTE: *These illustrations are included for guidance only. They do not apply to all combinations of loads. To ascertain the placarding requirements for any particular load, refer to the text.*

Key to symbols used in these illustrations

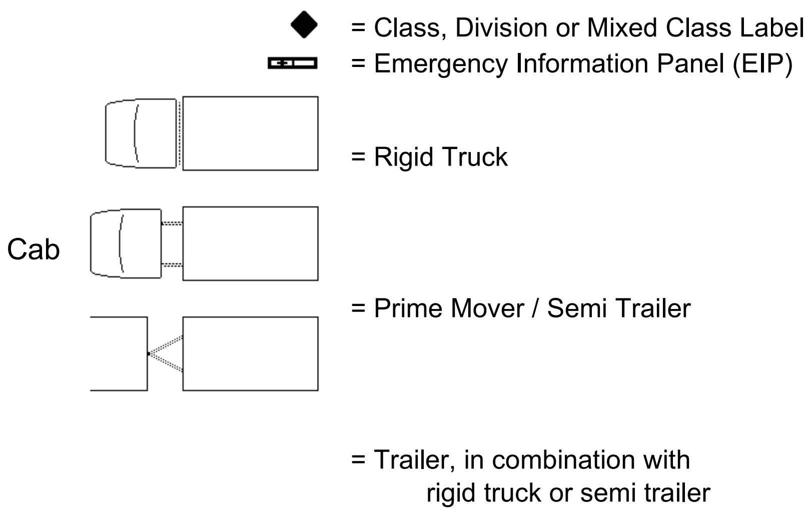


Figure 5.3.6(a): Road vehicles and combination road vehicles transporting dangerous goods in:

(i) cylinders, packages, large packages, overpacks; or

(ii) pressure drums, tubes or IBCs each ≤ 500 kg(L).

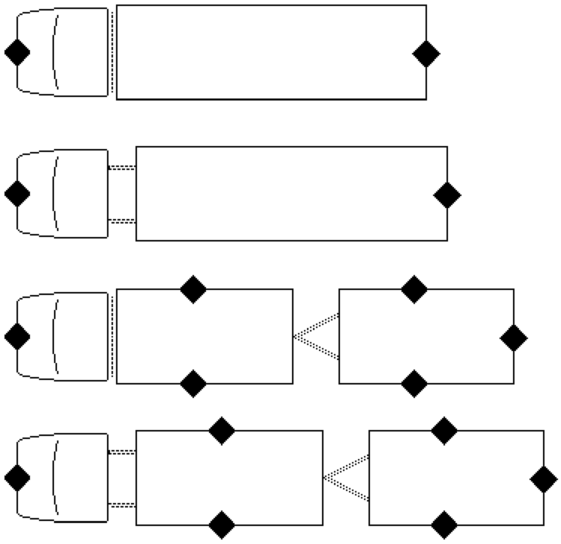


Figure 5.3.6(b): **Road tank vehicles and combination road tank vehicles.**

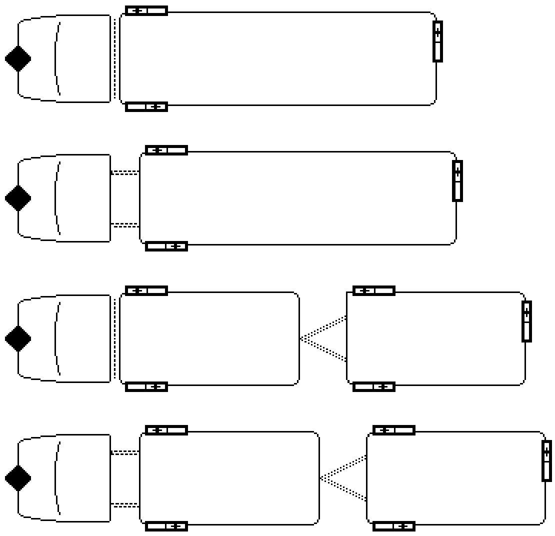


Figure 5.3.6(c): **Road vehicles and combination road vehicles transporting dangerous goods in freight containers (not containing placardable units).**

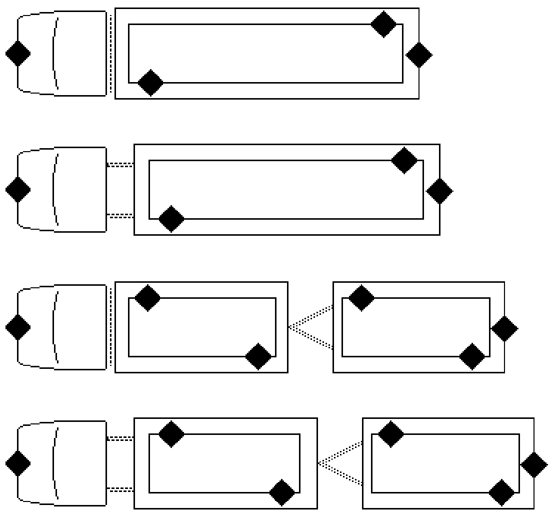


Figure 5.3.6(d): Road vehicles and combination road vehicles transporting portable tanks, bulk containers or placardable units displaying EIPs, or freight containers loaded with placardable units.

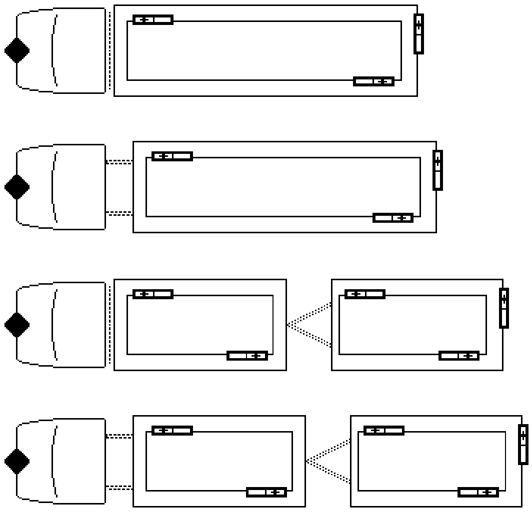
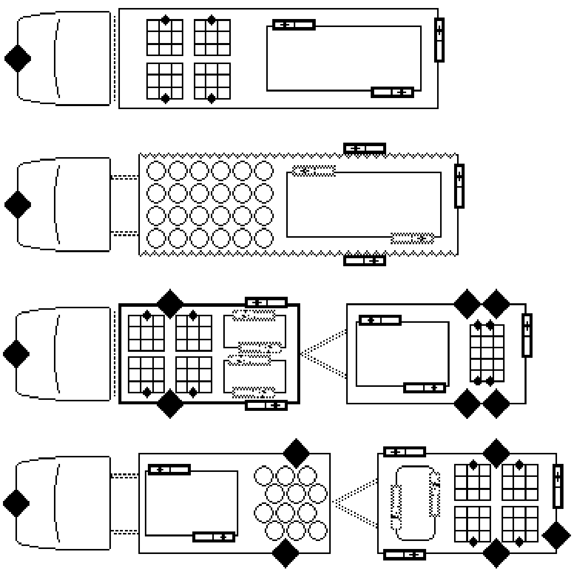


Figure 5.3.6(e): Road vehicles transporting dangerous goods both in packages etc. as in (a), and in placardable units.



Gated vehicle
- Same class goods in packages and placardable units
- EIPs on placardable units visible from side

Curtain sided vehicle
- Same class goods in packages and placardable units
- EIPs on placardable units obscured

Rigid truck - fully enclosed, with packages and placardable units of different classes, and Gated trailer - packaged goods have a sub hazard and are different class to placardable unit
- Multi-load EIP on rear,
- Mixed Class label on front

Gated combination vehicle - Placardable units of one class, different materials, Packages all one (different) class,
- EIPs on trailer sides as placardable unit obscured
- Multi-load, one class EIP plus Class Label on rear
- Mixed Class on front, Class Label on all sides

Figure 5.3.6(f): Combination vehicles transporting placard and non-placard loads.

NOTE: *Assume that in each of the illustrations in (f), the goods being transported are dangerous goods of Class 3, packing group II or III.*

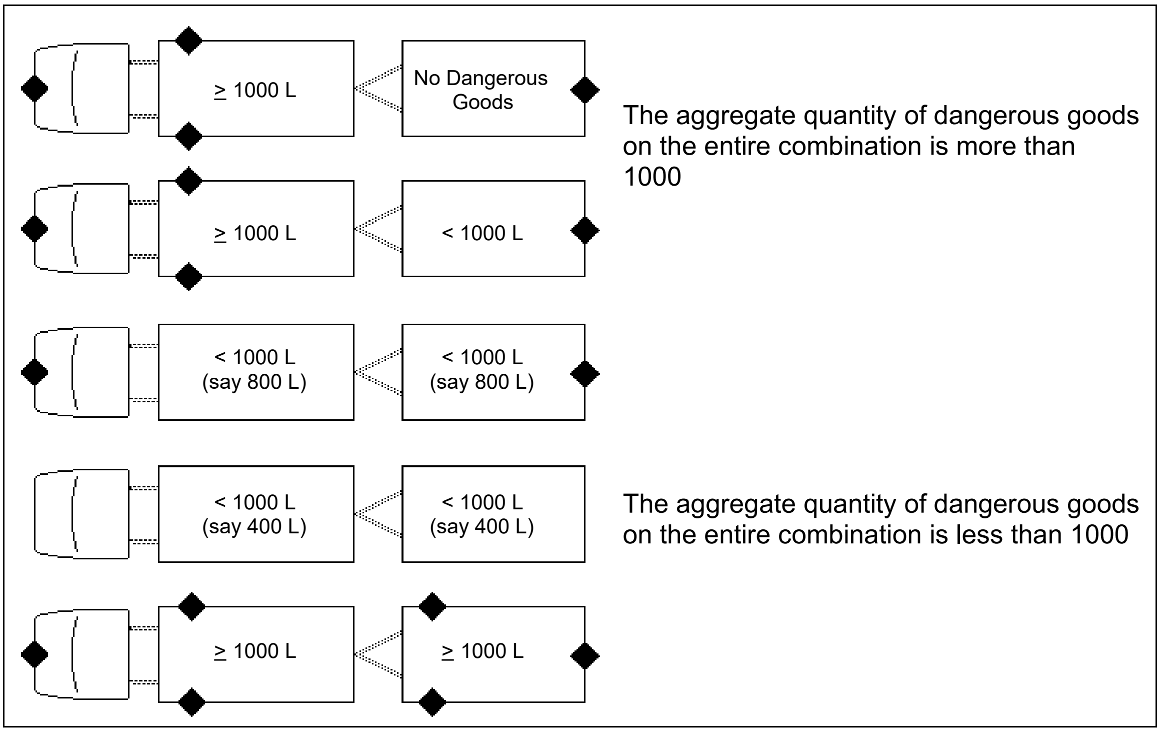
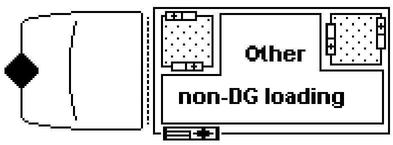


Figure 5.3.6(g): Small vehicle transporting 2 IBCs of same dangerous goods with other non dangerous goods.



1 IBC with ½ size EIP fully visible on one side.
1 IBC with ½ size EIP fully visible from rear. (No other EIP required on those faces)
Full size EIP required on side where IBC placards not visible

Figure 5.3.7: Colours for Labels and Placards

Sample Colour	Colour Reference: AS 2700 Colour Standards for General Purposes		Colour Reference: Pantone [1] Colour Reference
ORANGE	X 15	Orange	Pantone 151
RED	R 13	Signal Red	Pantone 192[2]
GREEN	G 24	Fern Green	Pantone 361[2]
BLUE	B 21	Ultramarine	Pantone 300[2]
YELLOW	Y 11	Canary	Pantone 109

Notes:

1 *The Pantone Colour Reference is the numbered sample colour appearing in the Pantone Matching System published by Pantone Inc. USA.*

2 *USA legislation specifies Pantone 186U for red, 335U for green and 285U for blue. For import or export labels, these are acceptable alternatives to the colours specified above.*

CHAPTER 5.4 - <RESERVED>

NOTE 1: *Chapter 5.4 of the UN20 provides details of documentation required for international, intermodal transport.*

NOTE 2: *Detailed requirements for documentation are provided in Part 11 of this Code.*

NOTE 3: *Some sample documentation is displayed in Appendix B.*

CHAPTER 5.5 - SPECIAL PROVISIONS

5.5.1 DELETED

5.5.2 SPECIAL PROVISIONS APPLICABLE TO FUMIGATED CARGO TRANSPORT UNITS (UN 3359)

5.5.2.1 General

5.5.2.1.1 Fumigated cargo transport units (UN 3359) containing no other dangerous goods are not subject to any provisions of this Code other than those of this section.

5.5.2.1.2 When the fumigated cargo transport unit is loaded with dangerous goods in addition to the fumigant, any provision of this Code relevant to these goods (including placarding, marking and documentation) applies in addition to the provisions of this section.

5.5.2.1.3 Only cargo transport units that can be closed in such a way that the escape of gas is reduced to a minimum must be used for the transport of cargo under fumigation.

5.5.2.2 Training

Persons engaged in the handling of fumigated cargo transport units must be trained commensurate with their responsibilities.

5.5.2.3 Marking and placarding

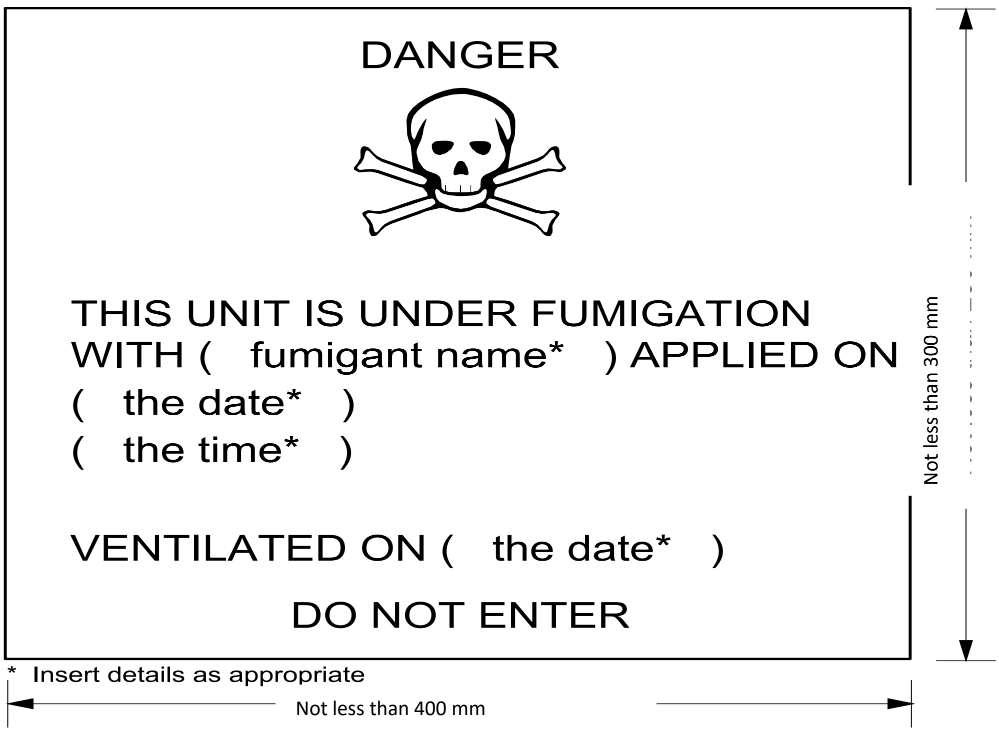
5.5.2.3.1 A fumigated cargo transport unit must be marked with a warning mark, as specified in 5.5.2.3.2, affixed at each access point in a location where it will be easily seen by persons opening or entering the cargo transport unit. This mark must remain on the cargo transport unit until the following provisions are met:

(a) The fumigated cargo transport unit has been ventilated to remove harmful concentrations of fumigant gas; and

(b) The fumigated goods or materials have been unloaded.

5.5.2.3.2 The fumigation warning mark must be as shown in Figure 5.5.1.

Figure 5.5.1: Fumigation warning mark



The mark must be a rectangle. The minimum dimensions must be 400 mm wide x 300 mm high and the minimum width of the outer line must be 2 mm. The mark must be in black print on a white background with lettering not less than 25 mm high. Where dimensions are not specified, all features must be in approximate proportion to those shown.

5.5.2.3.3 If the fumigated cargo transport unit has been completely ventilated either by opening the doors of the unit or by mechanical ventilation after fumigation, the date of ventilation must be marked on the fumigation warning mark.

5.5.2.3.4 When the fumigated cargo transport unit has been ventilated and unloaded, the fumigation warning mark must be removed.

5.5.2.3.5 Class 9 placards (Model No. 9, see 5.2.2.2.2) must not be affixed to a fumigated cargo transport unit except as required for other Class 9 substances or articles packed therein.

5.5.2.4 Documentation

5.5.2.4.1 Documents associated with the transport of cargo transport units that have been fumigated and have not been completely ventilated before transport must include the following information:

- UN 3359, fumigated cargo transport unit, 9, or UN 3359, fumigated cargo transport unit, class 9;
- The date and time of fumigation; and
- The type and amount of the fumigant used.

5.5.2.4.2 The transport document may be in any form, provided it contains the information required in 5.5.2.4.1. This information must be easy to identify, legible and durable.

5.5.2.4.3 Instructions for disposal of any residual fumigant including fumigation devices (if used) must be provided.

5.5.2.4.4 A document is not required when the fumigated cargo transport unit has been completely ventilated and the date of ventilation has been marked on the warning mark (see 5.5.2.3.3 and 5.5.2.3.4).

5.5.3 SPECIAL PROVISIONS APPLICABLE TO PACKAGES AND CARGO TRANSPORT UNITS CONTAINING SUBSTANCES PRESENTING A RISK OF ASPHYXIATION WHEN USED FOR COOLING OR CONDITIONING PURPOSES (SUCH AS DRY ICE (UN 1845) OR NITROGEN, REFRIGERATED LIQUID (UN 1977) OR ARGON, REFRIGERATED LIQUID (UN 1951) OR NITROGEN)

***NOTE**: In the context of this section the term "conditioning" may be used in a broader scope and includes protection.*

5.5.3.1 Scope

5.5.3.1.1 This section is not applicable to substances which may be used for cooling or conditioning purposes when transported as a consignment of dangerous goods. When they are transported as a consignment, these substances must be transported under the relevant entry of the Dangerous Goods List in Chapter 3.2 in accordance with the associated conditions of transport.

5.5.3.1.2 This section is not applicable to gases in cooling cycles.

5.5.3.1.3 Dangerous goods used for cooling or conditioning portable tanks or MEGCs during transport are not subject to this section.

5.5.3.1.4 Cargo transport units containing substances used for cooling or conditioning purposes include cargo transport units containing substances used for cooling or conditioning purposes inside packages as well as cargo transport units with unpackaged substances used for cooling or conditioning purposes.

5.5.3.2 General

5.5.3.2.1 Cargo transport units containing substances used for cooling or conditioning purposes (other than fumigation) during transport are not subject to any provisions of this Code other than those of this section.

5.5.3.2.2 When dangerous goods are loaded in cargo transport units containing substances used for cooling or conditioning purposes any provisions of this Code relevant to these dangerous goods apply in addition to the provisions of this section.

5.5.3.2.3 For air transport, arrangements between consignor and operator must be made for each consignment, to ensure that ventilation safety procedures are followed.

5.5.3.2.4 Persons engaged in the handling or transport of cargo transport units containing substances used for cooling or conditioning purposes must be trained commensurate with their responsibilities.

5.5.3.3 Packages containing a coolant or conditioner

5.5.3.3.1 Packaged dangerous goods requiring cooling or conditioning assigned to packing instructions P203, P620, P650, P800, P901 or P904 of 4.1.4.1 must meet the appropriate requirements of that packing instruction.

5.5.3.3.2 For packaged dangerous goods requiring cooling or conditioning assigned to other packing instructions, the packages must be capable of withstanding very low temperatures and must not be affected or significantly weakened by the coolant or conditioner. Packages must be designed and constructed to permit the release of gas to prevent a build-up of pressure that could rupture the packaging. The dangerous goods must be packed in such a way to prevent movement after the dissipation of any coolant or conditioner.

5.5.3.3.3 Packages containing a coolant or conditioner must be transported in well ventilated cargo transport units.

5.5.3.4 Marking of packages containing a coolant or conditioner

5.5.3.4.1 Packages containing dangerous goods used for cooling or conditioning must be marked with the proper shipping name of these dangerous goods followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate.

5.5.3.4.2 The marks must be durable, legible and placed in such a location and of such a size relative to the package as to be readily visible.

5.5.3.5 Cargo transport units containing unpackaged dry ice

5.5.3.5.1 If dry ice in unpackaged form is used, it must not come into direct contact with the metal structure of a cargo transport unit to avoid embrittlement of the metal. Measures must be taken to provide adequate insulation between the dry ice and the cargo transport unit by providing a minimum of 30 mm separation (e.g. by using suitable low heat conducting materials such as timber planks, pallets etc.).

5.5.3.5.2 Where dry ice is placed around packages, measures must be taken to ensure that packages remain in the original position during transport after the dry ice has dissipated.

5.5.3.6 Marking of cargo transport units

5.5.3.6.1 Cargo transport units containing dangerous goods used for cooling or conditioning purposes must be marked with a warning mark, as specified in 5.5.3.6.2 affixed at each access point in a location where it will be easily seen by persons opening or entering the cargo transport unit. This mark must remain on the cargo transport unit until the following provisions are met:

(a) The cargo transport unit has been ventilated to remove harmful concentrations of coolant or conditioner; and

(b) The cooled or conditioned goods have been unloaded.

5.5.3.6.2 The warning mark must be as shown in Figure 5.5.2.

Figure 5.5.2: Asphyxiation warning mark for cargo transport units

Legend for symbols in Figure 5.5.2:

* Insert proper shipping name of the coolant/conditioner. The lettering must be in capitals, all be on one line and must be at least 25 mm high. If the length of the proper shipping name is too long to fit in the space provided, the lettering may be reduced to the maximum size possible to fit. For example: CARBON DIOXIDE, SOLID. Additional

information such as “AS COOLANT” or “AS CONDITIONER” may be added.

The mark must be a rectangle. The minimum dimensions must be 150 mm wide x 250 mm high. The word “WARNING” must be in red or white and be at least 25 mm high.

Where dimensions are not specified, all features must be in approximate proportion to those shown.

5.5.3.7 Documentation

5.5.3.7.1 Documents (such as a bill of lading or cargo manifest) associated with the transport of cargo transport units containing or have contained substances used for cooling or conditioning purposes and have not been completely ventilated before transport must include the following information:

(a) The UN number preceded by the letters "UN"; and

(b) The proper shipping name followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate.

For example: UN 1845, CARBON DIOXIDE, SOLID, AS COOLANT.

5.5.3.7.2 The transport document may be in any form, provided it contains the information required in 5.5.3.7.1. This information must be easy to identify, legible and durable.

5.5.4 DANGEROUS GOODS IN EQUIPMENT IN USE OR INTENDED FOR USE DURING TRANSPORT

5.5.4.1 Dangerous goods (e.g. lithium batteries, fuel cell cartridges) contained in equipment such as data loggers and cargo tracking devices, attached to or placed in packages, overpacks, containers or load compartments are not subject to any provisions of this Code other than the following:

(a) the equipment must be in use or intended for use during transport;

(b) the contained dangerous goods (e.g. lithium batteries, fuel cell cartridges) must meet the applicable construction and test requirements specified in this Code; and

(c) the equipment must be capable of withstanding the shocks and loadings normally encountered during transport.

5.5.4.2 When such equipment containing dangerous goods is transported as a consignment, the relevant entry of the Dangerous Goods List in Chapter 3.2 must be used and all applicable provisions of this Code shall apply.”

PART 6: REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PACKAGINGS, IBCS, LARGE PACKAGINGS, PORTABLE TANKS, MEGCS, BULK CONTAINERS, TANK VEHICLES, FREIGHT CONTAINERS & SEGREGATION DEVICES

CHAPTER 6.1 - REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PACKAGINGS

6.1.1 GENERAL

6.1.1.1 The requirements of this Chapter do not apply to:

(a) packages containing radioactive material, which must comply with the Regulations of the International Atomic Energy Agency (IAEA), except that:

 (i) radioactive material possessing other dangerous properties (subsidiary hazards) must also comply with special provision 172; and

 (ii) low specific activity (LSA) material and surface contaminated objects (SCO) may be carried in certain packagings defined in the Model Regulations provided that the supplementary provisions set out in the IAEA Regulations are also met;

(b) pressure receptacles;

(c) packages whose net mass exceeds 400 kg;

(d) packagings for liquids, other than combination packagings, with a capacity exceeding 450 litres;

(e) packagings for Division 6.2 infectious substances of Category A except for UN 3549.

6.1.1.2 The requirements for packagings in 6.1.4 are based on packagings currently used. In order to take into account progress in science and technology, there is no objection to the use of packagings having specifications different from those in 6.1.4, provided that they are equally effective, acceptable to the competent authority and able successfully to withstand the tests described in 6.1.1.3 and 6.1.5. Methods of testing other than those described in this Code are acceptable, provided they are equivalent.

6.1.1.3 Every packaging intended to contain liquids must successfully undergo a suitable leakproofness test. This test is part of a quality assurance programme as stipulated in 6.1.1.4 which shows the capability of meeting the appropriate test level indicated in 6.1.5.4.3:

(a) before it is first used for transport;

(b) after remanufacturing or reconditioning, before it is re-used for transport.

For this test, packagings need not have their own closures fitted.

The inner receptacle of composite packagings may be tested without the outer packaging provided the test results are not affected. This test is not necessary for inner packagings of combination packagings.

6.1.1.4 Packagings must be manufactured, reconditioned and tested under a quality assurance programme in order to ensure that each packaging meets the requirements of this Chapter.

NOTE: *AS ISO 16106 [ISO 16106:2006] "Packaging - Transport packages for dangerous goods - Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings -Guidelines for the application of ISO 9001" provides acceptable guidance on procedures which may be followed.*

6.1.1.5 Manufacturers and subsequent distributors of packagings must provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that packages as presented for transport are capable of passing the applicable performance tests of this Chapter.

6.1.2 CODE FOR DESIGNATING TYPES OF PACKAGINGS

6.1.2.1 The code consists of:

(a) an Arabic numeral indicating the kind of packaging, e.g. drum, jerrican, etc., followed by:

(b) a capital letter(s) in Latin characters indicating the nature of the material, e.g. steel, wood, etc., followed where necessary by:

(c) an Arabic numeral indicating the category of packaging within the kind to which the packaging belongs.

6.1.2.2 In the case of composite packagings, two capital letters in Latin characters are used in sequence in the second position of the code. The first indicates the material of the inner receptacle and the second that of the outer packaging.

6.1.2.3 In the case of combination packagings, only the code number for the outer packaging is used.

6.1.2.4 The letters "T" or "V" or "W" may follow the packaging code. The letter "T" signifies a salvage packaging conforming to the requirements of 6.1.5.1.11. The letter "V" signifies a special packaging conforming to the requirements of 6.1.5.1.12. The letter "W" signifies that the packaging, although of the same type indicated by the code, is manufactured to a specification different from that in 6.1.4 and is considered equivalent under the requirements of 6.1.1.2.

6.1.2.5 The following numerals must be used for the kinds of packaging:

1. Drum
2. <Reserved>
3. Jerrican
4. Box
5. Bag
6. Composite packaging

6.1.2.6 The following capital letters must be used for the types of material:

A. Steel (all types and surface treatments)

B. Aluminium
C. Natural wood
D. Plywood
F. Reconstituted wood
G. Fibreboard
H. Plastics material
L. Textile
M. Paper, multiwall
N. Metal (other than steel or aluminium)
P. Glass, porcelain or stoneware

NOTE: *Plastics materials, is taken to include other polymeric materials such as rubber.*

6.1.2.7 The following table indicates the codes to be used for designating types of packagings depending on the kind of packagings, the material used for their construction and their category; it also refers to the paragraphs to be consulted for the appropriate requirements:

Table 6.1.2.7: Codes to be used for designating types of packagings

Kind	Material	Category	Code	Paragraph
1. Drums	A. Steel	non-removable head	1A1	6.1.4.1
		removable head	1A2	6.1.4.1
	B. Aluminium	non-removable head	1B1	6.1.4.2
		removable head	1B2	6.1.4.2
	D. Plywood		1D	6.1.4.5
	G. Fibre		1G	6.1.4.7
	H. Plastics	non-removable head	1H1	6.1.4.8
		removable head	1H2	6.1.4.8
	N. Metal, other than steel or aluminium	non-removable head	1N1	6.1.4.3
		removable head	1N2	6.1.4.3
2. <Reserved>				
3. Jerricans	A. Steel	non-removable head	3A1	6.1.4.4
		removable head	3A2	6.1.4.4
	B. Aluminium	non-removable head	3B1	6.1.4.4
		removable head	3B2	6.1.4.4
	H. Plastics	non-removable head	3H1	6.1.4.8
		removable head	3H2	6.1.4.8
4. Boxes	A. Steel		4A	6.1.4.14
	B. Aluminium		4B	6.1.4.14
	C. Natural wood	ordinary	4C1	6.1.4.9

Table 6.1.2.7: Codes to be used for designating types of packagings

Kind	Material	Category	Code	Paragraph
		with sift-proof walls	4C2	
	D. Plywood		4D	6.1.4.10
	F. Reconstituted wood		4F	6.1.4.11
	G. Fibreboard		4G	6.1.4.12
	H. Plastics	expanded	4H1	6.1.4.13
		solid	4H2	
	N. Metal, other than steel or aluminium		4N	6.1.4.14
5. Bags	H. Woven plastics	without inner liner or coating	5H1	6.1.4.16
		sift-proof	5H2	
		water resistant	5H3	
	H. Plastics film		5H4	6.1.4.17
	L. Textile	without inner liner or coating	5L1	6.1.4.15
		sift proof	5L2	
		water resistant	5L3	
	M. Paper	multiwall	5M1	6.1.4.18
		multiwall, water resistant	5M2	
6. Composite packagings	H. Plastics receptacle	in steel drum	6HA1	6.1.4.19
		in steel crate or box	6HA2	6.1.4.19
		in aluminium drum	6HB1	6.1.4.19
		in aluminium crate or box	6HB2	6.1.4.19
		in wooden box	6HC	6.1.4.19
		in plywood drum	6HD1	6.1.4.19
		in plywood box	6HD2	6.1.4.19
		in fibre drum	6HG1	6.1.4.19
		in fibreboard box	6HG2	6.1.4.19
		in plastics drum	6HH1	6.1.4.19
		in solid plastics box	6HH2	6.1.4.19
	P. Glass, porcelain or stoneware receptacle	in steel drum	6PA1	6.1.4.20
		in steel crate or box	6PA2	6.1.4.20
		in aluminium drum	6PB1	6.1.4.20
		in aluminium crate or box	6PB2	6.1.4.20
		in wooden box	6PC	6.1.4.20
		in plywood drum	6PD1	6.1.4.20
		in wickerwork hamper	6PD2	6.1.4.20

Table 6.1.2.7: Codes to be used for designating types of packagings

Kind	Material	Category	Code	Paragraph
		in fibre drum	6PG1	6.1.4.20
		in fibreboard box	6PG2	6.1.4.20
		in expanded plastics packaging	6PH1	6.1.4.20
		in solid plastics packaging	6PH2	6.1.4.20

6.1.3 MARKING

NOTE 1: *The marks indicate that the packaging which bears them corresponds to a successfully tested design type and that it complies with the requirements of this Chapter which are related to the manufacture, but not to the use, of the packaging. In itself, therefore, the marks do not necessarily confirm that the packaging may be used for any substance: generally the type of packaging (e.g. steel drum), its maximum capacity and/or mass, and any special requirements are specified for each substance in Part 3 of this Code.*

NOTE 2: *The marks are intended to be of assistance to packaging manufacturers, reconditioners, packaging users, regulatory authorities and everyone involved in the transport of dangerous goods. In relation to the use of a new packaging, the original marks area means for its manufacturer(s) to identify the type and to indicate those performance test regulations that have been met.*

NOTE 3: *The marks do not always provide full details of the test levels, etc., and these may need to be taken further into account, e.g. by reference to a test certificate, to test reports or to a register of successfully tested packagings. For example, a packaging having an X or Y mark may be used for substances to which a packing group having a lesser degree of danger has been assigned with the relevant maximum permissible value of the relative density[1] determined by taking into account the factor 1.5 or 2.25 indicated in the test requirements for packagings in 6.1.5 as appropriate, i.e. packing group I packaging tested for products of relative density 1.2 could be used as a packing group II packaging for products of relative density 1.8 or a packing group III packaging of relative density 2.7, provided of course that all the performance criteria can still be met with the higher relative density product.*

6.1.3.1 Each packaging intended for use according to this Code must bear marks which are durable, legible and placed in a location and of such a size relative to the packaging as to be readily visible. For packages with a gross mass of more than 30 kg, the marks or a duplicate thereof must appear on the top or on a side of the packaging. Letters, numerals and

[1] *Relative density (d) is considered to be synonymous with Specific Gravity (SG) and is used throughout this text.*

symbols must be at least 12 mm high, except for packagings of 30 litres capacity or less or of 30 kg maximum net mass, when they must be at least 6 mm in height and except for packagings of 5 litres capacity or less or of 5 kg maximum net mass when they must be of an appropriate size.

The marks must show:

(a) the United Nations packaging symbol.

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8. For embossed metal packagings the capital letters "UN" may be applied as the symbol;

(b) the code designating the type of packaging according to 6.1.2;

(c) a code in two parts:

(i) a letter designating the packing group(s) for which the design type has been successfully tested:

X for packing groups I, II and III

Y for packing groups II and III

Z for packing group III only;

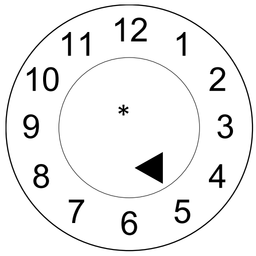
(ii) the relative density, rounded off to the first decimal, for which the design type has been tested for packagings without inner packagings intended to contain liquids; this may be omitted when the relative density does not exceed 1.2. For packagings intended to contain solids or inner packagings, the maximum gross mass in kilograms;

(d) either the letter "S" denoting that the packaging is intended for the transport of solids or inner packagings or, for packagings (other than combination packagings) intended to contain liquids, the hydraulic test pressure which the packaging was shown to withstand in kPa rounded down to the nearest 10 kPa;

(e) the last two digits of the year during which the packaging was manufactured.

Packagings of types IH and 3H must also be appropriately marked with the month of manufacture; this may be marked on the packaging in a different place from the remainder of the marks;

An appropriate method is shown here.



* The last two digits of the year of manufacture may be displayed at that place. In such a case and when the clock is placed adjacent to the UN design type mark, the indication of the year in the mark may be waived. However, when the clock is not placed adjacent to the UN design type mark, the two digits of the year in the mark and in the clock shall be identical

NOTE: *Other methods that provide the minimum required information in a durable, visible and legible form are also acceptable.*

(f) the State authorising the allocation of the mark, indicated by the distinguishing sign used on vehicles in international road traffic[1];

(g) the name of the manufacturer or other identification of the packaging specified by the competent authority.

6.1.3.2 In addition to the durable marks prescribed in 6.1.3.1, every new metal drum of a capacity greater than 100 litres must bear the marks described in 6.1.3.1(a) to (e) on the bottom, with an indication of the nominal thickness of at least the metal used in the body (in mm, to 0.1 mm), in permanent form (e.g. embossed). When the nominal thickness of either head of a metal drum is thinner than that of the body, the nominal thicknesses of the top head, body, and bottom head must be marked on the bottom in permanent form (e.g. embossed), for example “1.0-1.2-1.0” or “0.9-1.0-1.0”. Nominal thicknesses of metal must be determined according to the appropriate ISO or Australian standard, for example ISO 3574:1999 or AS/NZS 1595 for steel. The marks indicated in 6.1.3.1(f) and (g) must not be applied in a permanent form (e.g. embossed) except as provided in 6.1.3.5.

6.1.3.3 Every packaging other than those referred to in 6.1.3.2 liable to undergo a reconditioning process must bear the marks indicated in 6.1.3.1(a) to (e) in a permanent form. Marks are permanent if they are able to withstand the reconditioning process (e.g. embossed). For packagings other than metal drums of a capacity greater than 100 litres, these permanent marks may replace the corresponding durable marks prescribed in 6.1.3.1.

[1] Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.

6.1.3.4 For remanufactured metal drums, if there is no change to the packaging type and no replacement or removal of integral structural components, the required marks need not be permanent (e.g. embossed). Every other remanufactured metal drum must bear the marks in 6.1.3.1(a) to (e) in a permanent form (e.g. embossed) on the top head or side.

6.1.3.5 Metal drums made from materials (e.g. stainless steel) designed to be reused repeatedly may bear the marks indicated in 6.1.3.1(f) and (g) in a permanent form (e.g. embossed).

6.1.3.6 Packagings manufactured with recycled plastics material as defined in 1.2.1 must be marked “REC”. This marks must be placed near the mark prescribed in 6.1.3.1.

6.1.3.7 Marks must be applied in the sequence shown in 6.1.3.1; each mark required in these sub-paragraphs and when appropriate, (h) to (j) of 6.1.3.8, must be clearly separated, e.g. by a slash or space, so as to be easily identifiable. For examples, see 6.1.3.10.

Any additional marks authorised by a competent authority must still enable the other marks required in 6.1.3.1 to be correctly identified.

6.1.3.8 After reconditioning a packaging, the reconditioner must apply to it, in sequence, a durable marks showing:

(h) the State in which the reconditioning was carried out, indicated by the indicated by the distinguishing sign used on vehicles in international road traffic[1];

(I) the name of the reconditioner or other identification of the packaging specified by the competent authority;

(j) the year of reconditioning; the letter “R”; and, for every packaging successfully passing the leakproofness test in 6.1.1.3, the additional letter “L”.

6.1.3.9 When, after reconditioning, the marks required by 6.1.3.1(a) to (d) no longer appear on the top head or the side of a metal drum, the reconditioner also must apply them in a durable form followed by 6.1.3.8(h), (i) and (j). These marks must not identify a greater performance capability than that for which the original design type had been tested and marked.

6.1.3.10 Examples for marking NEW packagings

4G/YI45/S/02/ **AUS/9014**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.1(f) and (g)	For a new fibreboard box
IAI/Y1.4/I50/98/ **NL/VL824**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.1(f) and (g)	For a new steel drum to contain liquids

[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

un	**1A2/Y150/S/01/ NL/VL825**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.1(f) and (g)	For a new steel drum to contain solids, or inner packagings
un	**4HW/Y136/S/98 / NL/VL826**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.1(f) and (g)	For a new plastics box of equivalent specification
un	**1A2/Y/100/01/ USA/MM5**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.1(f) and (g)	For a remanufactured steel drum to contain liquids

6.1.3.11 Examples for marking RECONDITIONED packagings

un	**IA1/Y1.4/150/97/ AUS/co1/06 RL**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.8(h), (i) and (j)
un	**1A2/Y150/S/99/ AUS/co2/06 R**	as in 6.1.3.1(a), (b), (c), (d), and (e) as in 6.1.3.8(h), (i) and (j)

6.1.3.12 Example for marking SALVAGE packagings

un	**1A2T/Y300/S/01/ USA/abc**	as in 6.1.3.1(a), (b), (c), (d) and (e) as in 6.1.3.1(f) and (g)

NOTE: *The marking, for which examples are given in 6.1.3.10, 6.1.3.11 and 6.1.3.12, may be applied in a single line or in multiple lines provided the correct sequence is respected.*

6.1.3.13 Where a packaging conforms to one or more than one tested packaging design type, including one or more than one tested IBC or large packaging design type, the packaging may bear more than one mark to indicate the relevant performance test requirements that have been met. Where more than one mark appears on a packaging, the marks must appear in close proximity to one another and each mark must appear in its entirety

6.1.3.14 Packagings that have not been performance tested

If a packaging is exempt from performance testing, it must be marked in a manner that enables its origins to be traced.

6.1.4 REQUIREMENTS FOR PACKAGINGS

6.1.4.0 General requirements

Any permeation of the substance contained in the packaging must not constitute a danger under normal conditions of transport.

6.1.4.1 Steel drums

1A1 non-removable head

1A2 removable head

6.1.4.1.1 Body and heads must be constructed of steel sheet of a suitable type and of adequate thickness in relation to the capacity of the drum and to its intended use.

NOTE: *In the case of carbon steel drums, "suitable" steels are identified in ISO 3573:1999 "Hot rolled carbon steel sheet of commercial and drawing qualities" and ISO 3574:1999 "Cold-reduced carbon steel sheet of commercial and drawing qualities". For carbon steel drums below 100 litres "suitable" steels in addition to the above standards are also identified in ISO 11949:1995 "Cold-reduced electrolytic tinplate", ISO 11950:1995 "Cold-reduced electrolytic chromium/chromium oxide-coated steel" and ISO 11951:1995 "Cold-reduced blackplate in coil form for the production of tinplate or electrolytic chromium/chromium-oxide coated steel".*

6.1.4.1.2 Body seams must be welded on drums intended to contain more than 40 litres of liquid. Body seams must be mechanically seamed or welded on drums intended to contain solids or 40 litres or less of liquids.

6.1.4.1.3 Chimes must be mechanically seamed or welded. Separate reinforcing rings may be applied.

6.1.4.1.4 The body of a drum of a capacity greater than 60 litres must, in general, have at least two expanded rolling hoops or, alternatively, at least two separate rolling hoops. If there are separate rolling hoops they must be fitted tightly on the body and so secured that they cannot shift. Rolling hoops must not be spot welded.

6.1.4.1.5 Openings for filling, emptying and venting in the bodies or heads of non-removable head (1A1) drums must not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1A2). Closures for openings in the bodies and heads of drums must be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Closure flanges may be mechanically seamed or welded in place. Gaskets or other sealing elements must be used with closures, unless the closure is inherently leakproof.

6.1.4.1.6 Closure devices for removable head drums must be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of transport. Gaskets or other sealing elements must be used with all removable heads.

6.1.4.1.7 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments must be applied. These coatings or treatments must retain their protective properties under normal conditions of transport.

6.1.4.1.8 Maximum capacity of drum: 450 litres

6.1.4.1.9 Maximum net mass: 400 kg

6.1.4.2 Aluminium drums

1B1 non-removable head

1B2 removable head

6.1.4.2.1 Body and heads must be constructed of aluminium at least 99% pure or of an aluminium base alloy. Material must be of a suitable type and of adequate thickness in relation to the capacity of the drum and to its intended use.

6.1.4.2.2 All seams must be welded. Chime seams, if any, must be reinforced by the application of separate reinforcing rings.

6.1.4.2.3 The body of a drum of a capacity greater than 60 litres must, in general, have at least two expanded rolling hoops or, alternatively, at least two separate rolling hoops. If there are separate rolling hoops they must be fitted tightly on the body and so secured that they cannot shift. Rolling hoops must not be spot welded.

6.1.4.2.4 Openings for filling, emptying and venting in the bodies or heads of non-removable head (1B1) drums must not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1B2). Closures for openings in the bodies and heads of drums must be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Closure flanges must be welded in place so that the weld provides a leakproof seam. Gaskets or other sealing elements must be used with closures, unless the closure is inherently leakproof.

6.1.4.2.5 Closure devices for removable head drums must be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of transport. Gaskets or other sealing elements must be used with all removable heads.

6.1.4.2.6 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments must be applied. These coatings or treatments must retain their protective properties under normal conditions of transport.

6.1.4.2.7 Maximum capacity of drum: 450 litres

6.1.4.2.8 Maximum net mass: 400 kg

6.1.4.3 Drums of metal other than steel or aluminium

1N1 non-removable head

1N2 removable head

6.1.4.3.1 The body and heads must be constructed of a metal or of a metal alloy other than steel or aluminium. Material must be of a suitable type and of adequate thickness in relation to the capacity of the drum and to its intended use.

6.1.4.3.2 Chime seams, if any, must be reinforced by the application of separate reinforcing rings. All seams, if any, must be joined (welded, soldered, etc.) in accordance with the technical state of the art for the used metal or metal alloy.

6.1.4.3.3 The body of a drum of a capacity greater than 60 litres must, in general, have at least two expanded rolling hoops or, alternatively, at least two separate rolling hoops. If there are separate rolling hoops they must be fitted tightly on the body and so secured that they cannot shift. Rolling hoops must not be spot welded.

6.1.4.3.4 Openings for filling, emptying and venting in the bodies or heads of non-removable head (1N1) drums must not exceed 7 cm in diameter. Drums with larger openings are considered to be of the removable head type (1N2). Closures for openings in the bodies and heads of drums must be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Closure flanges must be joined in place (welded, soldered, etc.) in accordance with the technical state of the art for the used metal or metal alloy so that the seam join is leakproof. Gaskets or other sealing elements must be used with closures, unless the closure is inherently leakproof.

6.1.4.3.5 Closure devices for removable head drums must be so designed and applied that they will remain secure and drums will remain leakproof under normal conditions of transport. Gaskets or other sealing elements must be used with all removable heads.

6.1.4.3.6 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments must be applied. These coatings or treatments must retain their protective properties under normal conditions of transport.

6.1.4.3.7 Maximum capacity of drum: 450 litres

6.1.4.3.8 Maximum net mass: 400 kg

6.1.4.4 Steel or aluminium jerricans

3A1 steel, non-removable head
3A2 steel, removable head
3B1 aluminium, non-removable head
3B2 aluminium, removable head

6.1.4.4.1 Body and heads must be constructed of steel sheet, of aluminium at least 99% pure or of an aluminium base alloy. Material must be of a suitable type and of adequate thickness in relation to the capacity of the jerrican and to its intended use.

6.1.4.4.2 Chimes of steel jerricans must be mechanically seamed or welded. Body seams of steel jerricans intended to contain more than 40 litres of liquid must be welded. Body seams of steel jerricans intended to contain 40 litres or less must be mechanically seamed or welded. For aluminium jerricans, all seams must be welded. Chime seams, if any, must be reinforced by the application of a separate reinforcing ring.

6.1.4.4.3 Openings in jerricans (3A1 and 3B1) must not exceed 7 cm in diameter. Jerricans with larger openings are considered to be of the removable head type (3A2 and 3B2). Closures must be so designed that they will remain secure and leakproof under normal conditions of transport. Gaskets or other sealing elements must be used with closures, unless the closure is inherently leakproof.

6.1.4.4.4 If materials used for body, heads, closures and fittings are not in themselves compatible with the contents to be transported, suitable internal protective coatings or treatments must be applied. These coatings or treatments must retain their protective properties under normal conditions of transport.

6.1.4.4.5 Maximum capacity of jerrican: 60 litres

6.1.4.4.6 Maximum net mass: 120 kg

6.1.4.5 Plywood drums

1D

6.1.4.5.1 The wood used must be well-seasoned, commercially dry and free from any defect likely to lessen the effectiveness of the drum for the purpose intended. If a material other than plywood is used for the manufacture of the heads, it must be of a quality equivalent to the plywood.

6.1.4.5.2 At least two-ply plywood must be used for the body and at least three-ply plywood for the heads; the plies must be firmly glued together by a water resistant adhesive with their grain crosswise.

6.1.4.5.3 The body and heads of the drum and their joins must be of a design appropriate to the capacity of the drum and to its intended use.

6.1.4.5.4 In order to prevent sifting of the contents, lids must be lined with kraft paper or some other equivalent material which must be securely fastened to the lid and extend to the outside along its full circumference.

6.1.4.5.5 Maximum capacity of drum: 250 litres

6.1.4.5.6 Maximum net mass: 400 kg

6.1.4.6 <Reserved> (Deleted by UN)

6.1.4.7 Fibre drums

1G

6.1.4.7.1 The body of the drum must consist of multiple plies of heavy paper or fibreboard (without corrugations) firmly glued or laminated together and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastics material, etc.

6.1.4.7.2 Heads must be of natural wood, fibreboard, metal, plywood, plastics or other suitable material and may include one or more protective layers of bitumen, waxed kraft paper, metal foil, plastics material, etc.

6.1.4.7.3 The body and heads of the drum and their joins must be of a design appropriate to the capacity of the drum and to its intended use.

6.1.4.7.4 The assembled packaging must be sufficiently water resistant so as not to delaminate under normal conditions of transport.

6.1.4.7.5 Maximum capacity of drum: 450 litres

6.1.4.7.6 Maximum net mass: 400 kg

6.1.4.8 Plastics drums and jerricans

1H1 drums, non-removable head
1H2 drums, removable head
3H1 jerricans, non-removable head
3H2 jerricans, removable head

6.1.4.8.1 The packaging must be manufactured from suitable plastics material and be of adequate strength in relation to its capacity and intended use. Except for recycled plastics material as defined in 1.2.1, no used material other than production residues or regrind from the same manufacturing process may be used. The packaging must be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation.

6.1.4.8.2 If protection against ultra-violet radiation is required, it must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black content does not exceed 2% by mass or if the pigment content does not exceed 3% by mass; the content of inhibitors of ultra-violet radiation is not limited.

6.1.4.8.3 Additives serving purposes other than protection against ultra-violet radiation may be included in the composition of the plastics material provided that they do not adversely affect the chemical and physical properties of the material of the packaging. In such circumstances, retesting may be waived.

6.1.4.8.4 The wall thickness at every point of the packaging must be appropriate to its capacity and intended use, taking into account the stresses to which each point is liable to be exposed.

6.1.4.8.5 Openings for filling, emptying and venting in the bodies or heads of non-removable head drums (1H1) and jerricans (3H1) must not exceed 7 cm in diameter. Drums and jerricans with larger openings are considered to be of the removable head type (1H2 and 3H2). Closures for openings in the bodies or heads of drums and jerricans must be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Gaskets or other sealing elements must be used with closures unless the closure is inherently leakproof.

6.1.4.8.6 Closure devices for removable head drums and jerricans must be so designed and applied that they will remain secure and leakproof under normal conditions of transport. Gaskets must be used with all removable heads unless the drum or jerrican design is such that, where the removable head is properly secured, the drum or jerrican is inherently leakproof.

6.1.4.8.7 Maximum capacity of drums and jerricans:

1H1, 1H2:	450 litres
3H1, 3H2:	60 litres

6.1.4.8.8 Maximum net mass:

1H1, 1H2:	400 kg
3H1, 3H2:	120 kg

6.1.4.9 Boxes of natural wood

4C1 ordinary

4C2 with sift-proof walls

6.1.4.9.1 The wood used must be well-seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the box. The strength of the material used and the method of construction must be appropriate to the capacity and intended use of the box. The tops and bottoms may be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.

6.1.4.9.2 Fastenings must be resistant to vibration experienced under normal conditions of transport. End grain nailing must be avoided whenever practicable. Joins which are likely to be highly stressed must be made using clenched or annular ring nails or equivalent fastenings.

6.1.4.9.3 Box 4C2: each part must consist of one piece or be equivalent thereto. Parts are considered equivalent to one piece when one of the following methods of glued assembly is used: Lindermann joint, tongue and groove joint, ship lap or rabbet joint or butt joint with at least two corrugated metal fasteners at each joint.

6.1.4.9.4 Maximum net mass: 400 kg

6.1.4.10 Plywood boxes

4D

6.1.4.10.1 Plywood used must be at least 3-ply. It must be made from well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the box. The strength of the material used and the method of construction must be appropriate to the capacity and intended use of the box. All adjacent plies must be glued with water resistant adhesive. Other suitable materials may be used together with plywood in the construction of boxes. Boxes must be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

6.1.4.10.2 Maximum net mass: 400 kg

6.1.4.11 Reconstituted wood boxes

4F

6.1.4.11.1 The walls of boxes must be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type. The strength of the material used and the method of construction must be appropriate to the capacity of the boxes and to their intended use.

6.1.4.11.2 Other parts of the boxes may be made of other suitable material.

6.1.4.11.3 Boxes must be securely assembled by means of suitable devices.

6.1.4.11.4 Maximum net mass: 400 kg

6.1.4.12 Fibreboard boxes

4G

6.1.4.12.1 Strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) must be used, appropriate to the capacity of the box and to its intended use. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m^2 - see ISO 535:I991 or AS/NZS 1301.411s. It must have proper bending qualities. Fibreboard must be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting of corrugated fibreboard must be firmly glued to the facings.

6.1.4.12.2 The ends of boxes may have a wooden frame or be entirely of wood or other suitable material. Reinforcements of wooden battens or other suitable material may be used.

6.1.4.12.3 Manufacturing joins in the body of boxes must be taped, lapped and glued, or lapped and stitched with metal staples. Lapped joins must have an appropriate overlap.

6.1.4.12.4 Where closing is effected by gluing or taping, a water resistant adhesive must be used.

6.1.4.12.5 Boxes must be designed so as to provide a good fit to the contents.

6.1.4.12.6 Maximum net mass: 400 kg

6.1.4.13 Plastics boxes

4H1 expanded plastics boxes

4H2 solid plastics boxes

6.1.4.13.1 The box must be manufactured from suitable plastics material and be of adequate strength in relation to its capacity and intended use. The box must be adequately resistant to ageing and to degradation caused either by the substance contained or by ultra-violet radiation.

6.1.4.13.2 An expanded plastics box must comprise two parts made of a moulded expanded plastics material, a bottom section containing cavities for the inner packagings and a top section covering and interlocking with the bottom section. The top and bottom sections must be designed so that the inner packagings fit snugly. The closure cap for any inner packaging must not be in contact with the inside of the top section of this box.

6.1.4.13.3 For dispatch, an expanded plastics box must be closed with a self-adhesive tape having sufficient tensile strength to prevent the box from opening. The adhesive tape must be weather resistant and its adhesive compatible with the expanded plastics material of the box. Other closing devices at least equally effective may be used.

6.1.4.13.4 For solid plastics boxes, protection against ultra-violet radiation, if required, must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the box. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, retesting may be waived if the carbon black content does not exceed 2% by mass or if the pigment content does not exceed 3% by mass; the content of inhibitors of ultra-violet radiation is not limited.

6.1.4.13.5 Additives serving purposes other than protection against ultra-violet radiation may be included in the composition of the plastics material provided that they do not adversely affect the chemical or physical properties of the material of the box. In such circumstances, retesting may be waived.

6.1.4.13.6 Solid plastics boxes must have closure devices made of a suitable material of adequate strength and so designed as to prevent the box from unintentional opening.

6.1.4.13.7 *Maximum net mass*:

4H1: 60 kg

4H2: 400 kg

6.1.4.14 Steel, aluminium or other metal boxes

4A steel

4B aluminium

4N metal, other than steel or aluminium, boxes

6.1.4.14.1 The strength of the metal and the construction of the box must be appropriate to the capacity of the box and to its intended use.

6.1.4.14.2 Boxes must be lined with fibreboard or felt packing pieces or must have an inner liner or coating of suitable material, as required. If a double seamed metal liner is used, steps must be taken to prevent the ingress of substances, particularly explosives, into the recesses of the seams.

6.1.4.14.3 Closures may be of any suitable type; they must remain secured under normal conditions of transport.

6.1.4.14.4 Maximum net mass: 400 kg

6.1.4.15 Textile bags

5L1 without inner liner or coating

5L2 sift-proof

5L3 water resistant

6.1.4.15.1 The textiles used must be of good quality. The strength of the fabric and the construction of the bag must be appropriate to the capacity of the bag and to its intended use.

6.1.4.15.2 Bags, sift-proof, 5L2: the bag must be made sift-proof, for example by the use of:

(a) paper bonded to the inner surface of the bag by a water resistant adhesive such as bitumen; or

(b) plastics film bonded to the inner surface of the bag; or

(c) one or more inner liners made of paper or plastics material.

6.1.4.15.3 Bags, water resistant, 5L3: to prevent the entry of moisture the bag must be made waterproof, for example by the use of:

(a) separate inner liners of water resistant paper (e.g. waxed kraft paper, tarred paper or plastics-coated kraft paper); or

(b) plastics film bonded to the inner surface of the bag; or

(c) one or more inner liners made of plastics material.

6.1.4.15.4 Maximum net mass: 50 kg

6.1.4.16 Woven plastics bags

5H1 without inner liner or coating

5H2 sift-proof

5H3 water resistant

6.1.4.16.1 Bags must be made from stretched tapes or monofilaments of a suitable plastics material. The strength of the material used and the construction of the bag must be appropriate to the capacity of the bag and to its intended use.

6.1.4.16.2 If the fabric is woven flat, the bags must be made by sewing or some other method ensuring closure of the bottom and one side. If the fabric is tubular, the bag must be closed by sewing, weaving or some other equally strong method of closure.

6.1.4.16.3 Bags, sift-proof, 5H2: –the bag must be made sift-proof, for example by means of:

(a) paper or a plastics film bonded to the inner surface of the bag; or

(b) one or more separate inner liners made of paper or plastics material.

6.1.4.16.4 Bags, water resistant, 5H3: –to prevent the entry of moisture, the bag must be made waterproof, for example by means of:

(a) separate inner liners of water resistant paper (e.g. waxed kraft paper, double-tarred kraft paper or plastics-coated kraft paper); or

(b) plastics film bonded to the inner or outer surface of the bag; or

(c) one or more inner plastics liners.

6.1.4.16.5 Maximum net mass: 50 kg

6.1.4.17 Plastics film bags

5H4

6.1.4.17.1 Bags must be made of a suitable plastics material. The strength of the material used and the construction of the bag must be appropriate to the capacity of the bag and to its intended use. Joins and closures must withstand pressures and impacts liable to occur under normal conditions of transport.

6.1.4.17.2 Maximum net mass: 50 kg

6.1.4.18 Paper bags

5M1 multiwall

5M2 multiwall, water resistant

6.1.4.18.1 Bags must be made of a suitable kraft paper or of an equivalent paper with at least three plies, the middle ply of which may be net-cloth with adhesive bonding to the outer ply. The strength of the paper and the construction of the bags must be appropriate to the capacity of the bag and to its intended use. Joins and closures must be sift-proof.

6.1.4.18.2 Bags 5M2: to prevent the entry of moisture, a bag of four plies or more must be made waterproof by the use of either a water resistant ply as one of the two outermost plies or a water resistant barrier made of a suitable protective material between the two outermost plies; a bag of three plies must be made waterproof by the use of a water resistant ply as the outermost ply.

Where there is a danger of the substance contained reacting with moisture or where it is packed damp, a waterproof ply or barrier, such as double-tarred kraft paper, plastics-coated kraft paper, plastics film bonded to the inner surface of the bag, or one or more inner plastics liners, must also be placed next to the substance. Joins and closures must be waterproof.

6.1.4.18.3 Maximum net mass: 50 kg

6.1.4.19 Composite packagings (plastics material)

6HA1 plastics receptacle with outer steel drum
6HA2 plastics receptacle with outer steel crate or box
6HB1 plastics receptacle with outer aluminium drum
6HB2 plastics receptacle with outer aluminium crate or box
6HC plastics receptacle with outer wooden box
6HD1 plastics receptacle with outer plywood drum
6HD2 plastics receptacle with outer plywood box
6HG1 plastics receptacle with outer fibre drum
6HG2 plastics receptacle with outer fibreboard box
6HH1 plastics receptacle with outer plastics drum
6HH2 plastics receptacle with outer solid plastics box

6.1.4.19.1 Inner receptacle

6.1.4.19.1.1 The requirements of 6.1.4.8.1 and 6.1.4.8.3 to 6.1.4.8.6 apply to inner plastics receptacles.

6.1.4.19.1.2 The inner plastics receptacle must fit snugly inside the outer packaging, which must be free of any projection that might abrade the plastics material.

6.1.4.19.1.3 Maximum capacity of inner receptacle:

6HA1, 6HB1, 6HD1, 6HG1, 6HH1: 250 litres
6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2: 60 litres

6.1.4.19.1.4 Maximum net mass:

6HA1, 6HB1, 6HD1, 6HG1, 6HH1: 400 kg
6HA2, 6HB2, 6HC, 6HD2, 6HG2, 6HH2: 75 kg

6.1.4.19.2 Outer packaging

6.1.4.19.2.1 Plastics receptacle with outer steel or aluminium drum 6HA1 or 6HB1: the relevant requirements of 6.1.4.1 or 6.1.4.2, as appropriate, apply to the construction of the outer packaging.

6.1.4.19.2.2 Plastics receptacle with outer steel or aluminium crate or box 6HA2 or 6HB2: the relevant requirements of 6.1.4.14 apply to the construction of the outer packaging.

6.1.4.19.2.3 Plastics receptacle with outer wooden box 6HC: the relevant requirements of 6.1.4.9 apply to the construction of the outer packaging.

6.1.4.19.2.4 Plastics receptacle with outer plywood drum 6HD1: the relevant requirements of 6.1.4.5 apply to the construction of the outer packaging.

6.1.4.19.2.5 Plastics receptacle with outer plywood box 6HD2: the relevant requirements of 6.1.4.10 apply to the construction of the outer packaging.

6.1.4.19.2.6 Plastics receptacle with outer fibre drum 6HG1: the requirements of 6.1.4.7.1 to 6.1.4.7.4 apply to the construction of the outer packaging.

6.1.4.19.2.7 Plastics receptacle with outer fibreboard box 6HG2: the relevant requirements of 6.1.4.12 apply to the construction of the outer packaging.

6.1.4.19.2.8 Plastics receptacle with outer plastics drum 6HH1: the requirements of 6.1.4.8.1 and 6.1.4.8.2 to 6.1.4.8.6 apply to the construction of the outer packaging.

6.1.4.19.2.9 Plastics receptacles with outer solid plastics box (including corrugated plastics material) 6HH2: the requirements of 6.1.4.13.1 and 6.1.4.13.4 to 6.1.4.13.6 apply to the construction of the outer packaging.

6.1.4.20 Composite packagings (glass, porcelain or stoneware)

6PA1 receptacle with outer steel drum

6PA2 receptacle with outer steel crate or box

6PB1 receptacle with outer aluminium drum

6PB2 receptacle with outer aluminium crate or box

6PC receptacle with outer wooden box

6PD1 receptacle with outer plywood drum

6PD2 receptacle with outer wickerwork hamper

6PG1 receptacle with outer fibre drum

6PG2 receptacle with outer fibreboard box

6PH1 receptacle with outer expanded plastics packaging

6PH2 receptacle with outer solid plastics packaging

6.1.4.20.1 Inner receptacle

6.1.4.20.1.1 Receptacles must be of a suitable form (cylindrical or pear-shaped) and be made of good quality material free from any defect that could impair their strength. The walls must be sufficiently thick at every point.

6.1.4.20.1.2 Screw-threaded plastics closures, ground glass stoppers or closures at least equally effective must be used as closures for receptacles. Any part of the closure likely to come into contact with the contents of the receptacle must be resistant to those contents. Care must be taken to ensure that the closures are so fitted as to be leakproof and are suitably secured to prevent any loosening during transport. If vented closures are necessary, they must comply with 4.1.1.8.

6.1.4.20.1.3 The receptacle must be firmly secured in the outer packaging by means of cushioning and/or absorbent materials.

6.1.4.20.1.4 Maximum capacity of receptacle: 60 litres

6.1.4.20.1.5 Maximum net mass: 75 kg

6.1.4.20.2 Outer packaging

6.1.4.20.2.1 Receptacle with outer steel drum 6PA1: the relevant requirements of 6.1.4.1 apply to the construction of the outer packaging. The removable lid required for this type of packaging may nevertheless be in the form of a cap.

6.1.4.20.2.2 Receptacle with outer steel crate or box 6PA2: the relevant requirements of 6.1.4.14 apply to the construction of the outer packaging. For cylindrical receptacles the outer packaging must, when upright, rise above the receptacle and its closure. If the crate surrounds a pear-shaped receptacle and is of matching shape, the outer packaging must be fitted with a protective cover (cap).

6.1.4.20.2.3 Receptacle with outer aluminium drum 6PB1: the relevant requirements of 6.1.4.2 apply to the construction of the outer packaging.

6.1.4.20.2.4 Receptacle with outer aluminium crate or box 6PB2: the relevant requirements of 6.1.4.14 apply to the construction of the outer packaging.

6.1.4.20.2.5 Receptacle with outer wooden box 6PC: the relevant requirements of 6.1.4.9 apply to the construction of the outer packaging.

6.1.4.20.2.6 Receptacle with outer plywood drum 6PD1: the relevant requirements of 6.1.4.5 apply to the construction of the outer packaging.

6.1.4.20.2.7 Receptacle with outer wickerwork hamper 6PD2: the wickerwork hamper must be properly made with material of good quality. It must be fitted with a protective cover (cap) so as to prevent damage to the receptacle.

6.1.4.20.2.8 Receptacle with outer fibre drum 6PG1: the relevant requirements of 6.1.4.7.1 to 6.1.4.7.4 apply to the construction of the outer packaging.

6.1.4.20.2.9 Receptacle with outer fibreboard box 6PG2: the relevant requirements of 6.1.4.12 apply to the construction of the outer packaging.

6.1.4.20.2.10 Receptacle with outer expanded plastics or solid plastics packaging (6PH1 or 6PH2): the materials of both outer packagings must meet the relevant requirements of 6.1.4.13. Solid plastics packaging must be manufactured from high density polyethylene or some other comparable plastics material. The removable lid for this type of packaging may nevertheless be in the form of a cap.

6.1.4.21 <RESERVED> The requirements for inner packagings filled in Australia were removed from the Code in 2020.

6.1.5 TEST REQUIREMENTS FOR PACKAGINGS

6.1.5.1 Performance and frequency of tests

6.1.5.1.1 The design type of each packaging must be tested as provided in 6.1.5 in accordance with procedures established by the competent authority.

6.1.5.1.2 Each packaging design type must successfully pass the tests prescribed in this Chapter before being used. A packaging design type is defined by the design, size, material and thickness, manner of construction and packing, but may include various surface treatments. It also includes packagings which differ from the design type only in their lesser design height.

6.1.5.1.3 Tests must be repeated on production samples at intervals established by the competent authority. For such tests on paper or fibreboard packagings, preparation at ambient conditions is considered equivalent to the requirements of 6.1.5.2.3.

6.1.5.1.4 Tests must also be repeated after each modification which alters the design, material or manner of construction of a packaging.

6.1.5.1.5 The competent authority may permit the selective testing of packagings that differ only in minor respects from a tested type, e.g. smaller sizes of inner packagings or inner packagings of lower net mass; and packagings such as drums, bags and boxes which are produced with small reductions in external dimension(s).

6.1.5.1.6 <Reserved>

NOTE: *For the conditions for using different inner packagings in an outer packaging and permissible variations in inner packagings, see 4.1.1.5.1.*

6.1.5.1.7 <Reserved>

NOTE: *In this Code, requirements for special packagings marked "V" have been relocated to 6.1.5.1.12 to avoid confusion with headings.*

6.1.5.1.8 The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced packagings meet the requirements of the design type tests.

6.1.5.1.9 If an inner treatment or coating is required for safety reasons, it must retain its protective properties even after the tests.

6.1.5.1.10 Provided the validity of the test results is not affected several tests may be made on one sample.

6.1.5.1.11 Salvage packagings

Salvage packagings (see 1.2.1) must be tested and marked in accordance with the provisions applicable to packing group II packagings intended for the transport of solids or inner packagings, except as follows:

(a) The test substance used in performing the tests must be water, and the packagings must be filled to not less than 98% of their maximum capacity. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass so long as they are placed so that the test results are not affected. Alternatively, in performing the drop test, the drop height may be varied in accordance with 6.1.5.3.5(b); and

(b) Packagings must, in addition, have been successfully subjected to the leakproofness test at 30 kPa, with the results of this test reflected in the test report required by 6.1.5.7; and

(c) Packagings must be marked with the letter "T" as described in 6.1.2.4.

6.1.5.1.12 Special packagings marked with "V" [UN 6.1.5.1.7]

Articles or inner packagings of any type for solids or liquids may be assembled and transported without testing in an outer packaging under the following conditions:

(a) The outer packaging must have been successfully tested in accordance with 6.1.5.3 with fragile (e.g. glass) inner packagings containing liquids using the packing group I drop height;

(b) The total combined gross mass of inner packagings must not exceed one half the gross mass of inner packagings used for the drop test in (a) above;

(c) The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging must not be reduced below the corresponding thicknesses in the originally tested packaging; and if a single inner packaging was used in the original test, the thicknesses of cushioning between inner packagings must not be less than the thickness of cushioning between the outside of the packaging and the inner packaging in the original test. If either fewer or smaller inner packagings are used (as compared to the inner packagings used in the drop test), sufficient additional cushioning material must be used to take up void spaces;

(d) The outer packaging must have passed successfully the stacking test in 6.1.5.6 while empty. The total mass of identical packages must be based on the combined mass of inner packagings used for the drop test in (a) above;

(e) Inner packagings containing liquids must be completely surrounded with a sufficient quantity of absorbent material to absorb the entire liquid contents of the inner packagings;

(f) if the outer packaging is intended to contain inner packagings for liquids and is not leakproof, or is intended to contain inner packagings for solids and is not siftproof, a means of containing any liquid or solid contents in the event of leakage must be provided in the form of a leakproof liner, plastics bag or other equally efficient means of containment. For packagings containing liquids, the absorbent material required in (e) above must be placed inside the means of containing the liquid contents;

(g) For air transport, packagings must comply with 4.1.1.4.1;

(h) Packagings must be marked in accordance with 6.1.3 as having been tested to packing group I performance for combination packagings. The marked gross mass in kilograms must be the sum of the mass of the outer packaging plus one half of the mass of the inner packaging(s) as used for the drop test referred to in (a) above. Such a package mark must also contain a letter “V” as described in 6.1.2.4.

6.1.5.2 Preparation of packagings for testing

6.1.5.2.1 Tests must be carried out on packagings prepared as for transport including, with respect to combination packagings, the inner packagings used. Inner or single receptacles or packagings other than bags must be filled to not less than 98% of their maximum capacity for liquids or 95% for solids. Bags must be filled to the maximum mass at which they may be used. For combination packagings where the inner packaging is designed to carry liquids and solids, separate testing is required for both liquid and solid contents. The substances or articles to be transported in the packagings may be replaced by other substances or articles except where this would invalidate the results of the tests. For solids, when another substance is used it must have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.

6.1.5.2.2 In the drop tests for liquids, when another substance is used, it must be of similar relative density and viscosity to those of the substance being transported. Water may also be used for the liquid drop test under the conditions in 6.1.5.3.5.

6.1.5.2.3 Paper or fibreboard packagings must be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h.). There are three options, one of which must be chosen. The preferred atmosphere is 23 2 °C and 50% 2% r.h. The two other options are 20 ± 2 °C and 65% ±2% r.h. or 27 ± 2 °C and 65% ± 2% r.h.

NOTE: Average values must fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to ± 5% relative humidity without significant impairment of test reproducibility.

6.1.5.2.4 Additional steps must be taken to ascertain that the plastics material used in the manufacture of plastics drums, plastics jerricans and composite packagings (plastics material) intended to contain liquids complies with the requirements in 6.1.1.2, 6.1.4.8.1 and 6.1.4.8.3. This may be done, for example, by submitting sample receptacles or packagings to a preliminary test extending over a long period, for example six months, during which the samples would remain filled with the substances they are intended to contain, and after which the samples must be submitted to the applicable tests listed in 6.1.5.3, 6.1.5.4, 6.1.5.5 and 6.1.5.6. For substances which may cause stress-cracking or weakening in plastics drums or jerricans, the sample, filled with the substance or another substance that is known to have at least as severe a stress-cracking influence on the plastics material in question, must be subjected to a superimposed load equivalent to the total mass of identical packages which might be stacked on it during transport. The minimum height of the stack including the test sample must be 3 metres.

6.1.5.3 Drop test

6.1.5.3.1 Number of test samples (per design type and manufacturer) and drop orientation

For other than flat drops the centre of gravity must be vertically over the point of impact.

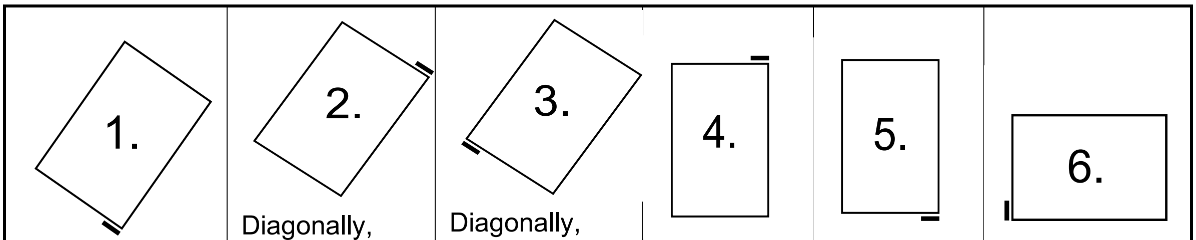
Where more than one orientation is possible for a given drop test, the orientation most likely to result in failure of the packaging must be used.

Table 6.1.5.3.1: Number of test samples (per design type and manufacturer) and drop orientation

Packaging	No. of test samples	Drop orientation
Steel drums. Aluminium drums. Metal drums, other than steel or aluminium drums. Steel jerricans. Aluminium jerricans. Plywood drums. Fibre drums. Plastics drums and jerricans. Composite packagings which are in the shape of a drum.	Six[a] (three for each drop)	*First drop* (using three samples): the packaging must strike the target diagonally on the chime or, if the packaging has no chime, on a circumferential seam or an edge. *Second drop* (using the other three samples): the packaging must strike the target on the weakest part not tested by the first drop, for example a closure or, for some cylindrical drums, the welded longitudinal seam of the drum body.
Boxes of natural wood. Plywood boxes. Reconstituted wood boxes. Fibreboard boxes. Plastics boxes. Steel or aluminium boxes. Composite packagings which are in the shape of a box.	Five (one for each drop)	*First drop:* flat on the bottom *Second drop:* flat on the top *Third drop:* flat on the long side *Fourth drop:* flat on the short side *Fifth drop:* on a corner
Bags – single-ply with a side seam.	Three (three drops per bag)	*First drop:* flat on a wide face *Second drop:* flat on a narrow face Third drop: on an end of the bag
Bags – single-ply without a side seam, or multi-ply.	Three (two drops per bag)	*First drop:* flat on a wide face *Second drop:* on an end of the bag

Table note [a] *Examples of orientations acceptable in Australia are depicted in Figure 6.1.*

Figure 6.1: Examples of Drop Test Orientation



Diagonally, with centre of mass directly above the top edge, adjacent the major closure, so as the closure and seam strike the target	Diagonally, with centre of mass directly above the bottom seam, major closure at the lowest position on the drum head	Diagonally, with centre of mass directly above the top seam diametrically opposite the major closure	Vertically so as to strike the target flat on the bottom	Vertically, so as to strike the target flat on the top	so as to strike the target on the side of the drum with the major closure at the lowest point

6.1.5.3.2 Special preparation of test samples for the drop test

The temperature of the test sample and its contents must be reduced to -18 °C or lower for the following packagings:

(a) Plastics drums (see 6.1.4.8);
(b) Plastics jerricans (see 6.1.4.8);
(c) Plastics boxes other than expanded plastics boxes (see 6.1.4.13);
(d) Composite packagings (plastics material) (see 6.1.4.19); and
(e) Combination packagings with plastics inner packagings, other than plastics bags intended to contain solids or articles.

Where test samples are prepared in this way, the conditioning in 6.1.5.2.3 may be waived. Test liquids must be kept in the liquid state by the addition of anti-freeze if necessary.

6.1.5.3.3 Removable head packagings for liquids must not be dropped until at least 24 hours after filling and closing to allow for any possible gasket relaxation.

6.1.5.3.4 Target

The target must be a non-resilient and horizontal surface and must be:

– Integral and massive enough to be immovable;
– Flat with a surface kept free from local defects capable of influencing the test results;
– Rigid enough to be non-deformable under test conditions and not liable to become damaged by the tests; and
– Sufficiently large to ensure that the test package falls entirely upon the surface.

6.1.5.3.5 *Drop height*

For solids and liquids, if the test is performed with the solid or liquid to be carried or with another substance having essentially the same physical characteristics:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

For liquids in single packagings and for inner packagings of combination packagings, if the test is performed with water:

***NOTE**: The term water includes water/antifreeze solutions with a minimum specific gravity of 0.95 for testing at - 18 °C.*

(a) Where the substances to be transported have a relative density not exceeding 1.2:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

(b) Where the substances to be transported have a relative density exceeding 1.2, the drop height must be calculated on the basis of the relative density (d) of the substance to be carried, rounded up to the first decimal, as follows:

Packing group I	Packing group II	Packing group III
d ×1.5 (m)	d × 1.0 (m)	d × 0.67 (m)

6.1.5.3.6 *Criteria for passing the test:*

6.1.5.3.6.1 Each packaging containing liquid must be leakproof when equilibrium has been reached between the internal and external pressures, except for inner packagings of combination packagings when it is not necessary that the pressures be equalised.

6.1.5.3.6.2 Where a packaging for solids undergoes a drop test and its upper face strikes the target, the test sample passes the test if the entire contents are retained by an inner packaging or inner receptacle (e.g. a plastics bag), even if the closure while retaining its containment function, is no longer sift-proof.

6.1.5.3.6.3 The packaging or outer packaging of a composite or combination packaging must not exhibit any damage liable to affect safety during transport. Inner receptacles, inner packagings, or articles must remain completely within the outer packaging and there must be no leakage of the filling substance from the inner receptacle(s) or inner packaging(s).

6.1.5.3.6.4 Neither the outermost ply of a bag nor an outer packaging may exhibit any damage liable to affect safety during transport.

6.1.5.3.6.5 A slight discharge from the closure(s) upon impact is not considered to be a failure of the packaging provided that no further leakage occurs.

6.1.5.3.6.6 No rupture is permitted in packagings for goods of Class 1 which would permit the spillage of loose explosive substances or articles from the outer packaging.

6.1.5.4 Leakproofness test

The leakproofness test must be performed on all design types of packagings intended to contain liquids; however, this test is not required for the inner packagings of combination packagings.

6.1.5.4.1 Number of test samples: three test samples per design type and manufacturer.

6.1.5.4.2 Special preparation of test samples for the test: either vented closures must be replaced by similar non-vented closures or the vent must be sealed.

6.1.5.4.3 Test method and pressure to be applied: the packagings including their closures must be restrained under water for 5 minutes while an internal air pressure is applied, the method of restraint must not affect the results of the test.

The air pressure (gauge) to be applied must be:

Packing group I	Packing group II	Packing group III
Not less than 30 kPa (0.3 bar)	Not less than 20 kPa (0.2 bar)	Not less than 20 kPa (0.2 bar)

Other methods at least equally effective may be used.

6.1.5.4.4 Criterion for passing the test: —there must be no leakage.

6.1.5.5 Internal pressure (hydraulic) test

6.1.5.5.1 Packagings to be tested: –the internal pressure (hydraulic) test must be carried out on all design types of metal, plastics and composite packagings intended to contain liquids. This test is not required for inner packagings of combination packagings.

6.1.5.5.2 Number of test samples: –three test samples per design type and manufacturer.

6.1.5.5.3 Special preparation of packagings for testing: – either vented closures must be replaced by similar non-vented closures or the vent must be sealed.

6.1.5.5.4 Test method and pressure to be applied: –metal packagings and composite packagings (glass, porcelain or stoneware) including their closures must be subjected to the test pressure for 5 minutes. Plastics packagings and composite packagings (plastics material) including their closures must be subjected to the test pressure for 30 minutes. This pressure is the one to be included in the mark required by 6.1.3.1(d). The manner in which the packagings are supported must not invalidate the test. The test pressure must be applied continuously and evenly; it must be kept constant throughout the test period. The hydraulic pressure (gauge) applied, as determined by any one of the following methods, must be:

(a) not less than the total gauge pressure measured in the packaging (i.e. the vapour pressure of the filling liquid and the partial pressure of the air or other inert gases, minus 100 kPa) at 55 °C, multiplied by a safety factor of 1.5; this total gauge pressure must be determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of I5 °C;

(b) not less than 1.75 times the vapour pressure at 50 °C of the liquid to be transported, minus 100 kPa but with a minimum test pressure of 100 kPa;

(c) not less than 1.5 times the vapour pressure at 55 °C of the liquid to be transported, minus 100 kPa but with a minimum test pressure of 100 kPa.

6.1.5.5.5 In addition, packagings intended to contain liquids of packing group I must be tested to a minimum test pressure of 250 kPa (gauge) for a test period of 5 or 30 minutes depending upon the material of construction of the packaging.

6.1.5.5.6 The special requirements for air transport, including minimum test pressures, may not be covered in 6.1.5.5.4.

6.1.5.5.7 Criterion for passing the test: - no packaging may leak.

6.1.5.6 Stacking test

All design types of packagings other than bags are subject to a stacking test.

6.1.5.6.1 Number of test samples: three test samples per design type and manufacturer.

6.1.5.6.2 Test method: - the test sample must be subjected to a force applied to the top surface of the test sample equivalent to the total weight of identical packages which might be stacked on it during transport; where the contents of the test sample are liquids with relative density different from that of the liquid to be transported, the force must be calculated in relation to the latter. The minimum height of the stack including the test sample must be 3 meters. The duration of the test must be 24 hours except that plastics drums, jerricans, and composite packagings 6HH1 and 6HH2 intended for liquids must be subjected to the stacking test for a period of 28 days at a temperature of not less than 40°C.

6.1.5.6.3 Criterion for passing the test: no test sample may leak. In composite packagings or combination packagings, there must be no leakage of the filling substance from the inner receptacle or inner packaging. No test sample may show any deterioration which could adversely affect transport safety or any distortion liable to reduce its strength or cause instability in stacks of packages. Plastics packagings must be cooled to ambient temperature before the assessment.

6.1.5.7 Test Report

6.1.5.7.1 A test report containing at least the following particulars must be drawn up and must be available to the users of the packaging:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test report;
5. Manufacturer of the packaging;
6. Description of the packaging design type (e.g. dimensions, materials, closures, thickness, etc.), including method of manufacture (e.g. blow moulding) and which may include drawing(s) and/or photograph(s);
7. Maximum capacity;
8. Characteristics of test contents, e.g. viscosity and relative density for liquids and particle size for solids. For plastics packagings subject to the internal pressure test in 6.1.5.5, the temperature of the water used;
9. Test descriptions and results;
10. The test report must be signed with the name and status of the signatory.

6.1.5.7.2 The test report must contain statements that the packaging prepared as for transport was tested in accordance with the appropriate requirements of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report must be available to the competent authority.

CHAPTER 6.2 - REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PRESSURE RECEPTACLES, AEROSOL DISPENSERS, SMALL RECEPTACLES CONTAINING GAS (GAS CARTRIDGES) AND FUEL CELL CARTRIDGES CONTAINING LIQUEFIED FLAMMABLE GAS

Introductory Note

In all Australian States and Territories, the filling of cylinders is governed by other legislation relating to the use of pressure vessels. Generally this requires the manufacture, verification, filling, inspection, testing and maintenance of cylinders to be in accordance with AS 2030. Most cylinders complying with AS 2030 are not UN Pressure Receptacles and are therefore not subject to Section 6.2.2. The requirements for Non-UN Pressure Receptacles are in Section 6.2.3. (See also Introductory Note to Section 6.2.2.)

NOTE: *Aerosol dispensers, small receptacles containing gas (gas cartridges) and fuel cell cartridges containing liquefied flammable gas are not subject to the requirements of 6.2.1 to 6.2.3.*

6.2.1 GENERAL REQUIREMENTS

6.2.1.1 Design and construction

6.2.1.1.1 Pressure receptacles and their closures must be designed, manufactured, tested and equipped in such a way as to withstand all conditions, including fatigue, to which they will be subjected during normal conditions of transport.

6.2.1.1.2 In recognition of scientific and technological advances, and recognising that pressure receptacles other than those that bear UN certification marks may be used on a national or regional basis, pressure receptacles conforming to requirements other than those specified in Section 6.2.2 may be used if approved by the competent authorities in the countries of transport and use. In Australia, the manufacture, verification, filling, inspection, testing and maintenance of gas cylinders must comply with AS 2030.

6.2.1.1.3 In no case must the minimum wall thickness be less than that specified in the design and construction technical standards.

6.2.1.1.4 For welded pressure receptacles, only metals of weldable quality must be used.

6.2.1.1.5 The test pressure of cylinders, tubes, pressure drums and bundles of cylinders must be in accordance with packing instruction P200 or AS 2030, or, for a chemical under pressure, with packing instruction P206. The test pressure for closed cryogenic receptacles must be in accordance with packing instruction P203. The test pressure of a metal hydride storage system must be in accordance with packing instruction P205. The test pressure of a cylinder for an adsorbed gas must be in accordance with packing instruction P208.

6.2.1.1.6 Pressure receptacles assembled in bundles must be structurally supported and held together as a unit. Pressure receptacles must be secured in a manner that prevents movement in relation to the structural assembly and movement that would result in the concentration of harmful local stresses. Manifold assemblies (e.g. manifold, valves and pressure gauges) must be designed and constructed such that they are protected from impact and forces normally encountered in transport.

Manifests must have at least the same test pressure as the cylinders. For toxic liquefied gases, means must be provided to ensure that each pressure receptacle can be filled separately and that no interchange of pressure receptacle contents can occur during transport.

6.2.1.1.7 Contact between dissimilar metals which could result in damage by galvanic action must be avoided.

6.2.1.1.8 Additional requirements for the construction of closed cryogenic receptacles for refrigerated liquefied gases

6.2.1.1.8.1 The mechanical properties of the metal used must be established for each pressure receptacle, including the impact strength and the bending coefficient

6.2.1.1.8.2 The pressure receptacles must be thermally insulated. The thermal insulation must be protected against impact by means of a jacket. If the space between the pressure receptacle and the jacket is evacuated of air (vacuum-insulation), the jacket must be designed to withstand without permanent deformation an external pressure of at least 100 kPa (1 bar) calculated in accordance with a recognised technical code or a calculated critical collapsing pressure of not less than 200 kPa (2 bar) gauge pressure. If the jacket is so closed as to be gas-tight (e.g. in the case of vacuum-insulation), a device must be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas-tightness of the pressure receptacle or its fittings. The device must prevent moisture from penetrating into the insulation.

6.2.1.1.8.3 Closed cryogenic receptacles intended for the transport of refrigerated liquefied gases having a boiling point below -182 °C at atmospheric pressure must not include materials which may react with oxygen or oxygen enriched atmospheres in a dangerous manner, when located in parts of the thermal insulation where there is a risk of contact with oxygen or with oxygen enriched liquid.

6.2.1.1.8.4 Closed cryogenic receptacles must be designed and constructed with suitable lifting and securing arrangements.

6.2.1.1.9 Additional requirements for the construction of pressure receptacles for acetylene

Pressure receptacles for UN 1001 acetylene, dissolved, and UN 3374 acetylene, solvent free, must be filled with a porous material, uniformly distributed, of a type that conforms to the requirements and testing specified in a standard or technical code recognised by the competent authority and which:

(a) is compatible with the pressure receptacle and does not form harmful or dangerous compounds either with the acetylene or with the solvent in the case of UN 1001; and

(b) is capable of preventing the spread of decomposition of the acetylene in the mass.

In the case of UN 1001, the solvent must be compatible with the pressure receptacles.

6.2.1.2 Materials

6.2.1.2.1 Construction materials of pressure receptacles and their closures which are in direct contact with dangerous goods must not be affected or weakened by the dangerous goods intended and must not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods.

6.2.1.2.2 Pressure receptacles and their closures must be made of the materials specified in the design and construction technical standards and the applicable packing instruction for the substances intended for transport in the pressure receptacle. The materials must be resistant to brittle fracture and to stress corrosion cracking as indicated in the design and construction technical standards.

6.2.1.3 Service equipment

6.2.1.3.1 Valves, piping, other fittings subjected to pressure, excluding pressure relief devices, must be designed and constructed so that the burst pressure is at least 1.5 times the test pressure of the pressure receptacle.

6.2.1.3.2 Service equipment must be configured or designed to prevent damage that could result in the release of the pressure receptacle contents during normal conditions of handling and transport. Manifold piping leading to shut-off valves must be sufficiently flexible to protect the valves and the piping from shearing or releasing the pressure receptacle contents. The filling and discharge valves and any protective caps must be capable of being secured against unintended opening. Valves must be protected as specified in 4.1.6.1.8.

6.2.1.3.3 Pressure receptacles which are not capable of being handled manually or rolled, must be fitted with devices (skids, rings, straps) ensuring that they can be safely handled by mechanical means and so arranged as not to impair the strength of, nor cause undue stresses, in the pressure receptacle.

6.2.1.3.4 Individual pressure receptacles must be equipped with pressure relief devices as specified in AS 2030, P200(1), P205 or 6.2.1.3.6.4 and

6.2.1.3.6.5. Pressure-relief devices must be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure. When fitted, pressure relief devices on manifolded horizontal pressure receptacles filled with flammable gas must be arranged to discharge freely to the open air in such a manner as to prevent any impingement of escaping gas upon the pressure receptacle itself under normal conditions of transport.

6.2.1.3.5 Pressure receptacles whose filling is measured by volume must be provided with a level indicator.

6.2.1.3.6 Additional requirements for closed cryogenic receptacles

6.2.1.3.6.1 Each filling and discharge opening in a closed cryogenic receptacle used for the transport of flammable refrigerated liquefied gases must be fitted with at least two mutually independent shut-off devices in series, the first being a stop-valve, the second being a cap or equivalent device.

6.2.1.3.6.2 For sections of piping which can be closed at both ends and where liquid product can be trapped, a method of automatic pressure-relief must be provided to prevent excess pressure build-up within the piping.

6.2.1.3.6.3 Each connection on a closed cryogenic receptacle must be clearly marked to indicate its function (e.g. vapour or liquid phase).

6.2.1.3.6.4 Pressure-relief devices

6.2.1.3.6.4.1 Every closed cryogenic receptacle must be provided with at least one pressure-relief device. The pressure-relief device must be of the type that will resist dynamic forces including surge.

6.2.1.3.6.4.2 Closed cryogenic receptacles may, in addition, have a frangible disc in parallel with the spring loaded device(s) in order to meet the requirements of 6.2.1.3.6.5.

6.2.1.3.6.4.3 Connections to pressure-relief devices must be of sufficient size to enable the required discharge to pass unrestricted to the pressure-relief device.

6.2.1.3.6.4.4 All pressure-relief device inlets must under maximum filling conditions be situated in the vapour space of the closed cryogenic receptacle and the devices must be so arranged as to ensure that the escaping vapour is discharged unrestrictedly.

6.2.1.3.6.5 Capacity and setting of pressure-relief devices

NOTE: *In relation to pressure-relief devices of closed cryogenic receptacles, MAWP means the maximum effective gauge pressure permissible at the top of a loaded closed cryogenic receptacle in its operating position including the highest effective pressure during filling and discharge.*

6.2.1.3.6.5.1 The pressure-relief device must open automatically at a pressure not less than the MAWP and be fully open a pressure equal to 110% of the MAWP. It must, after discharge, close at a pressure not lower than 10% below the pressure at which discharge starts and must remain closed at all lower pressures.

6.2.1.3.6.5.2 Frangible discs must be set to rupture at a nominal pressure which is the lower of either the test pressure or 150% of the MAWP.

6.2.1.3.6.5.3 In the case of the loss of vacuum in a vacuum-insulated closed cryogenic receptacle the combined capacity of all pressure-relief devices installed must be sufficient so that the pressure (including accumulation) inside the closed cryogenic receptacle does not exceed 120% of the MAWP.

6.2.1.3.6.5.4 The required capacity of the pressure-relief devices must be calculated in accordance with an established technical code recognised by the competent authority[1].

6.2.1.4 Approval of pressure receptacles

6.2.1.4.1 The conformity of pressure receptacles must be assessed at time of manufacture as required by the competent authority. Pressure receptacles must be inspected, tested and approved by an inspection body. The technical documentation must include full specifications on design and construction, and full documentation on the manufacturing and testing.

6.2.1.4.2 Quality assurance systems must conform to the requirements of the competent authority.

6.2.1.5 Initial inspection and test

6.2.1.5.1 New pressure receptacles, other than closed cryogenic receptacles and metal hydride storage systems, must be subjected to testing and inspection during and after manufacture in accordance with the applicable design standards including the following:

On an adequate sample of pressure receptacles:

(a) Testing of the mechanical characteristics of the material of construction;
(b) Verification of the minimum wall thickness;
(c) Verification of the homogeneity of the material for each manufacturing batch;
(d) Inspection of the external and internal conditions of the pressure receptacles;
(e) Inspection of the neck threads;
(f) Verification of the conformance with the design standard;

For all pressure receptacles:

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[1] See for example CGA Publications S-1.2-2003 "Pressure Relief Device Standards - Part 2 - Cargo and Portable Tanks for Compressed Gases" and S-1.1-2003 "Pressure Relief Device Standards - Part 1 - Cylinders for Compressed Gases".

(g) A hydraulic pressure test. Pressure receptacles shall meet the acceptance criteria specified in the design and construction technical standard or technical code;

NOTE: *With the agreement of the competent authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.*

(h) Inspection and assessment of manufacturing defects and either repairing them or rendering the pressure receptacles unserviceable. In the case of welded pressure receptacles, particular attention must be paid to the quality of the welds;

(i) An inspection of the marks on the pressure receptacles;

(j) In addition, pressure receptacles intended for the transport of UN 1001 acetylene, dissolved, and UN 3374 acetylene, solvent free, must be inspected to ensure proper installation and condition of the porous material and, if applicable, the quantity of solvent.

6.2.1.5.2 On an adequate sample of closed cryogenic receptacles, the inspections and tests specified in 6.2.1.5.1(a), (b), (d), and (f) must be performed. In addition, welds must be inspected by radiographic, ultrasonic or another suitable non-destructive test method on a sample of closed cryogenic receptacles according to the applicable design and construction standard. This weld inspection does not apply to the jacket.

Additionally, all closed cryogenic receptacles must undergo the initial inspections and tests specified in 6.2.1.5.1(g), (h), and (i), as well as a leakproofness test and a test of the satisfactory operation of the service equipment after assembly.

6.2.1.5.3 For metal hydride storage systems, it must be verified that the inspections and tests specified in 6.2.1.5.1 (a), (b), (c), (d), (e) if applicable, (f), (g), (h) and (i) have been performed on an adequate sample of the receptacles used in the metal hydride storage system. In addition, on an adequate sample of metal hydride storage systems, the inspections and tests specified in 6.2.1.5.1 (c) and (f) must be performed, as well as 6.2.1.5.1 (e), if applicable, and inspection of the external conditions of the metal hydride storage system.

Additionally, all metal hydride storage systems must undergo the initial inspections and tests specified in 6.2.1.5.1 (h) and (i), as well as a leakproofness test and a test of the satisfactory operation of the service equipment.

6.2.1.6 Periodic inspection and test

6.2.1.6.1 Refillable pressure receptacles, other than cryogenic receptacles, must be subjected to periodic inspections and tests by a body authorised by the competent authority, in accordance with the following:

(a) Check of the external conditions of the pressure receptacle and verification of the equipment and the external marks;

(b) Check of the internal conditions of the pressure receptacle (e.g. internal inspection, verification of minimum wall thickness);

(c) Checking of the threads if there is evidence of corrosion or if the fittings are removed;

(d) A hydraulic pressure test and, if necessary, verification of the characteristics of the material by suitable tests;

NOTE 1: *With the agreement of the competent authority, the hydraulic pressure test may be replaced by a test using a gas, where such an operation does not entail any danger.*

NOTE 2: *For seamless steel cylinders and tubes the check of 6.2.1.6.1 (b) and hydraulic pressure test of 6.2.1.6.1 (d) may be replaced by a procedure conforming to ISO 16148:2016 "Gas cylinders – Refillable seamless steel gas cylinders and tubes – Acoustic emission examination (AT) and follow-up ultrasonic examination (UT) for periodic inspection and testing".*

NOTE 3: *The check of 6.2.1.6.1 (b) and the hydraulic pressure test of 6.2.1.6.1 (d) by ultrasonic examination carried out in accordance with ISO 10461:2005+A1:2006 for seamless aluminium alloy gas cylinders and in accordance with ISO 6406:2005 for seamless steel gas cylinders.*

(e) Check of service equipment, other accessories and pressure-relief devices, if to be reintroduced into service.

NOTE: *For the periodic inspection and test frequencies, see packing instruction P200 or, for a chemical under pressure, packing instruction P206 of 4.1.4.1.*

6.2.1.6.2 Pressure receptacles intended for the transport of UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, must be examined only as specified in 6.2.1.6.1 (a), (c) and (e). In addition the condition of the porous material (e.g. cracks, top clearance, loosening, settlement) shall be examined.

6.2.1.6.3 Pressure relief valves for closed cryogenic receptacles must be subject to periodic inspections and tests

6.2.1.7 Requirements for manufacturers

6.2.1.7.1 The manufacturer must be technically able and must possess all resources required for the satisfactory manufacture of pressure receptacles; this relates in particular to qualified personnel:

(a) to supervise the entire manufacturing process; and

(b) to carry out joining of materials; and

(c) to carry out the relevant tests.

6.2.1.7.2 The proficiency test of a manufacturer must in all instances be carried out by an inspection body approved by the competent authority of the jurisdiction of approval.

6.2.1.8 Requirements for inspection bodies

6.2.1.8.1 Inspection bodies must be independent from manufacturing enterprises and competent to perform the tests, inspections and approvals required.

6.2.1.8.2 The application of 6.2.1.8.1 is subject to the relevant Australian Standards under which inspection is required.

6.2.2 REQUIREMENTS FOR UN PRESSURE RECEPTACLES

Introductory note

This Section applies to those cylinders and other pressure receptacles that fully meet the requirements specified in UN (ISO) pressure receptacles Standards. In Australia, most cylinders covered by AS 2030 are not UN (ISO) pressure receptacles. Rather they are Australian Standard [AS], American/Canadian [DOT/CTC] or British Standard [BS] cylinders. For these, the technical detail of Section 6.2.2 does not apply, as their design and operational requirements must follow AS 2030 and its subordinate Standards. The requirements for Non-UN (ISO) pressure receptacles are in Section 6.2.3.

Therefore:

Cylinders meeting UN (ISO) Standards must comply with Section 6.2.2 and be filled and used in accordance with Packing Provision P200;

All other cylinders must comply with Section 6.2.3 and be filled and used in accordance with AS 2030 and its subordinate Standards.

6.2.2.0 In addition to the general requirements of section 6.2.1, UN pressure receptacles must comply with the requirements of this section, including the standards, as applicable.

Manufacture of new pressure receptacles or service equipment according to any particular standard in 6.2.2.1 and 6.2.2.3 is not permitted after the date shown in the right hand column of the tables.

NOTE 1: *With the agreement of the competent authority, more recently published versions of the standards, if available, may be used.*

NOTE 2: *UN pressure receptacles and service equipment constructed according to standards applicable at the date of manufacture may continue in use subject to the periodic inspection provisions of this Code.*

6.2.2.1 Design, construction and initial inspection and test

6.2.2.1.1 The following standards apply for the design, construction, and initial inspection and test of UN cylinders, except that inspection requirements related to the conformity assessment system and approval must be in accordance with 6.2.2.5:

Tables for sections 6.2.2.1.1 to 6.2.2.1.7: Design, construction and initial inspection and test – pressure receptacles

Reference	Title	Applicable for Manufacture
ISO 9809-1:1999	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa **NOTE:** The note concerning the F factor in section 7.3 of this standard must not be applied for UN cylinders.	31 December 2018
ISO 9801-1:2010	Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa.	Until further notice
ISO 9809-2:2000	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 MPa	31 December 2018
ISO 9809-2:2010	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 2: Quenched and tempered steel cylinders with tensile strength greater than or equal to 1100 MPa.	Until further notice
ISO 9809-3:2000	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 3: Normalised steel cylinders	31 December 2018
ISO 9809-3:2010	Gas cylinders -- Refillable seamless steel gas cylinders -- Design, construction and testing -- Part 3: Normalised steel cylinders	Until further notice
ISO 9809-4:2014	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 4: Stainless steel cylinders with an Rm value of less than 1 100 MPa	Until further notice
ISO 7866:1999	Gas cylinders - Refillable seamless aluminium alloy gas cylinders - Design, construction and testing **NOTE:** The note concerning the F factor in section 7.2 of this standard must not be applied for UN cylinders. Aluminium alloy 6351A – T6 or equivalent must not be authorised.	Until 31 December 2020
ISO 7866: 2012+Cor 1:2014	Gas cylinders – Refillable seamless aluminium alloy gas cylinders – Design, construction and testing *NOTE: Aluminium alloy 6351A or equivalent shall not be used.*	Until further notice
ISO 4706:2008	Gas cylinders - Refillable welded steel cylinders - Test pressure 60 bar and below	Until further notice

ISO 20703:2006	Gas cylinders - Refillable welded aluminium-alloy cylinders - Design, construction and testing	Until further notice
ISO 18172-1:2007	Gas cylinders - Refillable welded stainless steel cylinders - Part 1: Test pressure 6 MPa and below	Until further notice
ISO 11118:1999	Gas cylinders - Non-refillable metallic gas cylinders - Specification and test methods	Until 31 December 2020
ISO 11118:2015	Gas cylinders – Non-refillable metallic gas cylinders – Specification and test methods	Until further notice
ISO 11119-1:2002	Gas cylinders of composite construction – Specification and test methods – Part 1: Hoop wrapped composite gas cylinders	Until 31 December 2020
ISO 11119-1:2012	Gas cylinders of– Refillable composite gas cylinders and tubes – Design, construction - Specification and test methods -and testing – Part 1: Hoop wrapped fibre reinforced composite gas cylinders and tubes up to 450 l	Until further notice
ISO 11119-2:2002	Gas cylinders of composite construction – Specification and test methods – Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners	Until 31 December 2020
ISO 11119-2:2012 + Amd 1:2014	Gas cylinders of– Refillable composite gas cylinders and tubes – Design, construction - Specification and test methods -and testing – Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners	Until further notice
ISO 11119-3:2002	Gas cylinders of composite construction – Specification and test methods – Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners	Until 31 December 2020
ISO 11119-3:2013	Gas cylinders of– Refillable composite gas cylinders and tubes – Design, construction - Specification and test methods -and testing – Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with non-load-sharing metallic or non-metallic liners	Until further notice
ISO 11119-4:2016	Gas cylinders – Refillable composite gas cylinders – Design, construction and testing – Part 4: Fully wrapped fibre reinforced composite gas cylinders up to 150 l with load-sharing welded metallic liners	Until further notice

NOTE 1: *In the above referenced standards composite cylinders must be designed for a design life of not less than 15 years.*

NOTE 2: *Composite cylinders with a design life longer than 15 years shall not be filled after 15 years from the date of manufacture, unless the design has successfully passed a service life test programme. The programme shall be part of the initial design type approval and shall specify inspections and tests to demonstrate that cylinders manufactured accordingly remain safe to the end of their design life. The service life test programme and the* *results shall be approved by the competent authority of the country of approval that is responsible for the initial approval of the cylinder design. The service life of a composite cylinder shall not be extended beyond its initial approved design life.*

6.2.2.1.2 The following standards apply for the design, construction, and initial inspection and test of UN tubes, except that inspection requirements related to the conformity assessment system and approval must be in accordance with 6.2.2.5.

Reference	Title	Applicable for Manufacture
ISO 11120:1999	Gas cylinders - Refillable seamless steel tubes for compressed gas transport, of water capacity between 150 L and 3000 L - Design, construction and testing **NOTE:** The note concerning the F factor in section 7.1 of this standard must not be applied for UN tubes	31 December 2022
ISO 11120:2015	Gas cylinders – Refillable seamless steel tubes of water capacity between 150 L and 3 000 L – Design, construction and testing	Until further notice
ISO 11119-1:2012	Gas cylinders – Refillable composite gas cylinders and tubes – Design, construction and testing – Part 1: Hoop wrapped fibre reinforced composite gas cylinders and tubes up to 450 L	Until further notice
ISO 1119-2:2012 + Amd 1:2014	Gas cylinders – Refillable composite gas cylinders and tubes – Design, construction and testing – Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 L with load-sharing metal liners	Until further notice
ISO 11119-3:2013	Gas cylinders – Refillable composite gas cylinders and tubes – Design, construction and testing – Part 3: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with non-load-sharing metallic or non-metallic liners NOTE: This standard shall not be used for linerless tubes manufactured from two parts joined together	Until further notice
ISO 11515:2013	Gas cylinders – Refillable composite reinforced tubes of water capacity between 450 L and 3 000 L – Design, construction and testing	Until further notice

NOTE 1: *In the above referenced standards composite tubes shall be designed for a design life of not less than 15 years.*

NOTE 2: *Composite tubes with a design life longer than 15 years shall not be filled after 15 years from the date of manufacture, unless the design has successfully passed a service life test programme. The programme shall* *be part of the initial design type approval and shall specify inspections and tests to demonstrate that tubes manufactured accordingly remain safe to the end of their design life. The service life test programme and the results shall be approved by the competent authority of the country of approval that is responsible for the initial approval of the tube design. The service life of a composite tube shall not be extended beyond its initial approved design life.*

6.2.2.1.3 The following standards apply for the design, construction and initial inspection and test of UN acetylene cylinders, except that inspection requirements related to the conformity assessment system and approval must be in accordance with 6.2.2.5:

For the cylinder shell:

Reference	Title	Applicable for Manufacture
ISO 9809-1:1999	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa ***NOTE:*** *The note concerning the F factor in section 7.3 of this standard must not be applied for UN cylinders.*	31 December 2018
ISO 9809-1:2010	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa	Until further notice
ISO 9809-3:2000	Gas cylinders - Refillable seamless steel gas cylinders - Design, construction and testing - Part 3: Normalised steel cylinders	31 December 2018
ISO 9809-3:2010	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 3: Normalised steel cylinders.	Until further notice
ISO 4706:2008	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below	Until further notice
ISO 7866:2012 + Cor 1:2014	Gas cylinders – Refillable seamless aluminum alloy gas cylinders – Design, construction and testing NOTE: Aluminum alloy 6351A or equivalent shall not be used	Until further notice

For acetylene cylinder including the porous material:

Reference	Title	Applicable for manufacture
ISO 3807-1:2000	Cylinders for acetylene – Basic requirements – Part 1: Cylinders without fusible plugs	Until 31 December 2020

ISO 3807-2:2000	Cylinders for acetylene – Basic requirements – Part 2: Cylinders with fusible plugs	Until 31 December 2020
ISO 3807:2013	Gas cylinders – Acettlene cylinders – Basic requirements and type testing	Until further notice

6.2.2.1.4 The following standard applies for the design, construction and initial inspection and test of UN cryogenic receptacles, except that inspection requirements related to the conformity assessment system and approval must be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 21029-1:2004	Cryogenic vessels - Transportable vacuum insulated vessels of not more than 1000 L volume - Part 1: Design, fabrication, inspection and tests	Until further notice

6.2.2.1.5 The following standards apply for the design, construction, and initial inspection and test of UN metal hydride storage systems, except that inspection requirements related to the conformity assessment system and approval must be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 16111:2008	Transportable gas storage devices - Hydrogen absorbed in reversible metal hydride	Until further notice

6.2.2.1.6 The standard shown below applies for the design, construction and initial inspection and test of UN bundles of cylinders. Each cylinder in a UN bundle of cylinders **must** be a UN cylinder complying with the requirements of 6.2.2. The inspection requirements related to the conformity assessment system and approval for UN bundles of cylinders **must** be in accordance with 6.2.2.5.

Reference	Title	Applicable for manufacture
ISO 10961:2010	Gas cylinders – Cylinder bundles – Design, manufacture, testing and inspection.	Until further notice

NOTE: *Changing one or more cylinders of the same design type, including the same test pressure, in an existing UN bundle of cylinders does not require re-certification of the existing bundle.*

6.2.2.1.7 The following standards apply for the design, construction and initial inspection and test of UN cylinders for adsorbed gases except that the inspection requirements related to the conformity assessment system and approval must be in accordance with 6.2.2.5.

Reference	Title	Applicable for manufacture
ISO 11513:2011	Gas cylinders – Refillable welded steel cylinders containing materials for sub-atmospheric gas	Until further notice

	packaging (excluding acetylene) – Design, construction, testing, use and periodic inspection	
ISO 9801-1:2010	Gas cylinders – Refillable seamless steel gas cylinders – Design, construction and testing – Part 1: Quenched and tempered steel cylinders with tensile strength less than 1100 MPa	Until further notice

6.2.2.1.8 The following standards apply for the design, construction and initial inspection and test of UN pressure drums, except that inspection requirements related to the conformity assessment system and approval shall be in accordance with 6.2.2.5:

Reference	Title	Applicable for manufacture
ISO 21172-1:2015	Gas cylinders – Welded steel pressure drums up to 3 000 litres capacity for the transport of gases – Design and construction – Part 1: Capacities up to 1 000 litres NOTE: Irrespective of section 6.3.3.4 of this standard, welded steel gas pressure drums with dished ends convex to pressure may be used for the transport of corrosive substances provided all applicable requirements of this Code are met.	Until further notice
ISO 4706: 2008	Gas cylinders – Refillable welded steel cylinders – Test pressure 60 bar and below;	Until further notice
ISO 18172-1:2007	Gas cylinders – Refillable welded stainless steel cylinders – Part 1: Test pressure 6 MPa and below.	Until further notice

6.2.2.2 Materials

In addition to the material requirements specified in the pressure receptacle design and construction standards, and any restrictions specified in the applicable packing instruction for the gas(es) to be transported (e.g. packing instruction P200 or P205), the following standards apply to material compatibility:

Table 6.2.2.2: Materials – pressure receptacles

Reference	Title
ISO 11114-1:2012 + Amd 1:2017	Gas cylinders – Compatibility of cylinder and valve materials with gas contents – Part 1: Metallic materials
ISO 11114-2:2013	Gas cylinders- Compatibility of cylinder and valve materials with gas contents – Part 2: Non-metallic materials

6.2.2.3 Service equipment

The following standards apply to closures and their protection:

Table 6.2.2.3: Service equipment – pressure receptacles

Reference	Title	Applicable for Manufacture
ISO 11117:1998	Gas cylinders – Valve protection caps and valve guards for industrial and medical gas cylinders – Design, construction and tests	31 December 2014
ISO 11117:2008 + Cor 1: 2009	Gas cylinders − Valve protection caps and valve guards − Design, construction and tests	Until further notice
ISO 10297:1999	Gas cylinders – Refillable gas cylinder valves – Specification and type testing	31 December 2008
ISO 10297:2006	Gas cylinders –Refillable gas cylinder valves - Specification and type testing	Until 30 December 2020
ISO 10297:2014	Gas cylinders – Cylinder valves – Specification and type testing	Until 31 December 2022
ISO 10297:2014 + Amd 1:2017	Gas cylinders – Cylinder valves – Specification and type testing;	Until further notice
ISO 13340:2001	Transportable gas cylinders – Cylinders valves for non-refillable cylinders – Specification and prototype testing	Until 31 December 2020
ISO 14246:2014	Gas cylinders – Cylinder valves – Manufacturing tests and examination	Until 31 December 2024
ISO 14246:2014 + Amd 1:2017	Gas cylinders – Cylinder valves – Manufacturing tests and examinations	Until further notice
ISO 17871:2015	Gas cylinders – Quick-release cylinders valves-Specification and type testing	Until further notice
ISO 17879:2017	Gas cylinders – Self-closing cylinder valves – Specification and type testing NOTE: This standard shall not be applied to self-closing valves in acetylene cylinders.	Until further notice

For UN metal hydride storage systems, the requirements specified in the following standard apply to closures and their protection:

Reference	Title	Applicable for Manufacture
ISO 16111:2008	Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride	Until further notice

6.2.2.4 Periodic inspection and test

The following standards apply to the periodic inspection and testing of UN cylinders and their closures:

Table 6.2.2.4: Periodic inspection and test – pressure receptacle

Reference	Title	Applicable for Manufacture
ISO 6406:2005	Until further notice	Until further notice
ISO 10460:2005	Gas cylinders – Welded carbon-steel gas cylinders – Periodic inspection and testing **NOTE:** The repair of welds described in clause 12.1 of this standard must not be permitted. Repairs described in clause 12.2 require the approval of the competent authority which approved the periodic inspection and test body in accordance with 6.2.2.6.	Until further notice
ISO 10461:2005/ A1:2006	Seamless aluminium – alloy gas cylinders – Periodic inspection and testing	Until further notice
ISO 10462:2013	Gas cylinder – Acetylene cylinders – Periodic inspection and maintenance	Until further notice
ISO 11513:2011	Gas cylinders – Refillable welded steel cylinders containing materials for sub-atmospheric gas packaging (excluding acetylene) – Design, construction, testing, use and periodic inspection	Until further notice
ISO 11623:2002	Transportable gas cylinders – Periodic inspection and testing of composite gas cylinders	Until 31 December 2020
ISO 11623:2015	Gas cylinders – Composite construction – Periodic inspection and testing	Until further notice
ISO 22434:2006	Transportable gas cylinders – Inspection and maintenance of cylinder valves **NOTE:** These requirements may be met at times other than at the periodic inspection and test of UN cylinders	Until further notice
ISO 20475:2018	Gas cylinders – Cylinder bundles – Periodic inspection and testing	Until further notice

The following standard applies to the periodic inspection and testing of UN metal hydride storage systems:

ISO 16111:2008	Transportable gas storage devices – Hydrogen absorbed in reversible metal hydride	Until further notice

6.2.2.5 Conformity assessment system and approval for manufacture of pressure receptacles

6.2.2.5.1 Definitions

For the purposes of this section:

Conformity assessment system means a system for competent authority approval of a manufacturer, by pressure receptacle design type approval, approval of manufacturer's quality system and approval of inspection bodies;

Design type means a pressure receptacle design as specified by a particular pressure receptacle standard;

Verify means confirm by examination or provision of objective evidence that specified requirements have been fulfilled.

6.2.2.5.2 General requirements

Competent authority

6.2.2.5.2.1 The competent authority that approves the pressure receptacle must approve the conformity assessment system for the purpose of ensuring that pressure receptacles conform to the requirements of this Code. In instances where the competent authority that approves a pressure receptacle is not the competent authority in the country of manufacture, the marks of the approval country and the country of manufacture must be indicated in the pressure receptacle marks (see 6.2.2.7 and 6.2.2.8).

The competent authority of the country of approval must supply, upon request, evidence demonstrating compliance to this conformity assessment system to its counterpart in a country of use.

6.2.2.5.2.2 The competent authority may delegate its functions in this conformity assessment system in whole or in part.

6.2.2.5.2.3 The competent authority must ensure that a current list of approved inspection bodies and their identity marks and approved manufacturers and their identity marks is available.

Inspection body

6.2.2.5.2.4 The inspection body must be approved by the competent authority for the inspection of pressure receptacles and must:

(a) have a staff with an organisational structure, capable, trained, competent, and skilled, to satisfactorily perform its technical functions;
(b) have access to suitable and adequate facilities and equipment;
(c) operate in an impartial manner and be free from any influence which could prevent it from doing so;
(d) ensure commercial confidentiality of the commercial and proprietary activities of the manufacturer and other bodies;
(e) maintain clear demarcation between actual inspection body functions and unrelated functions;
(f) operate a documented quality system;
(g) ensure that the tests and inspections specified in the relevant pressure receptacle standard and this Code are performed; and

(h) maintain an effective and appropriate report and record system in accordance with 6.2.2.5.6.

6.2.2.5.2.5 The inspection body must perform design type approval, pressure receptacle production testing and inspection, and certification to verify conformity with the relevant pressure receptacle standard (see 6.2.2.5.4 and 6.2.2.5.5).

Manufacturer

6.2.2.5.2.6 The manufacturer must:

(a) operate a documented quality system in accordance with 6.2.2.5.3;
(b) apply for design type approvals in accordance with 6.2.2.5.4;
(c) select an inspection body from the list of approved inspection bodies maintained by the competent authority in the country of approval; and
(d) maintain records in accordance with 6.2.2.5.6.

Testing laboratory

6.2.2.5.2.7 The testing laboratory must have:

(a) staff with an organisational structure, sufficient in number, competence, and skill; and
(b) suitable and adequate facilities and equipment to perform the tests required by the manufacturing standard to the satisfaction of the inspection body.

6.2.2.5.3 Manufacturer's quality system

6.2.2.5.3.1 The quality system must contain all the elements, requirements, and provisions adopted by the manufacturer. It must be documented in a systematic and orderly manner in the form of written policies, procedures and instructions.

The contents must in particular include adequate descriptions of:

(a) the organisational structure and responsibilities of personnel with regard to design and product quality;
(b) the design control and design verification techniques, processes, and procedures that will be used when designing the pressure receptacles;
(c) the relevant pressure receptacle manufacturing, quality control, quality assurance and process operation instructions that will be used;
(d) quality records, such as inspection reports, test data and calibration data;
(e) management reviews to ensure the effective operation of the quality system arising from the audits in accordance with 6.2.2.5.3.2;
(f) the process describing how customer requirements are met;
(g) the process for control of documents and their revision;
(h) the means for control of non-conforming pressure receptacles, purchased components, in - process and final materials; and

(i) training programmes and qualification procedures for relevant personnel.

6.2.2.5.3.2 Audit of the quality system

The quality system must be initially assessed to determine whether it meets the requirements in 6.2.2.5.3.1 to the satisfaction of the competent authority.

The manufacturer must be notified of the results of the audit. The notification must contain the conclusions of the audit and any corrective actions required.

Periodic audits must be carried out, to the satisfaction of the competent authority, to ensure that the manufacturer maintains and applies the quality system. Reports of the periodic audits must be provided to the manufacturer.

6.2.2.5.3.3 Maintenance of the quality system

The manufacturer must maintain the quality system as approved in order that it remains adequate and efficient. The manufacturer must notify the competent authority that approved the quality system, of any intended changes. The proposed changes must be evaluated in order to determine whether the amended quality system will still satisfy the requirements in 6.2.2.5.3.1.

6.2.2.5.4 Approval process

Initial design type approval

6.2.2.5.4.1 The initial design type approval must consist of approval of the manufacturer's quality system and approval of the pressure receptacle design to be produced. An application for an initial design type approval must meet the requirements of 6.2.2.5.4.2 to 6.2.2.5.4.6 and 6.2.2.5.4.9.

6.2.2.5.4.2 A manufacturer desiring to produce pressure receptacles in accordance with a pressure receptacle standard and this Code must apply for, obtain, and retain a design type approval certificate issued by the competent authority in the country of approval for at least one pressure receptacle design type in accordance with the procedure given in 6.2.2.5.4.9. This certificate must, on request, be submitted to the competent authority of the country of use.

6.2.2.5.4.3 An application must be made for each manufacturing facility and must include:

(a) the name and registered address of the manufacturer and in addition, if the application is submitted by an authorised representative, its name and address;

(b) the address of the manufacturing facility (if different from the above);

(c) the name and title of the person(s) responsible for the quality system;

(d) the designation of the pressure receptacle and the relevant pressure receptacle standard;

(e) details of any refusal of approval of a similar application by any other competent authority;

(f) the identity of the inspection body for design type approval;

(g) documentation on the manufacturing facility as specified under 6.2.2.5.3.1; and

(h) the technical documentation required for design type approval, which must enable verification of the conformity of the pressure receptacles with the requirements of the relevant pressure receptacle design standard. The technical documentation must cover the design and method of manufacture and must contain, as far as is relevant for assessment, at least the following:

  (i) pressure receptacle design standard, design and manufacturing drawings, showing components and subassemblies, if any;

  (ii) descriptions and explanations necessary for the understanding of the drawings and intended use of the pressure receptacles;

  (iii) a list of the standards necessary to fully define the manufacturing process;

  (iv) design calculations and material specifications; and

  (v) design type approval test reports, describing the results of examinations and tests carried out in accordance with 6.2.2.5.4.9.

6.2.2.5.4.4 An initial audit in accordance with 6.2.2.5.3.2 must be performed to the satisfaction of the competent authority.

6.2.2.5.4.5 If the manufacturer is denied approval, the competent authority must provide written detailed reasons for such denial.

6.2.2.5.4.6 Following approval, changes to the information submitted under 6.2.2.5.4.3 relating to the initial approval must be provided to the competent authority.

Subsequent design type approvals

6.2.2.5.4.7 An application for a subsequent design type approval must encompass the requirements of 6.2.2.5.4.8 and 6.2.2.5.4.9, provided a manufacturer is in the possession of an initial design type approval. In such a case, the manufacturer's quality system according to 6.2.2.5.3 must have been approved during the initial design type approval and must be applicable for the new design.

6.2.2.5.4.8 The application must include:

(a) the name and address of the manufacturer and in addition, if the application is submitted by an authorised representative, its name and address;

(b) details of any refusal of approval of a similar application by any other competent authority;

(c) evidence that initial design type approval has been granted; and

(d) the technical documentation, as described in 6.2.2.5.4.3(h).

Procedure for design type approval

6.2.2.5.4.9 The inspection body must:

(a) examine the technical documentation to verify that:
   - (i) the design is in accordance with the relevant provisions of the standard, and
   - (ii) the prototype lot has been manufactured in conformity with the technical documentation and is representative of the design;

(b) verify that the production inspections have been carried out as required in accordance with 6.2.2.5.5;

(c) select pressure receptacles from a prototype production lot and supervise the tests of these pressure receptacles as required for design type approval;

(d) perform or have performed the examinations and tests specified in the pressure receptacle standard to determine that:
   - (i) the standard has been applied and fulfilled, and
   - (ii) the procedures adopted by the manufacturer meet the requirements of the standard; and

(e) ensure that the various type approval examinations and tests are correctly and competently carried out.

After prototype testing has been carried out with satisfactory results and all applicable requirements of 6.2.2.5.4 have been satisfied, a design type approval certificate must be issued, which must include the name and address of the manufacturer, results and conclusions of the examination, and the necessary data for identification of the design type.

If the manufacturer is denied a design type approval, the competent authority must provide written detailed reasons for such denial.

6.2.2.5.4.10 Modifications to approved design types

The manufacturer must either:

(a) inform the issuing competent authority of modifications to the approved design type where such modifications do not constitute a new design, as specified in the pressure receptacle standard; or

(b) request a subsequent design type approval where such modifications constitute a new design according to the relevant pressure receptacle standard. This additional approval must be given in the form of an amendment to the original design type approval certificate.

6.2.2.5.4.11 Upon request, the competent authority must communicate to any other competent authority, information concerning design type approval, modifications of approvals and withdrawn approvals.

6.2.2.5.5 Production inspection and certification

An inspection body, or its delegate, must carry out the inspection and certification of each pressure receptacle. The inspection body selected by the manufacturer for inspection and testing during production may be different from the inspection body used for the design type approval testing.

Where it can be demonstrated to the satisfaction of the inspection body that the manufacturer has trained competent inspectors, independent of the manufacturing operations, inspection may be performed by those inspectors. In such a case, the manufacturer must maintain training records of the inspectors.

The inspection body must verify that the inspections by the manufacturer, and tests performed on those pressure receptacles, fully conform to the standard and the requirements of this Code. Should non-conformance in conjunction with this inspection and testing be determined, the permission to have inspection performed by the manufacturer's inspectors may be withdrawn.

The manufacturer must, after approval by the inspection body, make a declaration of conformity with the certified design type. The application of the pressure receptacle certification marks must be considered a declaration that the pressure receptacle complies with the applicable pressure receptacle standards and the requirements of this conformity assessment system and this Code. The inspection body must affix or delegate the manufacturer to affix the pressure receptacle certification marks and the registered mark of the inspection body to each approved pressure receptacle.

A certificate of compliance, signed by the inspection body and the manufacturer, must be issued before the pressure receptacles are filled.

6.2.2.5.6 Records

Design type approval and certificate of compliance records must be retained by the manufacturer and the inspection body for not less than 20 years.

6.2.2.6 Approval system for periodic inspection and test of pressure receptacles

6.2.2.6.1 Definition

For the purposes of this section:

Approval system means a system for competent authority approval of a body performing periodic inspection and test of pressure receptacles (hereinafter referred to as “periodic inspection and test body”), including approval of that body’s quality system.

6.2.2.6.2 General requirements

Competent authority

6.2.2.6.2.1 The competent authority must establish an approval system for the purpose of ensuring that the periodic inspection and test of pressure receptacles conform to the requirements of this Code. In instances where the competent authority that approves a body performing periodic inspection and test of a pressure receptacle is not the competent authority of the country approving the manufacture of the pressure receptacle, the marks of the approval country of periodic inspection and test must be indicated in the pressure receptacle marks (see 6.2.2.7).

The competent authority of the country of approval for the periodic inspection and test must supply, upon request, evidence demonstrating compliance to this approval system including the records of the periodic inspection and test to its counterpart in a country of use.

The competent authority of the country of approval may terminate the approval certificate referred to in 6.2.2.6.4.1, upon evidence demonstrating non-compliance with the approval system.

6.2.2.6.2.2 The competent authority may delegate its functions in this approval system, in whole or in part.

6.2.2.6.2.3 The competent authority must ensure that a current list of approved periodic inspection and test bodies and their identity marks is available.

Periodic inspection and test body

6.2.2.6.2.4 The periodic inspection and test body must be approved by the competent authority and must:

(a) have a staff with an organisational structure, capable, trained, competent, and skilled, to satisfactorily perform its technical functions;
(b) have access to suitable and adequate facilities and equipment;
(c) operate in an impartial manner and be free from any influence which could prevent it from doing so;
(d) ensure commercial confidentiality;
(e) maintain clear demarcation between actual periodic inspection and test body functions and unrelated functions;
(f) operate a documented quality system accordance with 6.2.2.6.3;
(g) apply for approval in accordance with 6.2.2.6.4;
(h) ensure that the periodic inspections and tests are performed in accordance with 6.2.2.6.5; and
(i) maintain an effective and appropriate report and record system in accordance with 6.2.2.6.6.

6.2.2.6.3 Quality system and audit of the periodic inspection and test body

6.2.2.6.3.1 Quality system

The quality system must contain all the elements, requirements, and provisions adopted by the periodic inspection and test body. It must be documented in a systematic and orderly manner in the form of written policies, procedures, and instructions.

The quality system must include:

(a) a description of the organisational structure and responsibilities;

(b) the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;

(c) quality records, such as inspection reports, test data, calibration data and certificates;

(d) management reviews to ensure the effective operation of the quality system arising from the audits performed in accordance with 6.2.2.6.3.2;

(e) a process for control of documents and their revision;

(f) a means for control of non-conforming pressure receptacles; and

(g) training programmes and qualification procedures for relevant personnel.

6.2.2.6.3.2 *Audit*

The periodic inspection and test body and its quality system must be audited in order to determine whether it meets the requirements of this Code to the satisfaction of the competent authority.

An audit must be conducted as part of the initial approval process (see 6.2.2.6.4.3). An audit may be required as part of the process to modify an approval (see 6.2.2.6.4.6).

Periodic audits must be conducted, to the satisfaction of the competent authority, to ensure that the periodic inspection and test body continues to meet the requirements of this Code.

The periodic inspection and test body must be notified of the results of any audit. The notification must contain the conclusions of the audit and any corrective actions required.

6.2.2.6.3.3 *Maintenance of the quality system*

The periodic inspection and test body must maintain the quality system as approved in order that it remains adequate and efficient.

The periodic inspection and test body must notify the competent authority that approved the quality system, of any intended changes, in accordance with the process for modification of an approval in 6.2.2.6.4.6.

6.2.2.6.4 *Approval process for periodic inspection and test bodies*

Initial approval

6.2.2.6.4.1 A body desiring to perform periodic inspection and test of pressure receptacles in accordance with a pressure receptacle standard and this

Code must apply for, obtain, and retain an approval certificate issued by the competent authority.

This written approval must, on request, be submitted to the competent authority of a country of use.

6.2.2.6.4.2 An application must be made for each periodic inspection and test body and must include:

(a) the name and address of the periodic inspection and test body and, if the application is submitted by an authorised representative, its name and address;
(b) the address of each facility performing periodic inspection and test;
(c) the name and title of the person(s) responsible for the quality system;
(d) the designation of the pressure receptacles, the periodic inspection and test methods, and the relevant pressure receptacle standards met by the quality system;
(e) documentation on each facility, the equipment, and the quality system as specified under 6.2.2.6.3.1;
(f) the qualifications and training records of the periodic inspection and test personnel; and
(g) details of any refusal of approval of a similar application by any other competent authority.

6.2.2.6.4.3 The competent authority must:

(a) examine the documentation to verify that the procedures are in accordance with the requirements of the relevant pressure receptacle standards and this Code; and
(b) conduct an audit in accordance with 6.2.2.6.3.2 to verify that the inspections and tests are carried out as required by the relevant pressure receptacle standards and this Code, to the satisfaction of the competent authority.

6.2.2.6.4.4 After the audit has been carried out with satisfactory results and all applicable requirements of 6.2.2.6.4 have been satisfied, an approval certificate must be issued. It must include the name of the periodic inspection and test body, the registered mark, the address of each facility, and the necessary data for identification of its approved activities (e.g. designation of pressure receptacles, periodic inspection and test method and pressure receptacle standards).

6.2.2.6.4.5 If the periodic inspection and test body is denied approval, the competent authority must provide written detailed reasons for such denial.

Modifications to periodic inspection and test body approvals

6.2.2.6.4.6 Following approval, the periodic inspection and test body must notify the issuing competent authority of any modifications to the information submitted under 6.2.2.6.4.2 relating to the initial approval.

The modifications must be evaluated in order to determine whether the requirements of the relevant pressure receptacle standards and this Code will be satisfied. An audit in accordance with 6.2.2.6.3.2 may be required. The competent authority must accept or reject these modifications in writing, and an amended approval certificate must be issued as necessary.

6.2.2.6.4.7 Upon request, the competent authority must communicate to any other competent authority, information concerning initial approvals, modifications of approvals, and withdrawn approvals.

6.2.2.6.5 Periodic inspection and test and certification

The application of the periodic inspection and test marks to a pressure receptacle must be considered a declaration that the pressure receptacle complies with the applicable pressure receptacle standards and the requirements of this Code. The periodic inspection and test body must affix the periodic inspection and test marks, including its registered mark, to each approved pressure receptacle (see 6.2.2.7.6).

A record certifying that a pressure receptacle has passed the periodic inspection and test must be issued by the periodic inspection and test body, before the pressure receptacle is filled.

6.2.2.6.6 Records

The periodic inspection and test body must retain records of pressure receptacle periodic inspection and tests (both passed and failed) including the location of the test facility, for not less than 15 years.

The owner of the pressure receptacle must retain an identical record until the next periodic inspection and test unless the pressure receptacle is permanently removed from service.

6.2.2.7 Marking of refillable UN pressure receptacles

NOTE: *Marking requirements for UN metal hydride storage systems are given in 6.2.2.9. and marking requirements for UN bundles of cylinders are given in 6.2.2.10.*

6.2.2.7.1 Refillable UN pressure receptacles must be marked clearly and legibly with certification, operational and manufacturing marks. These marks must be permanently affixed (e.g. stamped, engraved, or etched) on the pressure receptacle. The marks must be on the shoulder, top end or neck of the pressure receptacle or on a permanently affixed component of the pressure receptacle (e.g. welded collar or corrosion resistant plate welded on the outer jacket of a closed cryogenic receptacle). Except for the UN packaging symbol, the minimum size of the marks must be 5 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 2.5 mm for pressure receptacles with a diameter less than 140 mm. The minimum size of the UN packaging symbol must be 10 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 5 mm for pressure receptacles with a diameter less than 140 mm.

6.2.2.7.2 The following certification marks must be applied:

(a) The UN packaging symbol.

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8;

(b) The technical standard (e.g. ISO 9809-1) used for design, manufacture and testing;

(c) The character(s) identifying the country of approval as indicated by the distinguishing sign used on vehicles in international road traffic[1];
NOTE*: For the purpose of this mark the country of approval means the country of the competent authority that authorized the initial inspection and test of the individual receptacle at the time of manufacture.*

(d) The identity mark or stamp of the inspection body that is registered with the competent authority of the country authorising the marking;

(e) The date of the initial inspection, the year (four digits) followed by the month (two digits) separated by a slash (i.e. "/").

6.2.2.7.3 The following operational marks must be applied:

(f) The test pressure in bar, preceded by the letters "PH" and followed by the letters "BAR";

(g) The mass of the empty pressure receptacle including all permanently attached integral parts (e.g. neck ring, foot ring, etc.) in kilograms, followed by the letters "KG". This mass must not include the mass of valve, valve cap or valve guard, any coating, or porous material for acetylene. The mass must be expressed to three significant figures rounded up to the last digit. For cylinders of less than 1 kg, the mass must be expressed to two significant figures rounded up to the last digit. In the case of pressure receptacles for UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free, at least one decimal must be shown after the decimal point and two digits for pressure receptacles of less than 1 kg;

(h) The minimum guaranteed wall thickness of the pressure receptacle in millimetres followed by the letters "MM". This mark is not required for pressure receptacles with a water capacity less than or equal to 1 litre or for composite cylinders or for closed cryogenic receptacles;

(i) In the case of pressure receptacles for compressed gases, UN 1001 acetylene, dissolved, and UN 3374 acetylene, solvent free, the working pressure in bar, preceded by the letters "PW". In the case of

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[1] Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.

closed cryogenic receptacles, the maximum allowable working pressure preceded by the letters "MAWP";

(j) In the case of pressure receptacles for liquefied gases and refrigerated liquefied gases, the water capacity in litres expressed to three significant digits rounded down to the last digit, followed by the letter "L". If the value of the minimum or nominal water capacity is an integer, the figures after the decimal point may be neglected;

(k) In the case of pressure receptacles for UN 1001 acetylene, dissolved, the total of the mass of the empty receptacle, the fittings and accessories not removed during filling, any coating, the porous material, the solvent and the saturation gas expressed to three significant figures rounded down to the last digit followed by the letters "KG". At least one decimal must be shown after the decimal point. For pressure receptacles of less than 1 kg, the mass must be expressed to two significant figures rounded down to the last digit;

(l) In the case of pressure receptacles for UN 3374 acetylene, solvent free, the total of the mass of the empty receptacle, the fittings and accessories not removed during filling, any coating and the porous material expressed to three significant figures rounded down to the last digit followed by the letters "KG". At least one decimal must be shown after the decimal point. For pressure receptacles of less than 1 kg, the mass must be expressed to two significant figures rounded down to the last digit;

6.2.2.7.4 The following manufacturing marks must be applied:

(m) Identification of the cylinder thread (e.g. 25E). This mark is not *required for closed cryogenic receptacles;*

NOTE: *Information on marks that may be used for identifying threads for cylinders is given in ISO/TR 11364, Gas cylinders – Compilation of national and international valve stem/gas cylinder neck threads and their identification and marking system.*

(n) The manufacturer's mark registered by the competent authority. When the country of manufacture is not the same as the country of approval, then the manufacturer's mark must be preceded by the character(s) identifying the country of manufacture indicated by the distinguishing sign used on vehicles in international road traffic[1]. The country mark and the manufacturer's mark must be separated by a space or slash;

(o) The serial number assigned by the manufacturer.

(p) In the case of steel pressure receptacles and composite pressure receptacles with steel liner intended for the transport of gases with a risk of hydrogen embrittlement, the letter "H" showing compatibility of the steel (see 1SO 11114-1: 2012);

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[1] Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.

(q) For composite cylinders and tubes having a limited design life, the letters "FINAL" followed by the design life shown as the year (four digits) followed by the month (two digits) separated by a slash (i.e. "/").

(r) For composite cylinders and tubes having a limited design life greater than 15 years and for composite cylinders and tubes having non-limited design life, the letters "SERVICE" followed by the date 15 years from the date of manufacture (initial inspection) shown as the year (four digits) followed by the month (two digits) separated by a slash (i.e. "/").

NOTE: *Once the initial design type has passed the service life test programme requirements in accordance with 6.2.2.1.1 NOTE 2 or 6.2.2.1.2 NOTE 2, future production no longer requires this initial service life mark. The initial service life mark shall be made unreadable on cylinders and tubes of a design type that has met the service life test programme requirements.*

6.2.2.7.5 The above marks must be placed in three groups:

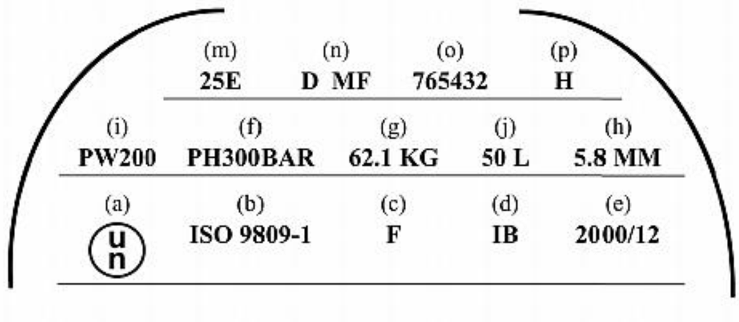
-Manufacturing marks must be the top grouping and must appear consecutively in the sequence given in 6.2.2.7.4 except for the marks described in 6.2.2.7.4 (q) and (r) which shall be adjacent to the periodic inspection and test marks of 6.2.2.7.7.

-The operational marks in 6.2.2.7.3 must be the middle grouping and the test pressure (f) must be immediately preceded by the working pressure (i) when the latter is required.

-Certification marks must be the bottom grouping and must appear in the sequence given in 6.2.2.7.2.

Figure 6.2: Marking refillable UN pressure receptacles

The following is an example of a marking a on a cylinder.



6.2.2.7.6 Other marks are allowed in areas other than the side wall, provided they are made in low stress areas and are not of a size and depth that will create harmful stress concentrations. In the case of closed cryogenic receptacles, such marks may be on a separate plate attached to the outer jacket. Such marks must not conflict with required marks.

6.2.2.7.7 In addition to the preceding marks, each refillable pressure receptacle that meets the periodic inspection and test requirements of 6.2.2.4 must be marked indicating:

(a) The character(s) identifying the country authorising the body performing the periodic inspection and test as indicated by the distinguishing sign used on vehicles in international road traffic[1]. This marks is not required if this body is approved by the competent authority of the country approving manufacture;

(b) The registered mark of the body authorised by the competent authority for performing periodic inspection and test;

(c) The date of the periodic inspection and test, the year (two digits) followed by the month (two digits) separated by a slash (i.e. "/"). Four digits may be used to indicate the year.

The above marks must appear consecutively in the sequence given.

6.2.2.7.8 For acetylene cylinders, with the agreement of the competent authority, the date of the most recent periodic inspection and the stamp of the body performing the periodic inspection and test may be engraved on a ring held on the cylinder by the valve. The ring must be configured so that it can only be removed by disconnecting the valve from the cylinder.

6.2.2.7.9 <UN Deleted >

6.2.2.8 Marking of non-refillable UN pressure receptacles

6.2.2.8.1 Non-refillable UN pressure receptacles must be marked clearly and legibly with certification and gas or pressure receptacle specific marks. These marks must be permanently affixed (e.g. stencilled, stamped, engraved, or etched) on the pressure receptacle. Except when stencilled, the marks must be on the shoulder, top end or neck of the pressure receptacle or on a permanently affixed component of the pressure receptacle (e.g. welded collar). Except for the "UN" mark and the "DO NOT REFILL" mark, the minimum size of the marks must be 5 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 2.5 mm for pressure receptacles with a diameter less than 140 mm.

The minimum size of the "UN" mark must be 10 mm for pressure receptacles with a diameter greater than or equal to 140 mm and 5 mm for pressure receptacles with a diameter less than 140 mm. The minimum size of the "DO NOT REFILL" mark must be 5 mm.

6.2.2.8.2 The marks listed in 6.2.2.7.1 to 6.2.2.7.3 must be applied with the exception of (g), (h), and (m). The serial number (o) may be replaced by

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[1] Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.

the batch number. In addition, the words "DO NOT REFILL" in letters of at least 5 mm in height are required.

6.2.2.8.3 The requirements of 6.2.2.7.4 must apply.

NOTE: Non-refillable pressure receptacles may, on account of their size, substitute a label for these permanent marks.

6.2.2.8.4 Other marks are allowed provided they are made in low stress areas other than the side wall and are not of a size and depth that will create harmful stress concentrations. Such marks must not conflict with required marks.

6.2.2.9 Marking of UN metal hydride storage systems

6.2.2.9.1 UN metal hydride storage systems must be marked clearly and legibly with the marks listed below. These marks must be permanently affixed (e.g. stamped, engraved, or etched) on the metal hydride storage system. The marks must be on the shoulder, top end or neck of the metal hydride storage system or on a permanently affixed component of the metal hydride storage system. Except for the United Nations packaging symbol, the minimum size of the marks must be 5 mm for metal hydride storage systems with a smallest overall dimension greater than or equal to 140 mm and 2.5 mm for metal hydride storage systems with a smallest overall dimension less than 140 mm. The minimum size of the United Nations packaging symbol must be 10 mm for metal hydride storage systems with a smallest overall dimension greater than or equal to 140 mm and 5 mm for metal hydride storage systems with a smallest overall dimension less than 140 mm.

6.2.2.9.2 The following marks must be applied:

(a) The United Nations packaging symbol u n

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6 or 6.7;

(b) "ISO 16111" (the technical standard used for design, manufacture and testing);

(c) The character(s) identifying the country of approval as indicated by the distinguishing sign used on vehicles in international road traffic[1];
NOTE: For the purpose of this mark the country of approval means the country of the competent authority that authorized the initial inspection and test of the individual system at the time of manufacture.

(d) The identity mark or stamp of the inspection body that is registered with the competent authority of the country authorising the marking;

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[1] Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.

(e) The date of the initial inspection, the year (four digits) followed by the month (two digits) separated by a slash (i.e. "/");

(f) The test pressure of the receptacle in bar, preceded by the letters "PH" and followed by the letters "BAR";

(g) The rated charging pressure of the metal hydride storage system in bar, preceded by the letters "RCP" and followed by the letters "BAR";

(h) The manufacturer's mark registered by the competent authority. When the country of manufacture is not the same as the country of approval, then the manufacturer's mark must be preceded by the character(s) identifying the country of manufacture as indicated by the distinguishing sign used on vehicles in international road traffic[1]. The country mark and the manufacturer's mark must be separated by a space or slash;

(i) The serial number assigned by the manufacturer;

(j) In the case of steel receptacles and composite receptacles with steel liner, the letter "H" showing compatibility of the steel (see 1SO 11114-1: 2012); and,

(k) In the case of metal hydride storage systems having limited life, the date of expiry, denoted by the letters "FINAL" followed by the year (four digits) followed by the month (two digits) separated by a slash (i.e. "/").

The certification marks specified in (a) to (e) above must appear consecutively in the sequence given. The test pressure (f) must be immediately preceded by the rated charging pressure (g). The manufacturing marks specified in (h) to (k) above must appear consecutively in the sequence given.

6.2.2.9.3 Other marks are allowed in areas other than the side wall, provided they are made in low stress areas and are not of a size and depth that will create harmful stress concentrations. Such marks must not conflict with required marks.

6.2.2.9.4 In addition to the preceding marks, each metal hydride storage system that meets the periodic inspection and test requirements of 6.2.2.4 must be marked indicating:

(a) The character(s) identifying the country authorising the body performing the periodic inspection and test, as indicated by the distinguishing sign used on vehicles in international road traffic[15]. This mark is not required if this body is approved by the competent authority of the country approving manufacture;

(b) The registered mark of the body authorised by the competent authority for performing periodic inspection and test;

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[1] Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.

(c) The date of the periodic inspection and test, the year (two digits) followed by the month (two digits) separated by a slash (i.e. "/"). Four digits may be used to indicate the year.

The above marks must appear consecutively in the sequence given.

6.2.2.10 Marking of bundles of cylinders

6.2.2.10.1 Individual cylinders in a bundle of cylinders must be marked in accordance with 6.2.2.7.

6.2.2.10.2 Refillable UN bundles of cylinders must be marked clearly and legibly with certification, operational, and manufacturing marks. These marks must be permanently affixed (e.g. stamped, engraved, or etched) on a plate permanently attached to the frame of the bundle of cylinders. Except for the UN packaging symbol, the minimum size of the marks must be 5 mm. The minimum size of the UN packaging symbol must be 10 mm.

6.2.2.10.3 The following marks must be applied:

(a) The certification marks specified in 6.2.2.7.2 (a), (b), (c), (d) and (e);

(b) The operational marks specified in 6.2.2.7.3 (f), (i), (j) and the total of the mass of the frame of the bundle and all permanently attached parts (cylinders, manifold, fittings and valves). Bundles intended for the carriage of UN 1001 acetylene, dissolved and UN 3374 acetylene, solvent free must bear the tare mass as specified in clause B.4.2 of ISO 10961:2010; and

(c) The manufacturing marks specified in 6.2.2.7.4 (n), (o) and, where applicable, (p).

6.2.2.10.4 The marks must be placed in three groups:

(a) The manufacturing marks must be the top grouping and must appear consecutively in the sequence given in 6.2.2.10.3 (c);

(b) The operational marks in 6.2.2.10.3 (b) must be the middle grouping and the operational mark specified in 6.2.2.7.3 (f) must be immediately preceded by the operational mark specified in 6.2.2.7.3 (i) when the latter is required;

(c) Certification marks must be the bottom grouping and must appear in the sequence given in 6.2.2.10.3 (a).

6.2.3 REQUIREMENTS FOR NON-UN PRESSURE RECEPTACLES

6.2.3.1 Pressure receptacles not designed, constructed, inspected, tested and approved according to the requirements of Section 6.2.2, that are cylinders to be filled and used in Australia, must comply with AS 2030 and its relevant subordinate standards, and with the general requirements of Section 6.2.1.

6.2.3.2 Pressure receptacles that do not comply with Section 6.2.2 must not be marked with the UN packaging symbol.

6.2.3.3 Except for cylinders that comply with AS 2030 and its subordinate standards, for metallic cylinders, tubes, pressure drums, bundles of cylinders and salvage pressure receptacles, the construction must be such that the minimum burst ratio (burst pressure divided by test pressure) is:

1.50 for refillable pressure receptacles,

2.00 for non-refillable pressure receptacles.

6.2.3.4 Cylinders that comply with AS 2030 and its subordinate standards must be marked in accordance with AS 2030.

6.2.3.5 Salvage pressure receptacles

To permit the safe handling and disposal of the pressure receptacles transported within the salvage pressure receptacle, the design may include equipment not otherwise used for cylinders or pressure drums such as flat heads, quick opening devices and openings in the cylindrical part.

Instructions on the safe handling and use of the salvage pressure receptacle must be clearly shown in the documentation for the application to the competent authority and must form part of the approval certificate. In the approval certificate, the pressure receptacles authorised to be transported in a salvage pressure receptacle must be indicated. A list of the materials of construction of all parts likely to be in contact with the dangerous goods must also be included.

A copy of the approval certificate must be delivered by the manufacturer to the owner of a salvage pressure receptacle.

The marking of salvage pressure receptacles according to 6.2.3 must be determined by the competent authority taking into account suitable marking provisions of 6.2.2.7 as appropriate. The marking must include the water capacity and test pressure of the salvage pressure receptacle.

NOTE: These provisions for salvage pressure receptacles may be applied for new salvage pressure receptacles as from 1 January 2013, unless otherwise authorized, and shall be applied for all new salvage pressure receptacles as from 1 January 2014. Salvage pressure receptacles approved in accordance with national regulations may be used with the approval of the competent authorities of the countries of use.

6.2.4 REQUIREMENTS FOR AEROSOL DISPENSERS, SMALL RECEPTACLES CONTAINING GAS (GAS CARTRIDGES) AND FUEL CELL CARTRIDGES CONTAINING LIQUEFIED FLAMMABLE GAS

Each filled aerosol dispenser or gas cartridge or fuel cell cartridge must be subjected to a test in a hot water bath in accordance with 6.2.4.1 or an approved water bath alternative in accordance with 6.2.4.2.

6.2.4.0 Aerosol Dispensers

6.2.4.0.1 Metal aerosol dispensers must comply with AS 2278 or an equivalent international or foreign standard (see 1.2.3.2.4).

6.2.4.0.2 Plastic aerosol dispensers can be used for aerosol formulations classified as Division 2.2 not exceeding 1000 ml capacity. The plastic aerosol dispensers must comply with British Standard BS 5597:1991 – "Specification for non-refillable plastics aerosol dispensers up to 1000 ml capacity".

6.2.4.1 Hot water bath test

6.2.4.1.1 The temperature of the water bath and the duration of the test must be such that the internal pressure reaches that which would be reached at 55 °C (50 °C if the liquid phase does not exceed 95% of the capacity of the aerosol dispenser, gas cartridge or fuel cell cartridge at 50 °C). If the contents are sensitive to heat or if the aerosol dispensers, gas cartridge or fuel cell cartridge are made of plastics material which softens at this test temperature, the temperature of the bath must be set at between 20 °C and 30 °C but, in addition, one aerosol dispenser, gas cartridge or fuel cell cartridge in 2000 must be tested at the higher temperature.

6.2.4.1.2 No leakage or permanent deformation of an aerosol dispenser, receptacle or fuel cell cartridge may occur, except that a plastic aerosol dispenser, gas cartridge or fuel cell cartridge may be deformed through softening provided that it does not leak.

6.2.4.2 Alternative methods

Alternative methods which provide an equivalent level of leak detection may be used provided that the requirements of 6.2.4.2.1 and, as appropriate, 6.2.4.2.2 or 6.2.4.2.3 are met.

6.2.4.2.1 Quality system

Aerosol dispenser, gas cartridge or fuel cell cartridge fillers and component manufacturers must have a quality system. The quality system must implement procedures to ensure that all aerosol dispensers, gas cartridge or fuel cell cartridges that leak or that are deformed are rejected and not offered for transport.

The quality system must include:

(a) a description of the organisational structure and responsibilities;
(b) the relevant inspection and test, quality control, quality assurance, and process operation instructions that will be used;
(c) quality records, such as inspection reports, test data, calibration data and certificates;
(d) management reviews to ensure the effective operation of the quality system;
(e) a process for control of documents and their revision;
(f) a means for control of non-conforming aerosol dispensers, gas cartridge or fuel cell cartridges;

(g) training programmes and qualification procedures for relevant personnel; and

(h) procedures to ensure that there is no damage to the final product.

An initial audit and periodic audits must be conducted in accordance with AS 2278 for metal aerosol dispensers or BA 5597:1991 for plastic aerosol dispensers. These audits must ensure the system is and remains adequate and efficient.

6.2.4.2.2 *Aerosol Dispensers*

6.2.4.2.2.1 *Pressure and leak testing of aerosol dispensers before filling*

Each empty aerosol dispenser must be subjected to a pressure equal to or in excess of the maximum expected in the filled aerosol dispensers at 55 °C (50 °C if the liquid phase does not exceed 95% of the capacity of the receptacle at 50 °C). This must be at least two-thirds of the design pressure of the aerosol dispenser. If any aerosol dispenser shows evidence of leakage at a rate equal to or greater than 3.3×10^{-2} mbar.L.s^{-1} at the test pressure, distortion or other defect, it must be rejected.

6.2.4.2.2.2 *Testing of the aerosol dispensers after filling*

Prior to filling the filler must ensure that the crimping equipment is set appropriately and the specified propellant is used.

Each filled aerosol dispenser must be weighed and leak tested. The leak detection equipment must be sufficiently sensitive to detect at least a leak rate of 2.0×10^{-3} mbar.L.s^{-1} at 20 °C.

Any filled aerosol dispenser which shows evidence of leakage, deformation or excessive weight must be rejected.

6.2.4.2.3 *Gas cartridges and fuel cell cartridges*

6.2.4.2.3.1 *Pressure testing of gas cartridges and fuel cell cartridges*

Each gas cartridge or fuel cell cartridge must be subjected to a test pressure equal to or in excess of the maximum expected in the filled receptacle at 55°C (50°C if the liquid phase does not exceed 95% of the capacity of the receptacle at 50°C). This test pressure must be that specified for the gas cartridge or fuel cell cartridge and must not be less than two thirds the design pressure of the gas cartridge or fuel cell cartridge. If any gas cartridge or fuel cell cartridge shows evidence of leakage at a rate equal to or greater than 3.3×10^{-2} mbar.l.s^{-1} at the test pressure or distortion or any other defect, it must be rejected.

6.2.4.2.3.2 *Leak testing gas cartridges and fuel cell cartridges*

Prior to filling and sealing, the filler must ensure that the closures (if any), and the associated sealing equipment are closed appropriately and the specified gas is used.

Each filled gas cartridge or fuel cell cartridge must be checked for the correct mass of gas and must be leak tested. The leak detection equipment must be sufficiently sensitive to detect at least a leak rate of 2.0×10^{-3} $mbar.l.s^{-1}$ at 20°C.

Any gas cartridge or fuel cell cartridge that has gas masses not in conformity with the declared mass limits or shows evidence of leakage or deformation, must be rejected.

6.2.4.3 With the approval of the competent authority, aerosols and receptacles, small, are not subject to 6.2.4.1 and 6.2.4.2, if they are required to be sterile but may be adversely affected by water bath testing, provided:

(a) They contain a non-flammable gas and either

  (i) contain other substances that are constituent parts of pharmaceutical products for medical, veterinary or similar purposes;

  (ii) contain other substances used in the production process for pharmaceutical products; or

  (iii) are used in medical, veterinary or similar applications;

(b) An equivalent level of safety is achieved by the manufacturer's use of alternative methods for leak detection and pressure resistance, such as helium detection and water bathing a statistical sample of at least 1 in 2000 from each production batch; and

(c) For pharmaceutical products according to (a) (i) and (iii) above, they are manufactured under the authority of a national health administration. If required by the competent authority, the principles of Good Manufacturing Practice (GMP) established by the World Health Organisation (WHO)[1] must be followed.

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[1] *WHO Publication: "Quality assurance of pharmaceuticals. A compendium of guidelines and related materials. Volume 2: Good manufacturing practices and inspection".*

CHAPTER 6.3 - REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PACKAGINGS FOR DIVISION 6.2 INFECTIOUS SUBSTANCES OF CATEGORY A (UN 2814 AND UN 2900)

NOTE: *For land transport in Australia only, this Chapter does not apply to packagings for medical or clinical waste that is correctly assigned to UN 3291 in accordance with 2.6.3.5 and is packed in accordance with Packing Instruction P62A.*

6.3.1 GENERAL

6.3.1.1 The requirements of this Chapter apply to packagings intended for the transport of infectious substances of Category A, UN 2814 and UN 2900.

6.3.2 REQUIREMENTS FOR PACKAGINGS

6.3.2.1 The requirements for packagings in this section are based on packagings, as specified in 6.1.4, currently used. In order to take into account progress in science and technology, there is no objection to the use of packagings having specifications different from those in this Chapter provided that they are equally effective, and able successfully to withstand the tests described in 6.3.5. Methods of testing other than those described in this Code are acceptable provided they are equivalent.

6.3.2.2 Packagings must be manufactured and tested under a quality assurance programme in order to ensure that each packaging meets the requirements of this Chapter.

NOTE: *AS ISO 16106 [ISO 16106:2006] "Packaging – Transport packages for dangerous goods – Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001" provides acceptable guidance on procedures which may be followed.*

6.3.2.3 Manufacturers and subsequent distributors of packagings must provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that packages as presented for transport are capable of passing the applicable performance tests of this Chapter.

6.3.3 CODE FOR DESIGNATING TYPES OF PACKAGINGS

6.3.3.1 The codes for designating types of packagings are set out in 6.1.2.7.

6.3.3.2 The letters "U" or "W" may follow the packaging code. The letter "U" signifies a special packaging conforming to the requirements of 6.3.5.1.6. The letter "W" signifies that the packaging, although, of the same type indicated by the code is manufactured to a specification different from that in 6.1.4 and is considered equivalent under the requirements of 6.3.2.1.

6.3.4 MARKING

NOTE 1: *The marks indicate that the packaging which bears them corresponds to a successfully tested design type and that it complies with the requirements of this Chapter which are related to the manufacture, but not to the use, of the packaging.*

NOTE 2: *The marks are intended to be of assistance to packaging manufacturers, reconditioners, packaging users, carriers and regulatory authorities.*

NOTE 3: *The marks do not always provide full details of the test levels, etc., and these may need to be taken further into account, e.g. by reference to a test certificate, to test reports or to a register of successfully tested packagings.*

6.3.4.1 Each packaging intended for use according to this Code must bear marks which are durable, legible and placed in a location and of such a size relative to the packaging as to be readily visible. For packages with a gross mass of more than 30 kg, the marks or a duplicate thereof must appear on the top or on a side of the packaging. Letters, numerals and symbols must be at least 12 mm high, except for packagings of 30 litres capacity or less or of 30 kg maximum net mass, when they must be at least 6 mm in height and except for packagings of 5 litres capacity or less or of 5 kg maximum net mass when they must be of an appropriate size.

6.3.4.2 A packaging that meets the requirements of this section and of 6.3.5 must be marked with:

(a) The United Nations packaging symbol

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8;

(b) The code designating the type of packaging according to the requirements of 6.1.2;

(c) The text “CLASS 6.2”;

(d) The last two digits of the year of manufacture of the packaging;

(e) The state authorising the allocation of the mark, indicated by the distinguishing sign used on vehicles in international road traffic[1];

(f) The name of the manufacturer or other identification of the packaging specified by the competent authority;

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[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

(g) For packagings meeting the requirements of 6.3.5.1.6, the letter "U", inserted immediately following the mark required in (b) above.

6.3.4.3 Marks must be applied in the sequence shown in 6.3.4.2 (a) to (g); each mark required in these sub-paragraphs must be clearly separated, e.g. by a slash or space, so as to be easily identifiable. For examples, see 6.3.4.4.

Any additional marks authorised by a competent authority must still enable the marks required in 6.3.4.1 to be correctly identified.

6.3.4.4 **Example of Marking:**

u n	**4G/CLASS 6.2/06/**	as in 6.3.4.2(a), (b), (c) and (d)
	S/SP-9989-ERIKSSON	as in 6.3.4.2(e) and (f)

6.3.5 TEST REQUIREMENTS FOR PACKAGINGS

6.3.5.1 Performance and frequency of tests

6.3.5.1.1 The design type of each packaging must be tested as provided in this section in accordance with procedures established by the competent authority.

6.3.5.1.2 Each packaging design type must successfully pass the tests prescribed in this Chapter before being used. A packaging design type is defined by the design, size, material and thickness, manner of construction and packing, but may include various surface treatments. It also includes packagings which differ from the design type only in their lesser design height.

6.3.5.1.3 Tests must be repeated on production samples at intervals established by the competent authority.

6.3.5.1.4 Tests must also be repeated after each modification which alters the design, material or manner of construction of a packaging.

6.3.5.1.5 The competent authority may permit the selective testing of packagings that differ only in minor respects from a tested type, e.g. smaller sizes or lower net mass of primary receptacles; and packagings such as drums and boxes which are produced with small reductions in external dimension(s).

6.3.5.1.6 Primary receptacles of any type may be assembled within a secondary packaging and transported without testing in the rigid outer packaging under the following conditions:

(a) The rigid outer packaging must have been successfully tested in accordance with 6.3.5.2.2 with fragile (e.g., glass) inner receptacles;

(b) The total combined gross mass of primary receptacles must not exceed one half the gross mass of primary receptacles used for the drop test in (a) above;

(c) The thickness of cushioning between primary receptacles and between primary receptacles and the outside of the secondary packaging must not be reduced below the corresponding thicknesses in the originally tested packaging; and if a single primary receptacle was used in the original test, the thickness of cushioning between primary receptacles must not be less than the thickness of cushioning between the outside of the secondary packaging and the primary receptacle in the original test. When either fewer or smaller primary receptacles are used (as compared to the primary receptacles used in the drop test), sufficient additional cushioning material must be used to take up the void spaces;

(d) The rigid outer packaging must have successfully passed the stacking test in 6.1.5.6 while empty. The total mass of identical packages must be based on the combined mass of packagings used in the drop test in (a) above;

(e) For primary receptacles containing liquids, an adequate quantity of absorbent material to absorb the entire liquid content of the primary receptacles must be present;

(f) If the rigid outer packaging is intended to contain primary receptacles for liquids and is not leakproof, or is intended to contain primary receptacles for solids and is not siftproof, a means of containing any liquid or solid contents in the event of leakage must be provided in the form of a leakproof liner, plastics bag or other equally effective means of containment;

(g) In addition to the marks prescribed in 6.3.4.2(a) to (f), packagings must be marked in accordance with 6.3.4.2(g).

6.3.5.1.7 The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced packagings meet the requirements of the design type tests.

6.3.5.1.8 Provided the validity of the test results is not affected, several tests may be made on one sample.

6.3.5.2 Preparation of packagings for testing

6.3.5.2.1 Samples of each packaging must be prepared as for transport except that a liquid or solid infectious substance must be replaced by water or, where conditioning at -18 °C is specified, by water/antifreeze. Each primary receptacle must be filled to 98% of its capacity.

NOTE: *The term water includes water/antifreeze solution with a minimum specific gravity of 0.95 for testing at -18 °C.*

Table 6.3.5.2.2: Tests and samples required for packaging types

Type of packaging[a]			Tests required					
Rigid outer packaging	Primary receptacle: Plastics	Primary receptacle: Other	Water spray 6.3.5.3.6.1	Cold conditioning 6.3.5.3.6.2	Drop 6.3.5.3	Additional drop 6.3.5.3.6.3	Puncture 6.3.5.4	Stack 6.1.5.6
			Numbers of samples					
Fibreboard box	x		5	5	10	Required on one sample when the packaging is intended to contain dry ice.	2	Required on three samples when testing a "U"-marked packaging as defined in 6.3.5.1.6 for specific provisions.
		x	5	0	5		2	
Fibreboard drum	x		3	3	6		2	
		x	3	0	3		2	
Plastics box	x		0	5	5		2	
		x	0	5	5		2	
Plastics drum/jerrican	x		0	3	3		2	
		x	0	3	3		2	
Boxes of other material	x		0	5	5		2	
		x	0	0	5		2	
Drums/jerricans of other material	x		0	3	3		2	
		x	0	0	3		2	

Table note:

a "Type of packaging" categorises packagings for test purposes according to the kind of packaging and its material characteristics.

NOTE 1: *In instances where a primary receptacle is made of two or more materials, the material most liable to damage determines the appropriate test.*

NOTE 2: *The material of the secondary packagings are not taken into consideration when selecting the test or conditioning for the test.*

Explanation for use of the table:

If the packaging to be tested consists of a fibreboard outer box with a plastics primary receptacle, five samples must undergo the water spray test (see 6.3.5.3.5.1) prior to dropping and another five must be conditioned to – 18 °C (see 6.3.5.3.5.2) prior to dropping. If the packaging is to contain dry ice then one further single sample must be dropped in accordance with 6.3.5.3.5.3.

Packagings prepared as for transport must be subjected to the tests in 6.3.5.3 and 6.3.5.4. For outer packagings, the headings in the table relate to fibreboard or similar materials whose performance may be rapidly affected by moisture; plastics which may embrittle at low temperature; and other materials such as metal whose performance is not affected by moisture or temperature.

6.3.5.3 Drop Test

6.3.5.3.1 Drop height and target

Samples must be subjected to free-fall drops from a height of 9 m on to a non-resilient, horizontal, flat, massive and rigid surface in conformity with 6.1.5.3.4.

6.3.5.3.2 Number of test samples and drop orientation

6.3.5.3.2.1 Where the samples are in the shape of a box, five must be dropped, one in each of the following orientations:

(a) flat on to the base;
(b) flat on to the top;
(c) flat on to the longest side;
(d) flat on to the shortest side;
(e) on to a corner.

6.3.5.3.2.2 Where the samples are in the shape of a drum, three must be dropped, one in each of the following orientations:

(a) diagonally on to the top chime, with the centre of gravity directly above the point of impact;
(b) diagonally on to the base chime;
(c) flat on to the side.

6.3.5.3.3 While the sample must be released in the required orientation, it is accepted that for aerodynamic reasons the impact may not take place in that orientation.

6.3.5.3.4 Following the appropriate drop sequence, there must be no leakage from the primary receptacle(s) which must remain protected by cushioning/absorbent material in the secondary packaging.

6.3.5.3.5 Special preparation of test sample for the drop test

6.3.5.3.5.1 Fibreboard - Water spray test

Fibreboard outer packagings: - The sample must be subjected to a water spray that simulates exposure to rainfall of approximately 5 cm per hour for at least one hour. It must then be subjected to the test described in 6.3.5.3.1.

6.3.5.3.5.2 Plastics material – Cold conditioning

Plastics primary receptacles or outer packagings: The temperature of the test sample and its contents must be reduced to -18 °C or lower for a period of at least 24 hours and, within 15 minutes of removal from that atmosphere, the test sample must be subjected to the test described in 6.3.5.3.1. Where the sample contains dry ice, the conditioning period may be reduced to 4 hours.

6.3.5.3.5.3 Packagings intended to contain dry ice - Additional drop test

Where the packaging is intended to contain dry ice, a test additional to that specified in 6.3.5.3.1 and, when appropriate, in 6.3.5.3.5.1 or 6.3.5.3.5.2 must be carried out. One sample must be stored so that all the dry ice dissipates and then that sample must be dropped in one of the orientations described in 6.3.5.3.2.1 or in 6.3.5.3.2.2 as appropriate; which must be that most likely to result in failure of the packaging.

6.3.5.4 Puncture Test

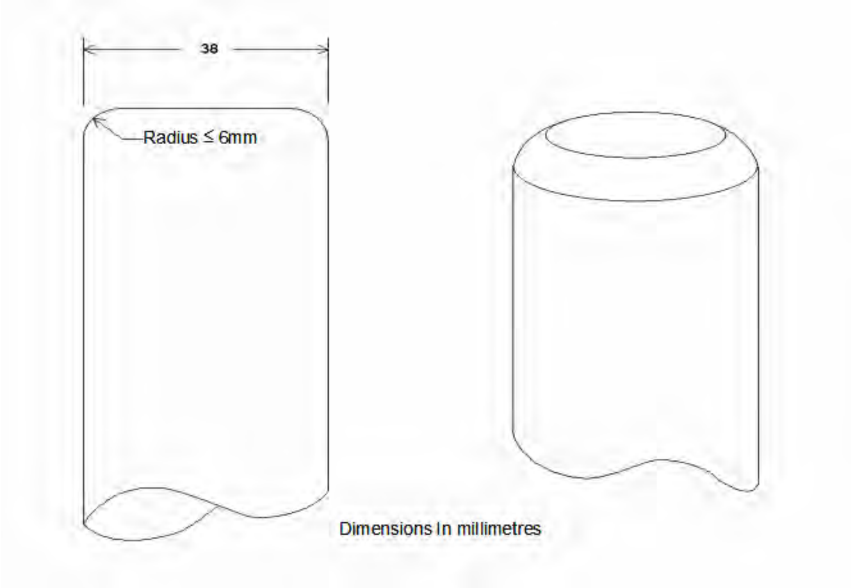
6.3.5.4.1 Packagings with a gross mass of 7 kg or less

Samples must be placed on a level hard surface. A cylindrical steel rod with a mass of at least 7 kg, a diameter of 38 mm and the impact end edges a radius not exceeding 6 mm (see Figure 6.3.1), must be dropped in a vertical free fall from a height of 1 m, measured from the impact end to the impact surface of the sample. One sample must be placed on its base. A second sample must be placed in an orientation perpendicular to that used for the first. In each instance the steel rod must be aimed to impact the primary receptacle. Following each impact, penetration of the secondary packaging is acceptable, provided that there is no leakage from the primary receptacle(s).

6.3.5.4.2 Packagings with a gross mass exceeding 7 kg

Samples must be dropped on to the end of a cylindrical steel rod. The rod must be set vertically in a level hard surface. It must have a diameter of 38 mm and the edges of the upper end a radius not exceeding 6 mm (see Figure 6.3.1). The rod must protrude from the surface a distance at least equal to that between the centre of the primary receptacle(s) and the outer surface of the outer packaging with a minimum of 200 mm. One sample must be dropped with its top face lowermost in a vertical free fall from a height of 1 m, measured from the top of the steel rod. A second sample must be dropped from the same height in an orientation perpendicular to that used for the first. In each instance the packaging must be so orientated that the steel rod would be capable of penetrating the primary receptacle(s). Following each impact, penetration of the secondary packaging is acceptable provided that there is no leakage from the primary receptacle(s).

Figure 6.3.1: Packagings with a gross mass exceeding 7 kg



6.3.5.5 Test report

6.3.5.5.1 A written test report containing at least the following particulars must be drawn up and must be available to the users of the packaging:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test and of the report;
5. Manufacturer of the packaging;
6. Description of the packaging design type (e.g. dimensions, materials, closures, thickness, etc.), including method of manufacture (e.g. blow moulding) and which may include drawing(s) and/or photograph(s);
7. Maximum capacity;
8. Test contents;
9. Test descriptions and results;
10. The test report must be signed with the name and status of the signatory.

6.3.5.5.2 The test report must contain statements that the packaging prepared as for transport was tested in accordance with the appropriate requirements of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report must be available to the competent authority.

CHAPTER 6.4 <RESERVED> (CLASS 7)

NOTE: *Refer ARPANSA website.*

CHAPTER 6.5 - REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF INTERMEDIATE BULK CONTAINERS

6.5.1 GENERAL REQUIREMENTS

6.5.1.1 Scope

6.5.1.1.1 The requirements of this Chapter apply to IBCs intended for the transport of certain dangerous goods. The provisions set out general requirements for multimodal transport and do not establish special requirements that may be required for a particular mode.

6.5.1.1.2 Exceptionally, IBCs and their service equipment not conforming strictly to the requirements herein, but having acceptable alternatives, may be considered by the competent authority for approval. In addition, in order to take into account progress in science and technology, the use of alternative arrangements which offer at least equivalent safety in use in respect of compatibility with the properties of the substances carried and equivalent or superior resistance to impact, loading and fire, may be considered by the competent authority.

6.5.1.1.3 The construction, equipment, testing, marking and operation of IBCs must be subject to acceptance by the competent authority of the country in which the IBCs are approved.

6.5.1.1.4 Manufacturers and subsequent distributors of IBCs must provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that IBCs as presented for transport are capable of passing the applicable performance tests of this Chapter.

6.5.1.2 Definitions

Body (for all categories of IBCs other than composite IBCs) means the receptacle proper, including openings and their closures, but does not include service equipment;

Handling device (for flexible IBCs) means any sling, loop, eye or frame attached to the body of the IBC or formed from a continuation of the IBC body material;

Maximum permissible gross mass means the mass of the IBC and any service or structural equipment together with the maximum net mass;

Plastics material, when used in connection with inner receptacles for composite IBCs, is taken to include other polymeric materials such as rubber;

Protected (for metal IBCs) means being provided with additional protection against impact, the protection taking the form of, for example, a multi-layer (sandwich) or double wall construction or a frame with a metal lattice-work casing;

Service equipment means filling and discharge devices and, according to the category of IBC, pressure-relief or venting, safety, heating and heat-insulating devices and measuring instruments;

Structural equipment (for all categories of IBCs other than flexible IBCs) means the reinforcing, fastening, handling, protective or stabilising members of the body, including the base pallet for composite IBCs with plastics inner receptacle, fibreboard and wooden IBCs;

Woven plastics (for flexible IBCs) means a material made from stretched tapes or monofilaments of a suitable plastics material.

6.5.1.3 Categories of IBCs

6.5.1.3.1 Metal IBCs consist of a metal body together with appropriate service and structural equipment.

6.5.1.3.2 Flexible IBCs consist of a body constituted of film, woven fabric or any other flexible material or combinations thereof, and if necessary an inner coating or liner, together with any appropriate service equipment and handling devices.

6.5.1.3.3 Rigid plastics IBCs consist of a rigid plastics body, which may have structural equipment together with appropriate service equipment.

6.5.1.3.4 Composite IBCs consist of structural equipment in the form of a rigid outer casing enclosing a plastics inner receptacle together with any service or other structural equipment. They are so constructed that the inner receptacle and outer casing once assembled, form and are used as, an integrated single unit to be filled, stored, transported or emptied as such.

6.5.1.3.5 Fibreboard IBCs consist of a fibreboard body with or without separate top and bottom caps, if necessary an inner liner (but no inner packagings), appropriate service and structural equipment.

6.5.1.3.6 Wooden IBCs consist of a rigid or collapsible wooden body together with an inner liner (but no inner packagings) and appropriate service and structural equipment.

6.5.1.4 Designatory code system for IBCs

6.5.1.4.1 The code must consist of two Arabic numerals as specified in (a); followed by a capital letter(s) specified in (b); followed, when specified in an individual section, by an Arabic numeral indicating the category of IBC.

(a)

Type	For solids filled or discharged		For liquids
	by gravity	under pressure of more than 10 kPa (0.1 bar)	
Rigid	11	21	31
Flexible	13	–	–

(b)

- A Steel (all types and surface treatments)
- B Aluminium
- C Natural wood
- D Plywood
- F Reconstituted wood
- G Fibreboard
- H Plastics material
- L Textile
- M Paper, multiwall
- N Metal (other than steel or aluminium)

6.5.1.4.2 For composite IBCs, two capital letters in Latin characters must be used in sequence in the second position of the code. The first must indicate the material of the inner receptacle of the IBC and the second that of the outer packaging of the IBC.

6.5.1.4.3 The following types and codes of IBC are assigned:

Table 6.5.1.4.3: Assigned IBC codes

Material	Category	Code	Paragraph
Metal			6.5.5.1
A. Steel	for solids, filled or discharged by gravity	11A	
	for solids, filled or discharged under pressure	21A	
	for liquids	31A	
B. Aluminium	for solids, filled or discharged by gravity	11B	
	for solids, filled or discharged under pressure	21B	
	for liquids	31B	
	for solids, filled or discharged by gravity	11N	
	for solids, filled or discharged under pressure	21N	

Table 6.5.1.4.3: Assigned IBC codes

Material	Category	Code	Paragraph
N. Other than steel or aluminium	for liquids	31N	
Flexible			6.5.5.2
H. Plastics	woven plastics without coating or liner	13H1	
	woven plastics, coated	13H2	
	woven plastics with liner	13H3	
	woven plastics, coated and with liner	13H4	
	plastics film	13H5	
L. Textile	without coating or liner	13L1	
	Coated	13L2	
	with liner	13L3	
	coated and with liner	13L4	
M. Paper	Multiwall	13M1	
	multiwall, water resistant	13M2	
H. Rigid Plastics	for solids, filled or discharged by gravity, fitted with structural equipment	11H1	6.5.5.3
	for solids, filled or discharged by gravity, freestanding	11H2	
	for solids, filled or discharged under pressure, fitted with structural equipment	21H1	
	for solids, filled or discharged under pressure, freestanding	21H2	
	for liquids, fitted with structural equipment for liquids, freestanding	31H1 31H2	
HZ. Composite with plastic inner receptacle[a]	for solids, filled or discharged by gravity, with rigid plastics receptacle	11HZ1	6.5.5.4
	for solids, filled or discharged by gravity, with flexible plastics receptacle	11HZ2	
	for solids, filled or discharged under pressure, with rigid plastics receptacle	21HZ1	
	for solids, filled or discharged under pressure, with flexible plastics receptacle	21HZ2	
	for liquids, with rigid plastics receptacle	31HZ1	
	for liquids, with flexible plastics receptacle	31HZ2	
G. Fibreboard	for solids, filled or discharged by gravity	11G	6.5.5.5
Wooden			6.5.5.6
C. Natural wood	for solids, filled or discharged by gravity with inner liner	11C	
D. Plywood	for solids, filled or discharged by gravity, with inner liner	11D	
F. Reconstituted wood	for solids, filled or discharged by gravity, with inner liner	11F	

Table 6.5.1.4.3: Assigned IBC codes

Material	Category	Code	Paragraph

Table note:

a The code must be completed by replacing the letter Z with a capital letter in accordance with 6.5.1.4.1(b) to indicate the nature of the material used for the outer casing.

6.5.1.4.4 The letter "W" may follow the IBC code. The letter "W" signifies that the IBC, although of the same type indicated by the code, is manufactured to a specification different from those in section 6.5.5 and is considered equivalent in accordance with the requirements in 6.5.1.1.2.

6.5.2 MARKING

6.5.2.1 Primary marking

6.5.2.1.1 Each IBC manufactured and intended for use according to this Code must bear marks which are durable, legible and placed in a location so as to be readily visible. Letters, numerals and symbols must be at least 12 mm high and must show:

(a) The United Nations packaging symbol

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8.;

For metal IBCs on which the marks are stamped or embossed, the capital letters "UN" may be applied instead of the symbol;

(b) The code designating the type of IBC according to 6.5.1.4;

(c) A capital letter designating the packing group(s) for which the design type has been approved:
- (i) X for packing groups I, II and III (IBCs for solids only);
- (ii) Y for packing groups II and III;
- (iii) Z for packing group III only;

(d) The month and year (last two digits) of manufacture;

(e) The State authorising the allocation of the mark; indicated by the distinguishing sign used on vehicles in international road traffic[1];

(f) The name or symbol of the manufacturer and other identification of the IBC as specified by the competent authority;

(g) The stacking test load in kg. For IBCs not designed for stacking, the figure "0" must be shown;

---

[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

(h) The maximum permissible gross mass in kg.

The primary marks required above shall be applied in the sequence of the subparagraphs above. The marks required by 6.5.2.2. and any further marks authorized by a competent authority shall still enable the primary marks to be correctly identified.

Each mark applied in accordance with (a) to (h) and with 6.5.2.2 shall be clearly separated e.g. by a slash or space, so as to be easily identifiable.

6.5.2.1.2 Examples of markings for various types of IBC in accordance with (a) to (h) above:

11A/Y/02 99/NL/ Mulder 007/5500/1500	For a metal IBC for solids discharged for instance by gravity and made from steel/for packing groups II and III/ manufactured in February 1999/authorised by the Netherlands/manufactured by Mulder and of a design type to which the competent authority has allocated serial number 007/the stacking test load in kg/the maximum permissible gross mass in kg.
13H3/Z/03 01/F/ Meunier 1713/0/1500	For a flexible IBC for solids discharged for instance by gravity and made from woven plastics with a liner/not designed to be stacked.
31H1/Y/04 99/ GB/9099 10800/1200	For a rigid plastics IBC for liquids made from plastics with structural equipment withstanding the stack load.
31HA1/Y/05 01/D/ Muller 1683/10800/1200	For a composite IBC for liquids with a rigid plastics inner receptacle and a steel outer casing.
11C/X/01 02/S/ Aurigny 9876/ 3000/910	For a wooden IBC for solids with an inner liner and authorised for packing group I solids.

6.5.2.1.3 Where an IBC conforms to one or more than one tested IBC design type, including one or more than one tested packaging or large packaging design type, the IBC may bear more than one mark to indicate the relevant performance test requirements that have been met. Where more than one mark appears on a packaging, the marks must appear in close proximity to one another and each mark shall appear in its entirety.

6.5.2.2 Additional marking

6.5.2.2.1 Each IBC must bear the marks required in 6.5.2.1 and, in addition, the following information which may appear on a corrosion-resistant plate permanently attached in a place readily accessible for inspection:

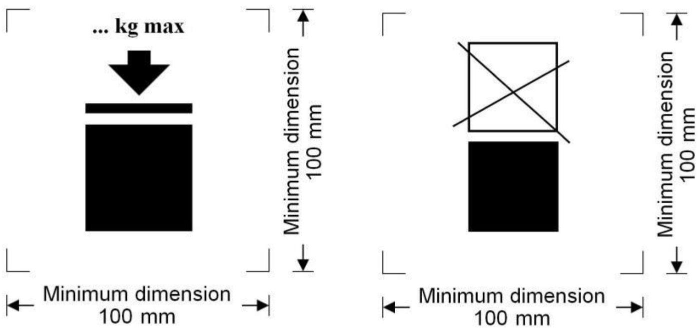
Table 6.5.2.2.1: Additional IBC markings

Additional marks	Category of IBC				
	Metal	**Rigid Plastics**	**Composite**	**Fibreboard**	**Wooden**
Capacity in litres[a] at 20 °C	X	X	X		
Tare mass in kg[a]	X	X	X	X	X
Test (gauge) pressure, in kPa or bar [a], if applicable		X	X		
Maximum filling/discharge pressure in kPa or bar[a], if applicable	X	X	X		
Body material and its minimum thickness in mm	X				
Date of last leakproofness test, if applicable (month and year)	X	X	X		
Date of last inspection (month and year)	X	X	X		
Serial number of the manufacturer	X				

a The unit used must be indicated.

6.5.2.2.2 The maximum permitted stacking load applicable must be displayed on a symbol as shown in Figure 6.5.1 or Figure 6.5.2. The symbol must be durable and clearly visible.

Figure 6.5.1 and 6.5.2: Marking IBCs



IBCs capable of being stacked

IBCs NOT capable of being stacked

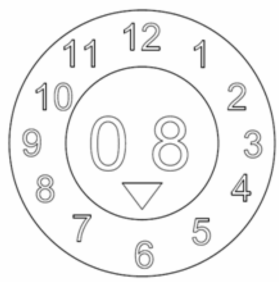
The minimum dimensions must be 100 mm x 100 mm. The letters and numbers indicating the mass must be at least 12 mm high. The area within the printer's marks indicated by the dimensional arrows must be square. Where dimensions are not specified, all features must be in approximate proportion to those shown. The mass marked above the symbol must not exceed the load imposed during the design type test (see 6.5.6.6.4) divided by 1.8.

6.5.2.2.3 In addition to the marks required in 6.5.2.1, flexible IBCs may bear a pictogram indicating recommended lifting methods.

6.5.2.2.4 Inner receptacles that are of composite design type shall be identified by the application of the marks indicated in 6.5.2.1.1 (b), (c), (d) where this date is that of the manufacture of the plastics inner receptacle, (e) and (f). The UN packaging symbol must not be applied. The marks must be applied in the sequence shown in 6.5.2.1.1. They must be durable, legible and placed in a location so as to be readily accessible for inspection after assembling the inner receptacle in the outer casing. When the mark on the inner receptacle is not readily accessible for inspection due to the design of the outer casing, a duplicate of the required mark on the inner receptacle shall be placed on the outer casing preceded by the wording "Inner receptacle". This duplicate shall be durable, legible and placed in a location so as to be readily accessible for inspection.

The date of the manufacture of the plastics inner receptacle may alternatively be marked on the inner receptacle adjacent to the remainder of the marks. In such a case, the date may be waived from the remainder of the marks. An example of an appropriate marking method is:

Figure 6.5.3: Date of manufacturing mark



NOTE 1: *Other methods that provide the minimum required information in a durable, visible and legible form are also acceptable.*

NOTE 2: *The date of manufacture of the inner receptacle may be different from the marked date of manufacture (see 6.5.2.1), repair (see 6.5.4.5.3) or remanufacture (see 6.5.2.4) if the composite IBC.*

6.5.2.2.5 Where a composite IBC is designed in such a manner that the outer casing is intended to be dismantled for transport when empty (such as for return of the IBC for reuse to the original consignor), each of the parts intended to be detached when so dismantled must be marked with the month and year of manufacture and the name or symbol of the manufacturer and other identification of the IBC as specified by the competent authority (6.5.2.1.1(f)).

6.5.2.3 Conformity to design type. The marks indicate that IBCs correspond to a successfully tested design type and that the requirements referred to in the certificate have been met.

6.5.2.4 Marking of remanufactured composite IBCs (31HZ1)

The marks specified in 6.5.2.1.1 and 6.5.2.2 must be removed from the original IBC or made permanently illegible and new marks must be applied to an IBC remanufactured in accordance with this Code.

6.5.3 CONSTRUCTION REQUIREMENTS

6.5.3.1 General requirements

6.5.3.1.1 IBCs must be resistant to or adequately protected from deterioration due to the external environment.

6.5.3.1.2 IBCs must be so constructed and closed that none of the contents can escape under normal conditions of transport including the effect of vibration, or by changes in temperature, humidity or pressure.

6.5.3.1.3 IBCs and their closures must be constructed of materials compatible with their contents, or be protected internally, so that they are not liable:

(a) To be attacked by the contents so as to make their use dangerous;
(b) To cause the contents to react or decompose, or form harmful or dangerous compounds with the IBCs.

6.5.3.1.4 Gaskets, where used, must be made of materials not subject to attack by the contents of the IBCs.

6.5.3.1.5 All service equipment must be so positioned or protected as to minimise the risk of escape of the contents owing to damage during handling and transport.

6.5.3.1.6 IBCs, their attachments and their service and structural equipment must be designed to withstand, without loss of contents, the internal pressure of the contents and the stresses of normal handling and transport. IBCs intended for stacking must be designed for stacking. Any lifting or securing features of IBCs must be of sufficient strength to withstand the normal conditions of handling and transport without gross distortion or failure and must be so positioned that no undue stress is caused in any part of the IBC.

6.5.3.1.7 Where an IBC consists of a body within a framework it must be so constructed that:

(a) The body does not chafe or rub against the framework so as to cause material damage to the body;
(b) The body is retained within the framework at all times;
(c) The items of equipment are fixed in such a way that they cannot be damaged if the connections between body and frame allow relative expansion or movement.

6.5.3.1.8 Where a bottom discharge valve is fitted, it must be capable of being made secure in the closed position and the whole discharge system must be suitably protected from damage. Valves having lever closures must be able to be secured against accidental opening and the open or closed position must be readily apparent. For IBCs containing liquids, a secondary means of sealing the discharge aperture must also be provided, e.g. by a blank flange or equivalent device.

6.5.4 TESTING, CERTIFICATION AND INSPECTION

6.5.4.1 Quality assurance: - the IBCs must be manufactured, remanufactured, repaired and tested under a quality assurance programme in order to ensure that each manufactured, remanufactured or repaired IBC meets the requirements of this Chapter.

NOTE: *AS ISO 16106 [ISO 16106:2006] "Packaging - Transport packages for dangerous goods - Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings - Guidelines for the application of ISO 9001" provides acceptable guidance on procedures which may be followed.*

6.5.4.2 Test requirements: - IBCs must be subject to design type tests and, if applicable, to initial and periodic inspections and tests in accordance with 6.5.4.4.

6.5.4.3 Certification: - in respect of each design type of IBC a certificate and mark (as in 6.5.2) must be issued attesting that the design type including its equipment meets the test requirements.

6.5.4.4 Inspection and testing

NOTE: *See also 6.5.4.5 for tests and inspections on repaired IBCs.*

6.5.4.4.1 Every metal, rigid plastics and composite IBCs must be inspected to the satisfaction of the competent authority:

(a) Before it is put into service (including after remanufactured), and thereafter at intervals not exceeding five years, with regard to:
   - (i) conformity to design type including marks;
   - (ii) internal and external condition;
   - (iii) proper functioning of service equipment;

Thermal insulation, if any, need be removed only to the extent necessary for a proper examination of the body of the IBC;

(b) At intervals of not more than two and a half years, with regard to:
   - (i) external condition;
   - (ii) proper functioning of service equipment;

Thermal insulation, if any, need be removed only to the extent necessary for a proper examination of the body of the IBC.

Each IBC must correspond in all respects to its design type.

6.5.4.4.2 Every metal, rigid plastics and composite IBC for liquids, or for solids which are filled or discharged under pressure, must undergo a suitable leakproofness test. This test is part of a quality assurance programme as stipulated in 6.5.4.1 which shows the capability of meeting the appropriate test level indicated in 6.5.6.7.

(a) before it is first used for transport; and

(b) at intervals of not more than two and a half years.

For this test the IBC must be fitted with the primary bottom closure. The inner receptacle of a composite IBC may be tested without the outer casing, provided the test results are not affected.

6.5.4.4.3 A report of each inspection and test must be kept by the owner of the IBC at least until the next inspection or test. The report must include the results of the inspection and test and must identify the party performing the inspection and test (see also the marking requirements in 6.5.2.2.1).

6.5.4.5 Repaired IBCs

6.5.4.5.1 When an IBC is impaired as a result of impact (e.g. accident) or any other cause, it must be repaired or otherwise maintained (see definition of “Routine maintenance of IBCs” in 1.2.1.1), so as to conform to the design type. The bodies of rigid plastics IBCs and the inner receptacles of composite IBCs that are impaired must be replaced.

6.5.4.5.2 In addition to any other testing and inspection requirements in this Code, an IBC must be subjected to the full testing and inspection requirements set out in 6.5.4.4, and the required reports must be prepared, whenever it is repaired.

6.5.4.5.3 The Party performing the tests and inspections after the repair must durably marks the IBC near the manufacturer's UN design type marking to show:

(a) the State in which the repair was carried out;

(b) the name or authorised symbol of the party performing the repair; and

(c) the date (month and year) of the tests and inspections.

6.5.4.5.4 Test and inspections performed in accordance with 6.5.4.5.2 may be considered to satisfy the requirements for the two and a half and five-year periodic tests and inspections.

6.5.4.5.5 The competent authority may at any time require proof, by tests in accordance with this Chapter, that IBCs meet the requirements of the design type tests.

6.5.5 SPECIFIC REQUIREMENTS FOR IBCS

6.5.5.1 Specific requirements for metal IBCs

6.5.5.1.1 These requirements apply to metal IBCs intended for the transport of solids and liquids. There are three categories of metal IBCs:

(a) Those for solids which are filled or discharged by gravity (11A, 11B, 11N);

(b) Those for solids which are filled or discharged at a gauge pressure greater than 10 kPa (0.1 bar) (21A, 21B, 21N); and

(c) Those for liquids (31A, 31B, 31N).

6.5.5.1.2 Bodies must be made of suitable ductile metal in which the weldability has been fully demonstrated. Welds must be skilfully made and afford complete safety. Low-temperature performance must be taken into account when appropriate.

6.5.5.1.3 Care must be taken to avoid damage by galvanic action due to the juxtaposition of dissimilar metals.

6.5.5.1.4 Aluminium IBCs intended for the carriage of flammable liquids must have no movable parts, such as covers, closures, etc., made of unprotected steel liable to rust, which might cause a dangerous reaction by coming into frictional or percussive contact with the aluminium.

6.5.5.1.5 Metal IBCs must be made of metals which meet the following requirements:

(a) For steel the elongation at fracture, in %, must not be less than

$$\frac{10000}{Rm}$$

with an absolute minimum of 20%;

where Rm = guaranteed minimum tensile strength of the steel to be used, in N/mm^2;

(b) For aluminium the elongation at fracture, in %, must not be less than

$$\frac{10000}{6Rm}$$

with an absolute minimum of 8%.

Specimens used to determine the elongation at fracture must be taken transversely to the direction of rolling and be so secured that:

$L_0 = 5d$ or

$L_0 = 5.65\sqrt{A}$

where: L_0 = gauge length of the specimen before the test

d = diameter

A = cross-sectional area of test specimen.

6.5.5.1.6 *Minimum wall thickness:*

Metal IBCs with a capacity of more than 1500 l shall comply with the following minimum wall thickness requirement:

(a) For a reference steel having a product of $Rm \times A_o$ = 10 000, the wall thickness must not be less than:

Wall thickness (T) in mm			
Types 11A, 11B, 11N		**Types 21A, 21B, 21N, 31A, 31B, 31N**	
Unprotected	**Protected**	**Unprotected**	**Protected**
T = C/2000 + 1.5	T = C/2000 + 1.0	T = C/1000 + 1.0	T = C/2000 + 1.5

where: A_0 = minimum elongation (as a percentage) of the reference steel to be used on fracture under tensile stress (see 6.5.5.1.5);

(b) For metals other than the reference steel described in (a), the minimum wall thickness is given by the following equivalence formula:

$$e_1 = \frac{21.4e_0}{\sqrt[3]{Rm_1 \times A_1}}$$

where: e_1 = required equivalent wall thickness of the metal to be used (in mm);

e_0 = required minimum wall thickness for the reference steel (in mm);

Rm_1 = guaranteed minimum tensile strength of the metal to be used (in N/mm^2) (see (c));

A_1 = minimum elongation (as a percentage) of the metal to be used on fracture under tensile stress (see 6.5.5.1.5);

However, in no case must the wall thickness be less than 1.5 mm.

(c) For purposes of the calculation described in (b), the guaranteed minimum tensile strength of the metal to be used (Rm_1) must be the minimum value according to national or international material standards. However, for austenitic steels, the specified minimum value for Rm according to the material standards may be increased by up to 15% when a greater value is attested in the material inspection certificate. When no material standard exists for the material in question, the value of Rm must be the minimum value attested in the material inspection certificate.

6.5.5.1.7 Pressure relief requirements: - IBCs for liquids must be capable of releasing a sufficient amount of vapour in the event of fire engulfment to ensure that no rupture of the body will occur. This can be achieved by conventional pressure-relief devices or by other constructional means. The start-to-discharge pressure must not be higher than 65 kPa (0.65 bar) and no lower than the total gauge pressure experienced in the IBC (i.e. the vapour pressure of the filling substance plus the partial pressure of the air or other inert gases, minus 100 kPa (1 bar)) at 55 °C, determined on the basis of a maximum degree of filling as defined in 4.1.1.4. The required relief devices must be fitted in the vapour space.

6.5.5.2 Specific requirements for flexible IBCs

6.5.5.2.1 These requirements apply to flexible IBCs of the following types:

13H1 woven plastics without coating or liner

13H2 woven plastics, coated

13H3 woven plastics with liner

13H4 woven plastics, coated and with liner

13H5 plastics film

13L1 textile without coating or liner

13L2 textile, coated

13L3 textile with liner

13L4 textile, coated and with liner

13M1 paper, multiwall

13M2 paper, multiwall, water resistant

Flexible IBCs are intended for the transport of solids only.

6.5.5.2.2 Bodies must be manufactured from suitable materials. The strength of the material and the construction of the flexible IBC must be appropriate to its capacity and its intended use.

6.5.5.2.3 All materials used in the construction of flexible IBCs of types 13M1 and 13M2 must, after complete immersion in water for not less than 24 hours, retain at least 85% of the tensile strength as measured originally on the material conditioned to equilibrium at 67% relative humidity or less.

6.5.5.2.4 Seams must be formed by stitching, heat sealing, gluing or any equivalent method. All stitched seam-ends must be secured.

6.5.5.2.5 Flexible IBCs must provide adequate resistance to ageing and to degradation caused by ultraviolet radiation or the climatic conditions, or by the substance contained, thereby rendering them appropriate to their intended use.

6.5.5.2.6 For flexible plastics IBCs where protection against ultraviolet radiation is required, it must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the body. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.5.5.2.7 Additives may be incorporated into the material of the body to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.5.5.2.8 No material recovered from used receptacles must be used in the manufacture of IBC bodies. Production residues or scrap from the same manufacturing process may, however, be used. Component parts such as fittings and pallet bases may also be used provided such components have not in any way been damaged in previous use.

6.5.5.2.9 When filled, the ratio of height to width must be not more than 2:1.

6.5.5.2.10 The liner must be made of a suitable material. The strength of the material used and the construction of the liner must be appropriate to the capacity of the IBC and the intended use. Joins and closures must be sift proof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and transport.

6.5.5.3 Specific requirements for rigid plastics IBCs

6.5.5.3.1 These requirements apply to rigid plastics IBCs for the transport of solids or liquids. Rigid plastics IBCs are of the following types:

11H1 fitted with structural equipment designed to withstand the whole load when IBCs are stacked, for solids which are filled or discharged by gravity

11H2 freestanding, for solids which are filled or discharged by gravity

21H1 fitted with structural equipment designed to withstand the whole load when IBCs are stacked, for solids which are filled or discharged under pressure

21H2 freestanding, for solids which are filled or discharged under pressure

31H1 fitted with structural equipment designed to withstand the whole load when IBCs are stacked, for liquids

31H2 freestanding, for liquids

6.5.5.3.2 The body must be manufactured from suitable plastics material of known specifications and be of adequate strength in relation to its capacity and its intended use. The material must be adequately resistant to ageing and to degradation caused by the substance contained or, where relevant, by ultraviolet radiation. Low temperature performance must be taken into account when appropriate. Any permeation of the substance contained must not constitute a danger under normal conditions of transport.

6.5.5.3.3 Where protection against ultraviolet radiation is required, it must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the body. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.5.5.3.4 Additives may be incorporated in the material of the body to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.5.5.3.5 No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of rigid plastics IBCs.

6.5.5.4 Specific requirements for composite IBCs with plastics inner receptacles

6.5.5.4.1 These requirements apply to composite IBCs for the transport of solids and liquids of the following types:

11HZ1 composite IBCs with a rigid plastics inner receptacle, for solids filled or discharged by gravity

11HZ2 composite IBCs with a flexible plastics inner receptacle, for solids filled or discharged by gravity

21HZ1 composite IBCs with a rigid plastics inner receptacle, for solids filled or discharged under pressure

21HZ2	composite IBCs with a flexible plastics inner receptacle, for solids filled or discharged under pressure
31HZ1	composite IBCs with a rigid plastics inner receptacle, for liquids
31HZ2	composite IBCs with a flexible plastics inner receptacle, for liquids

This code must be completed by replacing the letter Z by a capital letter in accordance with 6.5.1.4.1 (b) to indicate the nature of the material used for the outer casing.

6.5.5.4.2 The inner receptacle is not intended to perform a containment function without its outer casing. A “rigid” inner receptacle is a receptacle which retains its general shape when empty without closures in place and without benefit of the outer casing. Any inner receptacle that is not “rigid” is considered to be “flexible”.

6.5.5.4.3 The outer casing normally consists of rigid material formed so as to protect the inner receptacle from physical damage during handling and transport but is not intended to perform the containment function. It includes the base pallet where appropriate.

6.5.5.4.4 A composite IBC with a fully enclosing outer casing must be so designed that the integrity of the inner container may be readily assessed following the leakproofness and hydraulic tests.

6.5.5.4.5 IBCs of type 31HZ2 must be limited to a capacity of not more than 1250 litres.

6.5.5.4.6 The inner receptacle must be manufactured from suitable plastics material of known specifications and be of adequate strength in relation to its capacity and its intended use. The material must be adequately resistant to ageing and to degradation caused by the substance contained or, where relevant, by ultraviolet radiation. Low temperature performance must be taken into account when appropriate. Any permeation of the substance contained must not constitute a danger under normal conditions of transport.

6.5.5.4.7 Where protection against ultraviolet radiation is required, it must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the inner receptacle. Where use is made of carbon black, pigments or inhibitors, other than those used in the manufacture of the tested design type, retesting may be waived if changes in carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.5.5.4.8 Additives may be incorporated in the material of the inner receptacle to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.5.5.4.9 No used material other than production residues or regrind from the same manufacturing process may be used in the manufacture of inner receptacles.

6.5.5.4.10 The inner receptacle of IBCs type 31HZ2 must consist of at least three plies of film.

6.5.5.4.11 The strength of the material and the construction of the outer casing must be appropriate to the capacity of the composite IBC and its intended use.

6.5.5.4.12 The outer casing must be free of any projection that might damage the inner receptacle.

6.5.5.4.13 Outer casings of steel or aluminium must be constructed of a suitable metal of adequate thickness.

6.5.5.4.14 Outer casings of natural wood must be of well-seasoned wood, commercially dry and free from defects that would materially lessen the strength of any part of the casing. The tops and bottoms may be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.

6.5.5.4.15 Outer casings of plywood must be made of well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the casing. All adjacent plies must be glued with water resistant adhesive. Other suitable materials may be used with plywood for the construction of casings. Casings must be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

6.5.5.4.16 The walls of outer casings of reconstituted wood must be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type. Other parts of the casings may be made of other suitable material.

6.5.5.4.17 For fibreboard outer casings, strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) must be used appropriate to the capacity of the casing and to its intended use. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m^2 - see ISO 535:1991. It must have proper bending qualities. Fibreboard must be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting of corrugated fibreboard must be firmly glued to the facings.

6.5.5.4.18 The ends of fibreboard outer casings may have a wooden frame or be entirely of wood. Reinforcements of wooden battens may be used.

6.5.5.4.19 Manufacturing joins in the fibreboard outer casing must be taped, lapped and glued, or lapped and stitched with metal staples. Lapped joins must have an appropriate overlap. Where closing is effected by gluing or taping, a water resistant adhesive must be used.

6.5.5.4.20 Where the outer casing is of plastics material, the relevant requirements of 6.5.5.4.6 to 6.5.5.4.9 apply.

6.5.5.4.21 The outer casing of a 31HZ2 must enclose the inner receptacle on all sides.

6.5.5.4.22 Any integral pallet base forming part of an IBC or any detachable pallet must be suitable for mechanical handling with the IBC filled to its maximum permissible gross mass.

6.5.5.4.23 The pallet or integral base must be designed so as to avoid any protrusion of the base of the IBC that might be liable to damage in handling.

6.5.5.4.24 The outer casing must be secured to any detachable pallet to ensure stability in handling and transport. Where a detachable pallet is used, its top surface must be free from sharp protrusions that might damage the IBC.

6.5.5.4.25 Strengthening devices such as timber supports to increase stacking performance may be used but must be external to the inner receptacle.

6.5.5.4.26 Where IBCs are intended for stacking, the bearing surface must be such as to distribute the load in a safe manner. Such IBCs must be designed so that the load is not supported by the inner receptacle.

6.5.5.5 Specific requirements for fibreboard IBCs

6.5.5.5.1 These requirements apply to fibreboard IBCs for the transport of solids which are filled or discharged by gravity. Fibreboard IBCs are of the following type: 11G.

6.5.5.5.2 Fibreboard IBCs must not incorporate top lifting devices.

6.5.5.5.3 The body must be made of strong and good quality solid or double-faced corrugated fibreboard (single or multiwall), appropriate to the capacity of the IBC and to its intended use. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m^2 - see ISO 535:1991. It must have proper bending qualities. Fibreboard must be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting or corrugated fibreboard must be firmly glued to the facings.

6.5.5.5.4 The walls, including top and bottom, must have a minimum puncture resistance of 15 J measured according to ISO 3036:1975.

6.5.5.5.5 Manufacturing joins in the body of IBCs must be made with an appropriate overlap and must be taped, glued, stitched with metal staples or fastened by other means at least equally effective. Where joins are effected by gluing or taping, a water resistant adhesive must be used. Metal staples must pass completely through all pieces to be fastened and be formed or protected so that any inner liner cannot be abraded or punctured by them.

6.5.5.5.6 The liner must be made of a suitable material. The strength of the material used and the construction of the liner must be appropriate to the capacity of the IBC and the intended use. Joins and closures must be sift-proof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and transport.

6.5.5.5.7 Any integral pallet base forming part of an IBC or any detachable pallet must be suitable for mechanical handling with the IBC filled to its maximum permissible gross mass.

6.5.5.5.8 The pallet or integral base must be designed so as to avoid any protrusion of the base of the IBC that might be liable to damage in handling.

6.5.5.5.9 The body must be secured to any detachable pallet to ensure stability in handling and transport. Where a detachable pallet is used, its top surface must be free from sharp protrusions that might damage the IBC.

6.5.5.5.10 Strengthening devices such as timber supports to increase stacking performance may be used but must be external to the liner.

6.5.5.5.11 Where IBCs are intended for stacking, the bearing surface must be such as to distribute the load in a safe manner.

6.5.5.6 Specific requirements for wooden IBCs

6.5.5.6.1 These requirements apply to wooden IBCs for the transport of solids which are filled or discharged by gravity. Wooden IBCs are of the following types:

- 11C natural wood with inner liner
- 11D plywood with inner liner
- 11F reconstituted wood with inner liner.

6.5.5.6.2 Wooden IBCs must not incorporate top lifting devices.

6.5.5.6.3 The strength of the materials used and the method of construction of the body must be appropriate to the capacity and intended use of the IBC.

6.5.5.6.4 Natural wood must be well-seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the IBC. Each part of the IBC must consist of one piece or be equivalent thereto. Parts are considered equivalent to one piece when a suitable method of glued assembly is used as for instance Lindermann joint, tongue and groove joint, ship lap or rabbet joint; or butt joint with at least two corrugated metal fasteners at each joint, or when other methods at least equally effective are used.

6.5.5.6.5 Bodies of plywood must be at least 3-ply. It must be made of well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the body. All adjacent plies must be glued with water resistant adhesive. Other suitable materials may be used with plywood for the construction of the body.

6.5.5.6.6 Bodies of reconstituted wood must be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.

6.5.5.6.7 IBCs must be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

6.5.5.6.8 The liner must be made of a suitable material. The strength of the material used and the construction of the liner must be appropriate to the capacity of the IBC and the intended use. Joins and closures must be sift-proof and capable of withstanding pressures and impacts liable to occur under normal conditions of handling and transport.

6.5.5.6.9 Any integral pallet base forming part of an IBC or any detachable pallet must be suitable for mechanical handling with the IBC filled to its maximum permissible gross mass.

6.5.5.6.10 The pallet or integral base must be designed so as to avoid any protrusion of the base of the IBC that might be liable to damage in handling.

6.5.5.6.11 The body must be secured to any detachable pallet to ensure stability in handling and transport. Where a detachable pallet is used, its top surface must be free from sharp protrusions that might damage the IBC.

6.5.5.6.12 Strengthening devices such as timber supports to increase stacking performance may be used but must be external to the liner.

6.5.5.6.13 Where IBCs are intended for stacking, the bearing surface must be such as to distribute the load in a safe manner.

6.5.6 TEST REQUIREMENTS FOR IBCS

6.5.6.1 Performance and frequency of tests

6.5.6.1.1 Each IBC design type must successfully pass the tests prescribed in this Chapter before being used. An IBC design type is defined by the design, size, material and thickness, manner of construction and means of filling and discharging but may include various surface treatments. It also includes IBCs which differ from the design type only in their lesser external dimensions.

6.5.6.1.2 Tests must be carried out on IBCs prepared for transport. IBCs must be filled as indicated in the relevant sections. The substances to be transported in the IBCs may be replaced by other substances except where this would invalidate the results of the tests. For solids, when another substance is used it must have the same physical characteristics (mass, grain size, etc.) as the substance to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.

6.5.6.2 Design type tests

6.5.6.2.1 One IBC of each design type, size, wall thickness and manner of construction must be submitted to the tests listed in the order shown in 6.5.6.3.5 and as set out in 6.5.6.4 to 6.5.6.13. These design type tests must be carried out as required by the competent authority.

6.5.6.2.2 The competent authority may permit the selective testing of IBCs which differ only in minor respects from a tested type, e.g. with small reductions in external dimensions.

6.5.6.2.3 If detachable pallets are used in the tests, the test report issued in accordance with 6.5.6.14 must include a technical description of the pallets used.

6.5.6.3 Preparation of IBCs for testing

6.5.6.3.1 Paper and fibreboard IBCs and composite IBCs with fibreboard outer casings must be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h.). There are three options, one of which must be chosen.

The preferred atmosphere is 23 ± 2 °C and 50% ± 2% r.h.

The two other options are 20 ± 2 °C and 65% ± 2% r.h.; or 27 ± 2 °C and 65% ± 2% r.h.

NOTE: *Average values must fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to ±5% relative humidity without significant impairment of test reproducibility.*

6.5.6.3.2 Additional steps must be taken to ascertain that the plastics material used in the manufacture of rigid plastics IBCs (types 31H1 and 31H2) and composite IBCs (types 31HZ1 and 31HZ2) complies respectively with the requirements in 6.5.5.3.2 to 6.5.5.3.4 and 6.5.5.4.6 to 6.5.5.4.9.

6.5.6.3.3 This may be done, for example, by submitting sample IBCs to a preliminary test extending over a long period, for example six months, during which the samples would remain filled with the substances they are intended to contain or with substances which are known to have at least as severe a stress-cracking, weakening or molecular degradation influence on the plastics materials in question, and after which the samples must be submitted to the applicable tests listed on the table in 6.5.6.3.5.

6.5.6.3.4 Where the behaviour of the plastics material has been established by other means, the above compatibility test may be dispensed with.

Table 6.5.6.3.5: Design type tests required and sequential order

Type of IBC	Vibration[f]	Bottom lift	Top lift [a]	Stacking[b]	Leak-proofness	Hydraulic pressure	Drop	Tear	Topple	Righting[c]
Metal: 11A, 11B, 11N		1st [a]	2nd	3rd	-	-	4th[e]	-	-	-
21A, 21B, 21N		1st [a]	2nd	3rd	4th	5th	6th[e]	-	-	-
31A, 31B, 31N	1st	2nd [a]	3rd	4th	5th	6th	7th[e]			
Flexible [d]		-	x [c]	x	-	-	x	x	x	x
Rigid plastics: 11H1, 11H2		1st [a]	2nd	3rd	-	-	4th	-	-	-
21H1, 21H2		1st [a]	2nd	3rd	4th	5th	6th	-	-	-
31H1, 31H2	1st	2nd [a]	3rd	4th	5th	6th	7th			
Composite: 11HZ1, 11HZ2		1st [a]	2nd	3rd	-	-	4th[e]	-	-	-
21HZ1, 21HZ2		1st [a]	2nd	3rd	4th	5th	6th[e]	-	-	-
31HZ1, 31HZ2	1st	2nd [a]	3rd	4th	5th	6th	7th[e]			
Fibreboard		1st	-	2nd	-	-	3rd	-	-	-
Wooden		1st	-	2nd	-	-	3rd	-	-	-

Table notes:

a When IBCs are designed for this method of handling.

b When IBCs are designed to be stacked.

c When IBCs are designated to be lifted from the top or the side.

d Required test indicated by x; an IBC which has passed one test may be used for other tests, in any order.

e Another IBC of the same design may be used for the drop test.

f Another IBC of the same design may be used for the vibration test.

6.5.6.4 Bottom lift test

6.5.6.4.1 Applicability

For all fibreboard and wooden IBCs, and for all types of IBC which are fitted with means of lifting from the base, as a design type test.

6.5.6.4.2 Preparation of the IBC for test

The IBC must be filled. A load must be added and evenly distributed. The mass of the filled IBC and the load must be 1.25 times the maximum permissible gross mass.

6.5.6.4.3 Method of testing

The IBC must be raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks must penetrate to three quarters of the direction of entry. The test must be repeated from each possible direction of entry.

6.5.6.4.4 *Criteria for passing the test*

No permanent deformation which renders the IBC, including the base pallet, if any, unsafe for transport and no loss of contents.

6.5.6.5 Top lift test

6.5.6.5.1 *Applicability*

For all types of IBC which are designed to be lifted from the top and for flexible IBCs designed to be lifted from the top or the side, as a design type test.

6.5.6.5.2 *Preparation of the IBC for test*

Metal, rigid plastics and composite IBCs must be filled. A load must be added and evenly distributed. The mass of the filled IBC and the load must be twice the maximum permissible gross mass.

Flexible IBCs must be filled with a representative material and then must be loaded to six times their maximum design gross mass, the load being evenly distributed.

6.5.6.5.3 *Methods of testing*

Metal and flexible IBCs must be lifted in the manner for which they are designed until clear of the floor and maintained in that position for a period of five minutes.

Rigid plastics and composite IBCs must be lifted:

(a) By each pair of diagonally opposite lifting devices, so that the hoisting forces are applied vertically, for a period of five minutes; and
(b) By each pair of diagonally opposite lifting devices, so that the hoisting forces are applied toward the centre at 45° to the vertical, for a period of five minutes.

6.5.6.5.4 Other methods of top lift testing and preparation at least equally effective may be used for flexible IBCs.

6.5.6.5.5 *Criteria for passing the test*

(a) Metal, rigid plastics and composite IBCs: –the IBC remains safe for normal conditions of transport, there is no observable permanent deformation of the IBC, including the base pallet, if any, and no loss of contents;
(b) Flexible IBCs: –no damage to the IBC or its lifting devices which renders the IBC unsafe for transport or handling and no loss of contents.

6.5.6.6 Stacking test

6.5.6.6.1 Applicability

For all types of IBC which are designed to be stacked on each other, as a design type test.

6.5.6.6.2 Preparation of the IBC for test

The IBC must be filled to its maximum permissible gross mass. If the specific gravity of the product being used for testing makes this impracticable, the IBC must be additionally loaded so that it is tested at its maximum permissible gross mass, the load being evenly distributed.

6.5.6.6.3 Methods of testing

(a) The IBC must be placed on its base on level hard ground and subjected to a uniformly distributed superimposed test load (see 6.5.6.6.4). IBCs must be subjected to the test load for a period of at least:
  - (i) 5 minutes, for metal IBCs;
  - (ii) 28 days at 40 °C, for rigid plastics IBCs of types 11H2, 21H2 and 31H2 and for composite IBCs with outer casings of plastics material which bear the stacking load (i.e., types 11HH1, 11HH2, 21HH1, 21HH2, 31HH1 and 31HH2);
  - (iii) 24 hours, for all other types of IBCs;

(b) The load must be applied by one of the following methods:
  - (i) one or more IBCs of the same type filled to the maximum permissible gross mass stacked on the test IBC;
  - (ii) appropriate weights loaded onto either a flat plate or a reproduction of the base of the IBC, which is stacked on the test IBC.

6.5.6.6.4 Calculation of superimposed test load

The load to be placed on the IBC must be 1.8 times the combined maximum permissible gross mass of the number of similar IBCs that may be stacked on top of the IBC during transport.

6.5.6.6.5 Criteria for passing the test

(a) All types of IBCs other than flexible IBCs: –no permanent deformation which renders the IBC including the base pallet, if any, unsafe for transport and no loss of contents;

(b) Flexible IBCs: –no deterioration of the body which renders the IBC unsafe for transport and no loss of contents.

6.5.6.7 Leakproofness test

6.5.6.7.1 Applicability

For those types of IBCs used for liquids or for solids filled or discharged under pressure, as a design type test and periodic test.

6.5.6.7.2 Preparation of the IBC for test

The test must be carried out before the fitting of any thermal insulation equipment. Vented closures must either be replaced by similar non-vented closures or the vent must be sealed.

6.5.6.7.3 Method of testing and pressure to be applied

The test must be carried out for a period of at least 10 minutes using air at a gauge pressure of not less than 20 kPa (0.2 bar). The air tightness of the IBC must be determined by a suitable method such as by air-pressure differential test or by immersing the IBC in water or, for metal IBCs, by coating the seams and joints with a soap solution. In the latter case a correction factor must be applied for the hydrostatic pressure.

6.5.6.7.4 Criterion for passing the test

No leakage of air.

6.5.6.8 Hydraulic pressure test

6.5.6.8.1 Applicability

For those types of IBCs used for liquids or for solids filled or discharged under pressure, as a design type test.

6.5.6.8.2 Preparation of the IBC for test

The test must be carried out before the fitting of any thermal insulation equipment. Pressure-relief devices must be removed and their apertures plugged, or must be rendered inoperative.

6.5.6.8.3 Method of testing

The test must be carried out for a period of at least 10 minutes applying a hydraulic pressure not less than that indicated in 6.5.6.8.4. The IBCs must not be mechanically restrained during the test.

6.5.6.8.4 Pressures to be applied

6.5.6.8.4.1 Metal IBCs:

(a) For IBCs of types 21A, 21B and 21N, for packing group I solids, a 250 kPa (2.5 bar) gauge pressure;
(b) For IBCs of types 21A, 21B, 21N, 31A, 31B and 31N, for packing groups II or III substances, a 200 kPa (2 bar) gauge pressure;
(c) In addition, for IBCs of types 31A, 31B and 31N, a 65 kPa (0.65 bar) gauge pressure. This test must be performed before the 200 kPa test.

6.5.6.8.4.2 Rigid plastics and composite IBCs:

(a) For IBCs of types 21H1, 2lH2, 21HZ1 and 21HZ2: –75 kPa (0.75 bar) (gauge);
(b) For IBCs of types 31H1, 31H2, 31HZ1 and 31HZ2: –whichever is the greater of two values, the first as determined by one of the following methods:

(i) the total gauge pressure measured in the IBC (i.e. the vapour pressure of the filling substance and the partial pressure of the air or other inert gases, minus 100 kPa) at 55 °C multiplied by a safety factor of 1.5; this total gauge pressure must be determined on the basis of a maximum degree of filling in accordance with 4.1.1.4 and a filling temperature of 15 °C;

(ii) 1.75 times the vapour pressure at 50 °C of the substance to be transported minus 100 kPa, but with a minimum test pressure of 100 kPa;

(iii) 1.5 times the vapour pressure at 55 °C of the substance to be transported minus 100 kPa, but with a minimum test pressure of 100 kPa;

and the second as determined by the following method:

(iv) twice the static pressure of the substance to be transported, with a minimum of twice the static pressure of water.

6.5.6.8.5 *Criteria for passing the test(s):*

(a) For IBCs of types 21A, 21B, 21N, 31A, 31B and 31N, when subjected to the test pressure specified in 6.5.6.8.4.1 (a) or (b): - no leakage;

(b) For IBCs of types 31A, 31B and 31N, when subjected to the test pressure specified in 6.5.6.8.4.1(c): - neither permanent deformation which would render the IBC unsafe for transport, nor leakage;

(c) For rigid plastics and composite IBCs: - no permanent deformation which would render the IBC unsafe for transport and no leakage.

6.5.6.9 **Drop test**

6.5.6.9.1 *Applicability*

For all types of IBCs, as a design type test.

6.5.6.9.2 *Preparation of the IBC for test*

(a) Metal IBCs: - the IBC must be filled to not less than 95% of its maximum capacity for solids or 98% of its capacity for liquids. Pressure-relief devices must be removed and their apertures plugged, or must be rendered inoperative;

(b) Flexible IBCs: - the IBC must be filled to the maximum permissible gross mass, the contents being evenly distributed;

(c) Rigid plastics and composite IBCs: - the IBC must be filled to not less than 95% of its maximum capacity for solids or 98% of its maximum capacity for liquids. Arrangements provided for pressure-relief may be removed and plugged or rendered inoperative. Testing of IBCs must be carried out when the temperature of the test sample and its contents has been reduced to minus 18 °C or lower. Where test samples of composite IBCs are prepared in this way the conditioning specified in 6.5.6.3.1 may be waived. Test liquids must be kept in the liquid state, if necessary by the addition of anti-freeze. This conditioning may be disregarded if the materials in question are of sufficient ductility and tensile strength at low temperatures;

(d) Fibreboard and wooden IBCs: - the IBC must be filled to not less than 95% of its maximum capacity.

6.5.6.9.3 *Method of testing*

The IBC must be dropped on its base onto a non-resilient, horizontal, flat, massive and rigid surface in conformity with the requirements of 6.1.5.3.4, in such a manner as to ensure that the point of impact is that part of the base of the IBC considered to be the most vulnerable. IBCs of 0.45m[3] or less capacity must also be dropped:

(a) Metal IBCs: –on the most vulnerable part other than the part of the base tested in the first drop;
(b) Flexible IBCs: –on the most vulnerable side;
(c) Rigid plastics, composite, fibreboard and wooden IBCs: –flat on a side, flat on the top and on a corner.

The same IBC or a different IBC of the same design may be used for each drop.

6.5.6.9.4 *Drop height*

For solids and liquids, if the test is performed with the solid or liquid to be transported or with another substance having essentially the same physical characteristics:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

For liquids if the test is performed with water:

(a) Where the substances to be transported have a relative density not exceeding 1.2:

Packing group II	Packing group III
1.2 m	0.8 m

(b) Where the substances to be transported have a relative density exceeding 1.2, the drop heights must be calculated on the basis of the relative density (d) of the substance to be transported rounded up to the first decimal as follows:

Packing group II	Packing group III
d × 1.0 m	d × 0.67 m

6.5.6.9.5 *Criteria for passing the test(s)*

(a) Metal IBCs: –no loss of contents;
(b) Flexible IBCs: - no loss of contents. A slight discharge, e.g. from closures or stitch holes, upon impact must not be considered to be a

failure of the IBC provided that no further leakage occurs after the IBC has been raised clear of the ground;

(c) Rigid plastics, composite, fibreboard and wooden IBCs: - no loss of contents. A slight discharge from a closure upon impact must not be considered to be a failure of the IBC provided that no further leakage occurs.

(d) All IBCs: - no damage which renders the IBC unsafe to be transported for salvage or for disposal, and no loss of contents. In addition, the IBC must be capable of being lifted by an appropriate means until clear of the floor for five minutes.

NOTE: *The criteria in (d) apply to design types for IBCs manufactured as from 1 January 2011.*

6.5.6.10 Tear test

6.5.6.10.1 Applicability

For all types of flexible IBCs, as a design type test.

6.5.6.10.2 Preparation of the IBC for test

The IBC must be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed.

6.5.6.10.3 Method of testing

Once the IBC is placed on the ground, a 100 mm knife score, completely penetrating the wall of a wide face, is made at a 45° angle to the principal axis of the IBC, halfway between the bottom surface and the top level of the contents. The IBC must then be subjected to a uniformly distributed superimposed load equivalent to twice the maximum permissible gross mass. The load must be applied for at least five minutes. An IBC which is designed to be lifted from the top or the side must then, after removal of the superimposed load, be lifted clear of the floor and maintained in that position for a period of five minutes.

6.5.6.10.4 Criterion for passing the test

The cut must not propagate more than 25% of its original length.

6.5.6.11 Topple test

6.5.6.11.1 Applicability

For all types of flexible IBCs, as a design type test.

6.5.6.11.2 Preparation of the IBC for test

The IBC must be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed.

6.5.6.11.3 Method of testing

The IBC must be caused to topple on to any part of its top on to a rigid, non-resilient, smooth, flat and horizontal surface.

6.5.6.11.4 *Topple height*

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

6.5.6.11.5 *Criterion for passing the test*

No loss of contents. A slight discharge, e.g. from closures or stitch holes, upon impact must not be considered to be a failure of the IBC provided that no further leakage occurs.

6.5.6.12 Righting test

6.5.6.12.1 *Applicability*

For all flexible IBCs designed to be lifted from the top or side, as a design type test.

6.5.6.12.2 *Preparation of the IBC for test*

The IBC must be filled to not less than 95% of its capacity and to its maximum permissible gross mass, the contents being evenly distributed.

6.5.6.12.3 *Method of testing*

The IBC, lying on its side, must be lifted at a speed of at least 0.1 m/s to upright position, clear of the floor, by one lifting device or by two lifting devices when four are provided.

6.5.6.12.4 *Criterion for passing the test*

No damage to the IBC or its lifting devices which renders the IBC unsafe for transport or handling.

6.5.6.13 Vibration test

6.5.6.13.1 *Applicability*

For all IBCs used for liquids, as a design type test.

6.5.6.13.2 *Preparation of the IBC for test*

A sample IBC must be selected at random and must be fitted and closed as for transport. The IBC must be filled with water to not less than 98% of its maximum capacity.

6.5.6.13.3 *Test method and duration*

6.5.6.13.3.1 The IBC must be placed in the centre of the test machine platform with a vertical sinusoidal, double amplitude (peak-to peak displacement) of 25 mm ± 5%. If necessary, restraining devices must be attached to the platform to prevent the specimen from moving horizontally off the platform without restricting vertical movement.

6.5.6.13.3.2 The test must be conducted for one hour at a frequency that causes part of the base of the IBC to be momentarily raised from the vibrating platform for part of each cycle to such a degree that a metal shim can be completely inserted intermittently at, at least, one point between the base of the IBC and the test platform. The frequency may need to be adjusted after the initial set point to prevent the packaging from going into resonance. Nevertheless, the test frequency must continue to allow placement of the metal shim under the IBC as described in this paragraph. The continuing ability to insert the metal shim is essential to passing the test. The metal shim used for this test must be at least 1.6 mm thick, 50 mm wide, and be of sufficient length to be inserted between the IBC and the test platform a minimum of 100 mm to perform the test.

6.5.6.13.4 Criteria for passing the test

No leakage or rupture must be observed. In addition, no breakage or failure of structural components, such as broken welds or failed fastenings, must be observed.

6.5.6.14 Test report

6.5.6.14.1 A test report containing at least the following particulars must be drawn up and must be available to the users of the IBC:

1. Name and address of the test facility.
2. Name and address of applicant (where appropriate).
3. A unique test report identification.
4. Date of the test report.
5. Manufacturer of the IBC.
6. Description of the IBC design type (e.g. dimensions, materials, closures, thickness, etc.) including method of manufacture (e.g. blow moulding) and which may include drawing(s) and/or photograph(s).
7. Maximum capacity.
8. Characteristics of test contents, e.g. viscosity and relative density for liquids and particle size for solids. For rigid plastics and composite IBCs subject to the hydraulic pressure test in 6.5.6.8, the temperature of the water used.
9. Test descriptions and results.
10. The test report must be signed with the name and status of the signatory.

6.5.6.14.2 The test report must contain statements that the IBC prepared as for transport was tested in accordance with the appropriate requirements of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report must be available to the competent authority.

CHAPTER 6.6 - REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF LARGE PACKAGINGS

6.6.1 GENERAL

6.6.1.1 The requirements of this Chapter do not apply to:

- Class 2, except articles including aerosols;
- Division 6.2, except clinical waste of UN 3291;
- Class 7 packages containing radioactive material.

6.6.1.2 Large packagings must be manufactured, tested and remanufactured under a quality assurance programme in order to ensure that each manufactured or remanufactured large packaging meets the requirements of this Chapter.

NOTE: *AS ISO 16106 [ISO 16106:2006] "Packaging – Transport packages for dangerous goods – Dangerous goods packagings, intermediate bulk containers (IBCs) and large packagings – Guidelines for the application of ISO 9001" provides acceptable guidance on procedures which may be followed.*

6.6.1.3 The specific requirements for large packagings in 6.6.4 are based on large packagings currently used. In order to take into account progress in science and technology, there is no objection to the use of large packagings having specifications different from those in 6.6.4 provided they are equally effective, acceptable to the competent authority and able successfully to withstand the tests described in 6.6.5. Methods of testing other than those described in this Code are acceptable provided they are equivalent.

6.6.1.4 Manufacturers and subsequent distributors of packagings must provide information regarding procedures to be followed and a description of the types and dimensions of closures (including required gaskets) and any other components needed to ensure that packages as presented for transport are capable of passing the applicable performance tests of this Chapter.

6.6.2 CODE FOR DESIGNATING TYPES OF LARGE PACKAGINGS

6.6.2.1 The code used for large packagings consists of:

(a) Two Arabic numerals:

50 for rigid large packagings; or

51 for flexible large packagings; and

(b) Capital letters in Latin characters indicating the nature of the material, e.g. wood, steel etc. The capital letters used must be those shown in 6.1.2.6.

6.6.2.2 The letters "T" or "W" may follow the large packaging code. The letter "T" signifies a large salvage packaging conforming to the requirements of 6.6.5.1.9 The letter "W" signifies that the large packaging, although of the same type indicated by the code, is manufactured to a specification different from those in 6.6.4 and is considered equivalent in accordance with the requirements in 6.6.1.3.

6.6.3 MARKING

6.6.3.1 Primary marking

Each large packaging manufactured and intended for the use according to this Code must bear marks which are durable, legible and placed in a location so as to be readily visible. Letters, numerals and symbols must be at least 12 mm high and must show:

(a) The United Nations packaging symbol

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8;

For metal large packagings on which the marks are stamped or embossed, the capital letters “UN” may be applied instead of the symbol;

(b) The code “50” designating a large rigid packaging or “51” for flexible large packagings, followed by the material type in accordance with 6.5.1.4.1(b);

(c) A capital letter designating the packing group(s) for which the design type has been approved:

X for packing groups I, II and III

Y for packing groups II and III

Z for packing group III only;

(d) The month and year (last two digits) of manufacture;

(e) The State authorising the allocation of the mark; indicated by the distinguishing sign used on vehicles in international road traffic[1](AUS for Australia);

(f) The name or symbol of the manufacturer and other identification of the large packagings as specified by the competent authority;

(g) The stacking test load in kg. For large packagings not designed for stacking the figure “0” must be shown;

(h) The maximum permissible gross mass in kilograms.

The primary marks required above must be applied in the sequence of the sub-paragraphs.

Each mark applied in accordance with (a) to (h) must be clearly separated, e.g. by a slash or space, so as to be easily identifiable.

[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

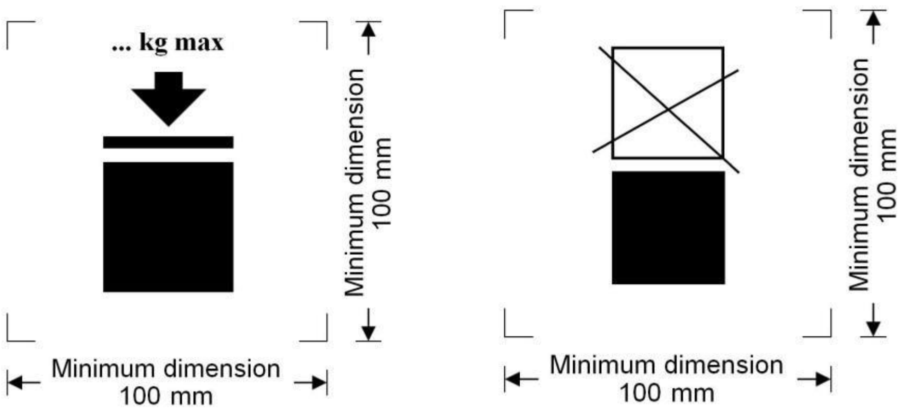
6.6.3.2 Examples of the marking:

u n	**50 A/X/05/01/N/PQRS/ 2500/1000**	For a large steel packaging suitable for stacking; stacking load: 2500 kg; maximum gross mass: 1000 kg.
u n	**50AT/Y/05/01/B/PQRS 2500/1000**	For a large steel salvage packaging suitable for stacking; stacking load: 2500 Kg; maximum gross mass: 1000 kg.

u n	**50 H/Y04/02/D/ ABCD 987/0/800**	For a large plastics packaging not suitable for stacking; maximum gross mass: 800 kg.
u n	**51H/Z/06/01/S/1999/ 0/500**	For a large flexible packaging not suitable for stacking; maximum gross mass: 500 kg.

6.6.3.3 The maximum permitted stacking load applicable must be displayed on a symbol as shown in Figure 6.6.1 or Figure 6.6.2. The symbol **must** be durable and clearly visible.

Figure 6.6.1 and 6.6.2: Large packaging marking



Large packaging capable of being stacked

Large packaging NOT capable of being stacked

The minimum dimensions **must** be 100 mm x 100 mm. The letters and numbers indicating the mass **must** be at least 12 mm high. The area within the printer's marks indicated by the dimensional arrows **must** be square. Where dimensions are not specified, all features **must** be in approximate proportion to those shown. The mass marked above the symbol **must** not exceed the load imposed during the design type test (see 6.6.5.3.3.4) divided by 1.8.

NOTE: *The provisions of 6.6.3.3* ***must*** *apply to all large packagings manufactured, repaired or remanufactured as from 1 January 2015. The provisions of 6.6.3.3 from version 7.4 of the ADG Code may continue to be applied to all large packagings manufactured, repaired or remanufactured between 1 January 2015 and 31 December 2016.*

6.6.3.4 Where a large packaging conforms to one or more than one tested large packaging design type, including one or more than one tested packaging or IBC design type, the large packaging may bear more than one mark to indicate the relevant performance test requirements that have been met. Where more than one mark appears on a packaging, the marks must appear in close proximity to one another and each mark must appear in its entirety.

6.6.4 SPECIFIC REQUIREMENTS FOR LARGE PACKAGINGS

6.6.4.1 Specific requirements for metal large packagings

50A steel

50B aluminium

50N metal (other than steel or aluminium)

6.6.4.1.1 The large packaging must be made of suitable ductile metal in which the weldability has been fully demonstrated. Welds must be skilfully made and afford complete safety. Low-temperature performance must be taken into account when appropriate.

6.6.4.1.2 Care must be taken to avoid damage by galvanic action due to the juxtaposition of dissimilar metals.

6.6.4.2 Specific requirements for flexible material large packagings

51H flexible plastics

51M flexible paper

6.6.4.2.1 The large packaging must be manufactured from suitable materials. The strength of the material and the construction of the flexible large packagings must be appropriate to its capacity and its intended use.

6.6.4.2.2 All materials used in the construction of flexible large packagings of types 51M must, after complete immersion in water for not less than 24 hours, retain at least 85% of the tensile strength as measured originally on the material conditioned to equilibrium at 67% relative humidity or less.

6.6.4.2.3 Seams must be formed by stitching, heat sealing, gluing or any equivalent method. All stitched seam-ends must be secured.

6.6.4.2.4 Flexible large packagings must provide adequate resistance to ageing and to degradation caused by ultraviolet radiation or the climatic conditions, or by the substance contained, thereby rendering them appropriate to their intended use.

6.6.4.2.5 For plastics flexible large packagings where protection against ultraviolet radiation is required, it must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the large packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.6.4.2.6 Additives may be incorporated into the material of the large packaging to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.6.4.2.7 When filled, the ratio of height to width must be not more than 2:1.

6.6.4.3 Specific requirements for plastics large packagings

50H rigid plastics

6.6.4.3.1 The large packaging must be manufactured from suitable plastics material of known specifications and be of adequate strength in relation to its capacity and its intended use. The material must be adequately resistant to ageing and to degradation caused by the substance contained or, where relevant, by ultraviolet radiation. Low temperature performance must be taken into account when appropriate. Any permeation of the substance contained must not constitute a danger under normal conditions of transport.

6.6.4.3.2 Where protection against ultraviolet radiation is required, it must be provided by the addition of carbon black or other suitable pigments or inhibitors. These additives must be compatible with the contents and remain effective throughout the life of the outer packaging. Where use is made of carbon black, pigments or inhibitors other than those used in the manufacture of the tested design type, re-testing may be waived if changes in the carbon black content, the pigment content or the inhibitor content do not adversely affect the physical properties of the material of construction.

6.6.4.3.3 Additives may be incorporated in the material of the large packaging to improve the resistance to ageing or to serve other purposes, provided that these do not adversely affect the physical or chemical properties of the material.

6.6.4.4 Specific requirements for fibreboard large packagings

50G rigid fibreboard

6.6.4.4.1 Strong and good quality solid or double-faced corrugated fibreboard (single or multiwall) must be used, appropriate to the capacity of the large packagings and to their intended use. The water resistance of the outer surface must be such that the increase in mass, as determined in a test carried out over a period of 30 minutes by the Cobb method of determining water absorption, is not greater than 155 g/m^2 – see ISO 535:1991. It must have proper bending qualities. Fibreboard must be cut, creased without scoring, and slotted so as to permit assembly without cracking, surface breaks or undue bending. The fluting or corrugated fibreboard must be firmly glued to the facings.

6.6.4.4.2 The walls, including top and bottom, must have a minimum puncture resistance of 15 J measured according to ISO 3036:1975.

6.6.4.4.3 Manufacturing joins in the outer packaging of large packagings must be made with an appropriate overlap and must be taped, glued, stitched with metal staples or fastened by other means at least equally effective. Where joins are effected by gluing or taping, a water resistant adhesive must be used. Metal staples must pass completely through all pieces to be fastened and be formed or protected so that any inner liner cannot be abraded or punctured by them.

6.6.4.4.4 Any integral pallet base forming part of a large packaging or any detachable pallet must be suitable for mechanical handling with the large packaging filled to its maximum permissible gross mass.

6.6.4.4.5 The pallet or integral base must be designed so as to avoid any protrusion of the base of the large packaging that might be liable to damage in handling.

6.6.4.4.6 The body must be secured to any detachable pallet to ensure stability in handling and transport. Where a detachable pallet is used, its top surface must be free from sharp protrusions that might damage the large packaging.

6.6.4.4.7 Strengthening devices such as timber supports to increase stacking performance may be used but must be external to the liner.

6.6.4.4.8 Where large packagings are intended for stacking, the bearing surface must be such as to distribute the load in a safe manner.

6.6.4.5 Specific requirements for wooden large packagings

50C natural wood

50D plywood

50F reconstituted wood

6.6.4.5.1 The strength of the materials used and the method of construction must be appropriate to the capacity and intended use of the large packagings.

6.6.4.5.2 Natural wood must be well-seasoned, commercially dry and free from defects that would materially lessen the strength of any part of the large packagings. Each part of the large packagings must consist of one piece or be equivalent thereto. Parts are considered equivalent to one piece when a suitable method of glued assembly is used as for instance Lindermann joint, tongue and groove joint, ship lap or rabbet joint; or butt joint with at least two corrugated metal fasteners at each joint, or when other methods at least equally effective are used.

6.6.4.5.3 Large packagings of plywood must be at least 3-ply. They must be made of well-seasoned rotary cut, sliced or sawn veneer, commercially dry and free from defects that would materially lessen the strength of the large packaging. All adjacent plies must be glued with water resistant adhesive. Other suitable materials may be used with plywood for the construction of the large packaging.

6.6.4.5.4 Large packagings of reconstituted wood must be made of water resistant reconstituted wood such as hardboard, particle board or other suitable type.

6.6.4.5.5 Large packagings must be firmly nailed or secured to corner posts or ends or be assembled by equally suitable devices.

6.6.4.5.6 Any integral pallet base forming part of a large packaging or any detachable pallet must be suitable for mechanical handling with the large packaging filled to its maximum permissible gross mass.

6.6.4.5.7 The pallet or integral base must be designed so as to avoid any protrusion of the base of the large packaging that might be liable to damage in handling.

6.6.4.5.8 The body must be secured to any detachable pallet to ensure stability in handling and transport. Where a detachable pallet is used, its top surface must be free from sharp protrusions that might damage the large packaging.

6.6.4.5.9 Strengthening devices such as timber supports to increase stacking performance may be used but must be external to the liner.

6.6.4.5.10 Where large packagings are intended for stacking, the bearing surface must be such as to distribute the load in a safe manner.

6.6.5 TEST REQUIREMENTS FOR LARGE PACKAGINGS

6.6.5.1 Performance and frequency of test

6.6.5.1.1 The design type of each large packaging must be tested as provided in 6.6.5.3 in accordance with procedures established by the competent authority.

6.6.5.1.2 Each large packaging design type must successfully pass the tests prescribed in this Chapter before being used. A large packaging design type is defined by the design, size, material and thickness, manner of construction and packing, but may include various surface treatments. It also includes large packagings which differ from the design type only in their lesser design height.

6.6.5.1.3 Tests must be repeated on production samples at intervals established by the competent authority. For such tests on fibreboard large packagings, preparation at ambient conditions is considered equivalent to the provisions of 6.6.5.2.4.

6.6.5.1.4 Tests must also be repeated after each modification which alters the design, material or manner of construction of large packagings.

6.6.5.1.5 The competent authority may permit the selective testing of large packagings that differ only in minor respects from a tested type, e.g. smaller sizes of inner packagings or inner packagings of lower net mass; and large packagings which are produced with small reductions in external dimension(s).

6.6.5.1.6 <Reserved> (by UN)

NOTE: For the conditions for assembling different inner packagings in a large packaging and permissible variations in inner packagings, see 4.1.1.5.1.

6.6.5.1.7 The competent authority may at any time require proof, by tests in accordance with this section, that serially-produced large packagings meet the requirements of the design type tests.

6.6.5.1.8 Provided the validity of the test results is not affected and with the approval of the competent authority, several tests may be made on one sample.

6.6.5.1.9 Large Salvage Packagings

Large salvage packagings must be tested and marked in accordance with the provisions applicable to packing group II large packagings intended for the transport of solids or inner packagings, except as follows:

(a) The test substance used in performing the tests must be water, and the large salvage packagings must be filled to not less than 98% of their maximum capacity. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass so long as they are placed so that the test results are not affected. Alternatively, in performing the drop test, the drop height may be varied in accordance with 6.6.5.3.4.4.2 (b);

(b) Large salvage packagings must, in addition, have been successfully subjected to the leakproofness test at 30 kPa, with the results of this test reflected in the test report required by 6.6.5.4; and

(c) Large salvage packagings must be marked with the letter “T” as described in 6.6.2.2.

6.6.5.2 Preparation for testing

6.6.5.2.1 Tests must be carried out on large packagings prepared as for transport including the inner packagings or articles used. Inner packagings must be filled to not less than 98% of their maximum capacity for liquids or 95% for solids. For large packagings where the inner packagings are designed to carry liquids and solids, separate testing is required for both liquid and solid contents. The substances in the inner packagings or the articles to be transported in the large packagings may be replaced by other material or articles except where this would invalidate the results of the tests. When other inner packagings or articles are used they must have the same physical characteristics (mass, etc.) as the inner packagings or articles to be carried. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total package mass, so long as they are placed so that the test results are not affected.

6.6.5.2.2 In the drop tests for liquids, when another substance is used, its relative density and viscosity must be similar to those of the substance being transported. Water may also be used for the liquid drop test under the conditions in 6.6.5.3.4.4.

6.6.5.2.3 Large packagings made of plastics materials and large packagings containing inner packagings of plastic materials - other than bags intended to contain solids or articles - must be drop tested when the temperature of the test sample and its contents has been reduced to -18°C or lower. This conditioning may be disregarded if the materials in question are of sufficient ductility and tensile strength at low temperatures. Where test sample are prepared in this way, the conditioning in 6.6.5.2.4 may be waived. Test liquids must be kept in the liquid state by the addition of anti-freeze if necessary.

6.6.5.2.4 Large packagings of fibreboard must be conditioned for at least 24 hours in an atmosphere having a controlled temperature and relative humidity (r.h). There are three options, one of which must be chosen.

The preferred atmosphere is 23 ± 2°C and 50% ± 2% r.h.

The two other options are: 20 ± 2°C and 65% ± 2% r.h.; or 27 ± 2°C and 65% ± 2% r.h.

NOTE: *Average values must fall within these limits. Short-term fluctuations and measurement limitations may cause individual measurements to vary by up to ± 5% relative humidity without significant impairment of test reproducibility.*

6.6.5.3 Test requirements

6.6.5.3.1 Bottom lift test

6.6.5.3.1.1 Applicability

For all types of large packagings which are fitted with means of lifting from the base, as a design type test.

6.6.5.3.1.2 Preparation of large packaging for test

The large packaging must be loaded to 1.25 times its maximum permissible gross mass, the load being evenly distributed.

6.6.5.3.1.3 Method of testing

The large packaging must be raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks must penetrate to three quarters of the direction of entry. The test must be repeated from each possible direction of entry.

6.6.5.3.1.4 *Criteria for passing the test*

No permanent deformation which renders the large packaging unsafe for transport and no loss of contents.

6.6.5.3.2 *Top lift test*

6.6.5.3.2.1 *Applicability*

For types of large packagings which are intended to be lifted from the top and fitted with means of lifting, as a design type test.

6.6.5.3.2.2 *Preparation of large packaging for test*

The large packaging must be loaded to twice its maximum permissible gross mass. A flexible large packaging must be loaded to six times its maximum permissible gross mass, the load being evenly distributed.

6.6.5.3.2.3 *Method of testing*

The large packaging must be lifted in the manner for which it is designed until clear of the floor and maintained in that position for a period of five minutes.

6.6.5.3.2.4 *Criteria for passing the test*

(a) Metal, rigid plastics and composite large packagings: no permanent deformation which renders the large packaging, including the base pallet, if any, unsafe for transport and no loss of contents;
(b) Flexible large packagings: no damage to the large packaging or its lifting devices which renders the large packaging unsafe for transport or handling and no loss of contents.

6.6.5.3.3 *Stacking test*

6.6.5.3.3.1 *Applicability*

For all types of large packagings which are designed to be stacked on each other, as a design type test.

6.6.5.3.3.2 *Preparation of large packaging for test*

The large packaging must be filled to its maximum permissible gross mass.

6.6.5.3.3.3 *Method of testing*

The large packaging must be placed on its base on level hard ground and subjected to a uniformly distributed superimposed test load (see 6.6.5.3.3.4) for a period of at least five minutes. For large packagings of wood, fibreboard and plastics materials the period must be 24 h.

6.6.5.3.3.4 *Calculation of superimposed test load*

The load to be placed on the large packaging must be 1.8 times the combined maximum permissible gross mass of the number of similar large packaging that may be stacked on top of the large packaging during transport.

6.6.5.3.3.5 *Criteria for passing the test*

(a) All types of large packagings other than flexible large packagings: no permanent deformation which renders the large packaging including the base pallet, if any, unsafe for transport and no loss of contents;

(b) Flexible large packagings: no deterioration of the body which renders the large packaging unsafe for transport and no loss of contents.

6.6.5.3.4 *Drop test*

6.6.5.3.4.1 *Applicability*

For all types of large packagings as a design type test.

6.6.5.3.4.2 *Preparation of large packaging for testing*

The large packaging must be filled in accordance with 6.6.5.2.1.

6.6.5.3.4.3 *Method of testing*

The large packaging must be dropped onto a non-resilient, horizontal, flat massive and rigid surface in conformity with 6.1.5.3.4, in such a manner as to ensure that the point of impact is that part of the base of the large packaging considered to be the most vulnerable.

6.6.5.3.4.4 *Drop height*

NOTE: Large packagings for substances and articles of Class 1 are to be tested at the packing group II performance level.

6.6.5.3.4.4.1 For inner packagings containing solid or liquid substances or articles, if the test is performed with the solid, liquid or articles to be transported, or with another substance or article having essentially the same characteristics:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

6.6.5.3.4.4.2 For inner packagings containing liquids if the test is performed with water:

(a) Where the substances to be transported have a relative density not exceeding I.2:

Packing group I	Packing group II	Packing group III
1.8 m	1.2 m	0.8 m

(b) Where the substances to be transported have a relative density exceeding 1.2, the drop height must be calculated on the basis of the relative density (d) of the substance to be carried, rounded up to the first decimal, as follows:

Packing group I	Packing group II	Packing group III
d ×1.5 (m)	d × 1.0 (m)	d × 0.67 (m)

6.6.5.3.4.5 Criteria for passing the test

6.6.5.3.4.5.1 The large packaging must not exhibit any damage liable to affect safety during transport. There must be no leakage of the filling substance from inner packaging(s) or article(s).

6.6.5.3.4.5.2 No rupture is permitted in large packagings for articles of Class 1 which would permit the spillage of loose explosive substances or articles from the large packaging.

6.6.5.3.4.5.3 Where a large packaging undergoes a drop test, the sample passes the test if the entire contents are retained even if the closure is no longer sift-proof.

6.6.5.4 Certification and test report

6.6.5.4.1 In respect of each design type of large packaging a certificate and mark (as in 6.6.3) must be issued attesting that the design type including its equipment meets the test requirements.

6.6.5.4.2 A test report containing at least the following particulars must be drawn up and must be available to the users of the large packaging:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. A unique test report identification;
4. Date of the test report;
5. Manufacturer of the large packaging;
6. Description of the large packaging design type (e.g. dimensions, materials, closures, thickness, etc.) and/or photograph(s);
7. Maximum capacity/maximum permissible gross mass;
8. Characteristics of test contents, e.g. types and descriptions of inner packagings or articles used;
9. Test descriptions and results;
10. The test report must be signed with the name and status of the signatory.

6.6.5.4.3 The test report must contain statements that the large packaging prepared as for transport was tested in accordance with the appropriate provisions of this Chapter and that the use of other packaging methods or components may render it invalid. A copy of the test report must be available to the competent authority.

CHAPTER 6.7 - REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF PORTABLE TANKS AND MULTIPLE-ELEMENT GAS CONTAINERS (MEGCS)

6.7.1 APPLICATION AND GENERAL REQUIREMENTS

6.7.1.1 The requirements of this Chapter apply to portable tanks intended for the transport of dangerous goods of Classes 2, 3, 4, 5, 6, 7, 8 and 9, and to MEGCs intended for the transport of non-refrigerated gases of Class 2, by all modes of transport. In addition to the requirements of this Chapter, unless otherwise specified, the applicable requirements of the International Convention for Safe Containers (CSC) 1972, as amended, must be fulfilled by any multimodal portable tank or MEGC which meets the definition of a "container" within the terms of that Convention. Additional requirements may apply to offshore portable tanks or MEGCs that are handled in open seas.

6.7.1.2 In recognition of scientific and technological advances, the technical requirements of this Chapter may be varied by alternative arrangements. These alternative arrangements must offer a level of safety not less than that given by the requirements of this Chapter with respect to the compatibility with substances transported and the ability of the portable tank or MEGC to withstand impact, loading and fire conditions. For international transport, alternative arrangement portable tanks or MEGCs must be approved by the applicable competent authorities.

6.7.1.3 When a substance is not assigned a portable tank instruction (T1 to T23, T50 or T75) in Column 10 of the Dangerous Goods List in Chapter 3.2, a determination in accordance with Regulation 1.5.1(2) may be issued by the competent authority of the jurisdiction of origin. The determination must be included in the documentation of the consignment and contain as a minimum the information normally provided in the portable tank instructions and the conditions under which the substance must be transported. Appropriate measures should be initiated by the competent authority to include the assignment in the Dangerous Goods List.

6.7.2 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF PORTABLE TANKS INTENDED FOR THE TRANSPORT OF SUBSTANCES OF CLASS 1 AND CLASSES 3 TO 9

6.7.2.1 Definitions

For the purposes of this section:

Design pressure means the pressure to be used in calculations required by a recognised pressure vessel code. The design pressure must be not less than the highest of the following pressures:

(a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or

(b) The sum of:

(i) the absolute vapour pressure (in bar) of the substance at 65 °C (at highest temperature during filling, discharge or transport for substances transported above 65 °C), minus 1 bar; and

(ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of t_r - t_f (t_f = filling temperature usually 15 °C; t_r = 50 °C maximum mean bulk temperature); and

(iii) a head pressure determined on the basis of the static forces specified in 6.7.2.2.12, but not less than 0.35 bar; or

(c) Two thirds of the minimum test pressure specified in the applicable portable tank instruction in 4.2.5.2.6;

Design temperature range for the shell must be -40 °C to 50 °C for substances transported under ambient conditions. For the other substances handled under elevated temperature conditions the design temperature must be not less than the maximum temperature of the substance during filling, discharge or transport. More severe design temperatures must be considered for portable tanks subjected to severe climatic conditions;

Fine grain steel means steel which has a ferritic grain size of 6 or finer when determined in accordance with ASTM E 112-96 or as defined in EN 10028-3, Part 3;

Fusible element means a non-reclosable pressure relief device that is thermally actuated;

Leakproofness test means a test using gas subjecting the shell and its service equipment to an effective internal pressure of not less than 25% of the MAWP;

Maximum allowable working pressure (MAWP) means a pressure that must be not less than the highest of the following pressures measured at the top of the shell while in operating position:

(a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or

(b) The maximum effective gauge pressure to which the shell is designed which must be not less than the sum of:

(i) the absolute vapour pressure (in bar) of the substance at 65 °C (at the highest temperature during filling, discharge or transport for substances transported above 65 °C), minus 1 bar; and

(ii) the partial pressure (in bar) of air or other gases in the ullage space being determined by a maximum ullage temperature of 65 °C and a liquid expansion due to an increase in mean bulk temperature of tr - tf (tf = filling temperature, usually 15 °C; tr = 50 °C, maximum mean bulk temperature);

Maximum permissible gross mass (MPGM) means the sum of the tare mass of the portable tank and the heaviest load authorised for transport;

Mild steel means a steel with a guaranteed minimum tensile strength of 360 N/mm^2 to 440 N/mm^2 and a guaranteed minimum elongation at fracture conforming to 6.7.2.3.3.3;

Offshore portable tank means a portable tank specially designed for repeated use for transport of dangerous goods to, from and between offshore facilities. An offshore portable tank is designed and constructed in accordance with the Guidelines for the Approval of Containers Handled in Open Seas specified by the International Maritime Organisation in document MSC/Circ.860;

Portable tank means a multimodal tank used for the transport of substances of Class 1 and Classes 3 to 9. The portable tank includes a shell fitted with service equipment and structural equipment necessary for the transport of dangerous substances. The portable tank must be capable of being filled and discharged without the removal of its structural equipment. It must possess stabilising members external to the shell, and must be capable of being lifted when full. It must be designed primarily to be loaded onto a transport vehicle or ship and must be equipped with skids, mountings or accessories to facilitate mechanical handling. Road tank-vehicles, rail tank-wagons, non-metallic tanks and intermediate bulk containers (IBCs) are not considered to fall within the definition for portable tanks;

Reference steel means a steel with a tensile strength of 370N/mm^2 and an elongation at fracture of 27%;

Service equipment means measuring instruments and filling, discharge, venting, safety, heating, cooling and insulating devices;

Shell means the part of the portable tank which retains the substance intended for transport (tank proper), including openings and their closures, but does not include service equipment or external structural equipment;

Structural equipment means the reinforcing, fastening, protective and stabilising members external to the shell;

Test pressure means the maximum gauge pressure at the top of the shell during the hydraulic pressure test equal to not less than 1.5 times the design pressure. The minimum test pressure for portable tanks intended for specific substances is specified in the applicable portable tank instruction in 4.2.5.2.6.

6.7.2.2 General design and construction requirements

6.7.2.2.1 Shells must be designed and constructed in accordance with the requirements of a pressure vessel code recognised by the competent authority. Shells must be made of metallic materials suitable for forming. The materials must in principle conform to national or international material standards. For welded shells only a material whose weldability has been fully demonstrated must be used. Welds must be skilfully made and afford complete safety. When the manufacturing process or the materials make it necessary, the shells must be suitably heat-treated to guarantee adequate toughness in the weld and in the heat affected zones. In choosing the material, the design temperature range must be taken into account with respect to risk of brittle fracture, to stress corrosion cracking and to resistance to impact. When fine grain steel is used, the guaranteed value of the yield strength must be not more than 460 N/mm^2 and the guaranteed value of the upper limit of the tensile strength must be not more than 725 N/mm^2 according to the material specification. Aluminium may only be used as a construction material when indicated in a portable tank special provision assigned to a specific substance in Column 11 of the Dangerous Goods List or when determined by the competent authority. When aluminium is authorised, it must be insulated to prevent significant loss of physical properties when subjected to a heat load of 110 kW/m^2 for a period of not less than 30 minutes. The insulation must remain effective at all temperatures less than 649 °C and must be jacketed with a material with a melting point of not less than 700 °C. Portable tank materials must be suitable for the external environment in which they may be transported.

6.7.2.2.2 Portable tank shells, fittings, and pipework must be constructed from materials which are:

(a) Substantially immune to attack by the substance(s) intended to be transported; or
(b) Properly passivated or neutralised by chemical reaction; or
(c) Lined with corrosion-resistant material directly bonded to the shell or attached by equivalent means.

6.7.2.2.3 Gaskets must be made of materials not subject to attack by the substance(s) intended to be transported.

6.7.2.2.4 When shells are lined, the lining must be substantially immune to attack by the substance(s) intended to be transported, homogeneous, non porous, free from perforations, sufficiently elastic and compatible with the thermal expansion characteristics of the shell. The lining of every shell, shell fittings and piping must be continuous, and must extend around the face of any flange. Where external fittings are welded to the tank, the lining must be continuous through the fitting and around the face of external flanges.

6.7.2.2.5 Joints and seams in the lining must be made by fusing the material together or by other equally effective means.

6.7.2.2.6 Contact between dissimilar metals which could result in damage by galvanic action must be avoided.

6.7.2.2.7 The materials of the portable tank, including any devices, gaskets, linings and accessories, must not adversely affect the substance(s) intended to be transported in the portable tank.

6.7.2.2.8 Portable tanks must be designed and constructed with supports to provide a secure base during transport and with suitable lifting and tie-down attachments.

6.7.2.2.9 Portable tanks must be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and transport. The design must demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the portable tank, have been taken into account.

6.7.2.2.9.1 For portable tanks that are intended for use offshore, the dynamic stresses imposed by handling in open seas must be taken into account.

6.7.2.2.10 A shell which is to be equipped with a vacuum-relief device must be designed to withstand, without permanent deformation, an external pressure of not less than 0.21 bar above the internal pressure. The vacuum-relief device must be set to relieve at a vacuum setting not greater than minus 0.21 bar unless the shell is designed for a higher external over pressure, in which case the vacuum-relief pressure of the device to be fitted must be not greater than the tank design vacuum pressure. A shell used for the transport of solid substances of packing groups II or III only, which do not liquefy during transport, may be designed for a lower external pressure, subject to competent authority approval. In this case, the vacuum-relief device must be set to relieve at this lower pressure. A shell that is not to be fitted with a vacuum-relief device must be designed to withstand, without permanent deformation, an external pressure of not less than 0.4 bar above the internal pressure.

6.7.2.2.11 Vacuum-relief devices used on portable tanks intended for the transport of substances meeting the flash point criteria of Class 3, including elevated temperature substances transported at or above their flash point, must prevent the immediate passage of flame into the shell, or the portable tank must have a shell capable of withstanding, without leakage an internal explosion resulting from the passage of flame into the shell.

6.7.2.2.12 Portable tanks and their fastenings must, under the maximum permissible load, be capable of absorbing the following separately applied static forces:

(a) In the direction of travel: –twice the MPGM multiplied by the acceleration due to gravity (g)[1];

(b) Horizontally at right angles to the direction of travel: - the MPGM (when the direction of travel is not clearly determined, the forces must be equal to twice the MPGM) multiplied by the acceleration due to gravity (g)

(c) Vertically upwards: - the MPGM multiplied by the acceleration due to gravity (g); and

[1] *For calculation purposes for (a) – (d) g = 9.81 m/s².*

(d) Vertically downwards: - twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity (g).

6.7.2.2.13 Under each of the forces in 6.7.2.2.12, the safety factor to be observed must be as follows:

(a) For metals having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or

(b) For metals with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength and, for austenitic steels, the 1% proof strength.

6.7.2.2.14 The values of yield strength or proof strength must be the values according to national or international material standards. When austenitic steels are used, the specified minimum values of yield strength or proof strength according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, the value of yield strength or proof strength used must be approved by the competent authority.

6.7.2.2.15 Portable tanks must be capable of being electrically earthed when intended for the transport of substances meeting the flash point criteria of Class 3 including elevated temperature substances transported at or above their flash point. Measures must be taken to prevent dangerous electrostatic discharge.

6.7.2.2.16 When required for certain substances by the applicable portable tank instruction indicated in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6, or by a portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in 4.2.5.3, portable tanks must be provided with additional protection, which may take the form of additional shell thickness or a higher test pressure, the additional shell thickness or higher test pressure being determined in the light of the inherent risks associated with the transport of the substances concerned.

6.7.2.2.17 Thermal insulation directly in contact with the shell intended for substances transported at elevated temperature must have an ignition temperature at least 50 °C higher than the maximum design temperature of the tank.

6.7.2.3 Design criteria

6.7.2.3.1 Shells must be of a design capable of being stress-analysed mathematically or experimentally by resistance strain gauges, or by other methods approved by the competent authority.

6.7.2.3.2 Shells must be designed and constructed to withstand a hydraulic test pressure not less than 1.5 times the design pressure. Specific requirements are laid down for certain substances in the applicable portable tank instruction indicated in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in

4.2.5.3. Attention is drawn to the minimum shell thickness requirements for these tanks specified in 6.7.2.4.1 to 6.7.2.4.10.

6.7.2.3.3 For metals exhibiting a clearly defined yield point or characterised by a guaranteed proof strength (0.2% proof strength, generally, or 1% proof strength for austenitic steels) the primary membrane stress σ (sigma) in the shell must not exceed 0.75 Re or 0.50 Rm, whichever is lower, at the test pressure, where:

Re = yield strength in N/mm^2, or 0.2% proof strength or, for austenitic steels, 1% proof strength;

Rm = minimum tensile strength in N/mm^2.

6.7.2.3.3.1 The values of Re and Rm to be used must be the specified minimum values according to national or international material standards. When austenitic steels are used, the specified minimum values for Re and Rm according to the material standards may be increased by up to 15% when greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, the values of Re and Rm used must be approved by the competent authority or its authorised body.

6.7.2.3.3.2 Steels which have a Re/Rm ratio of more than 0.85 are not allowed for the construction of welded shells. The values of Re and Rm to be used in determining this ratio must be the values specified in the material inspection certificate.

6.7.2.3.3.3 Steels used in the construction of shells must have an elongation at fracture, in %, of not less than 10,000/Rm with an absolute minimum of 16% for fine grain steels and 20% for other steels. Aluminium and aluminium alloys used in the construction of shells must have an elongation at fracture, in %, of not less than 10,000/6Rm with an absolute minimum of 12%.

6.7.2.3.3.4 For the purpose of determining actual values for materials, it must be noted that for sheet metal, the axis of the tensile test specimen must be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture must be measured on test specimens of rectangular cross sections in accordance with ISO 6892:1998 using a 50 mm gauge length.

6.7.2.4 Minimum shell thickness

6.7.2.4.1 The minimum shell thickness must be the greater thickness based on:

(a) The minimum thickness determined in accordance with the requirements of 6.7.2.4.2 to 6.7.2.4.10;

(b) The minimum thickness determined in accordance with the recognised pressure vessel code including the requirements in 6.7.2.3; and

(c) The minimum thickness specified in the applicable portable tank instruction indicated in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6, or by a portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in 4.2.5.3.

6.7.2.4.2 The cylindrical portions, ends (heads) and manhole covers of shells not more than 1.80 m in diameter must be not less than 5 mm thick in the reference steel or of equivalent thickness in the metal to be used. Shells more than 1.80 m in diameter must be not less than 6 mm thick in the reference steel or of equivalent thickness in the metal to be used, except that for powdered or granular solid substances of packing group II or III the minimum thickness requirement may be reduced to not less than 5 mm thick in the reference steel or of equivalent thickness in the metal to be used.

6.7.2.4.3 When additional protection against shell damage is provided, portable tanks with test pressures less than 2.65 bar, may have the minimum shell thickness reduced, in proportion to the protection provided, as approved by the competent authority. However, shells not more than 1.80 m in diameter must be not less than 3 mm thick in the reference steel or of equivalent thickness in the metal to be used. Shells more than 1.80 m in diameter must be not less than 4 mm thick in the reference steel or of equivalent thickness in the metal to be used.

6.7.2.4.4 The cylindrical portions, ends (heads) and manhole covers of all shells must be not less than 3 mm thick regardless of the material of construction.

6.7.2.4.5 The additional protection referred to in 6.7.2.4.3 may be provided by overall external structural protection, such as suitable “sandwich” construction with the outer sheathing (jacket) secured to the shell, double wall construction or by enclosing the shell in a complete framework with longitudinal and transverse structural members.

6.7.2.4.6 The equivalent thickness of a metal other than the thickness prescribed for the reference steel in 6.7.2.4.3 must be determined using the following formula:

$$e_1 = \frac{21.4 e_0}{\sqrt[3]{Rm_1 \times A_1}}$$

where: e_1 = required equivalent thickness (in mm) of the metal to be used;

e_0 = minimum thickness (in mm) of the reference steel specified in the applicable portable tank instruction indicated in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in 4.2.5.3;

Rm_1 = guaranteed minimum tensile strength (in N/mm^2) of the metal to be used (see 6.7.2.3.3);

A_1 = guaranteed minimum elongation at fracture (in %) of the metal to be used according to national or international standards.

6.7.2.4.7 When in the applicable portable tank instruction in 4.2.5.2.6, a minimum thickness of 8 mm or 10 mm is specified, it must be noted that these thicknesses are based on the properties of the reference steel and a shell diameter of 1.80 m. When a metal other than mild steel (see 6.7.2.1) is used or the shell has a diameter of more than 1.80 m, the thickness must be determined using the following formula:

$$e_1 = \frac{21.4 e_0 d_1}{1.8 \sqrt[3]{Rm_1 \times A_1}}$$

where: e_1 = required equivalent thickness (in mm) of the metal to be used;

e_0 = minimum thickness (in mm) of the reference steel specified in the applicable portable tank instruction indicated in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6 or by a portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in 4.2.5.3;

d_1 = diameter of the shell (in m), but not less than 1.80 m;

Rm_1 = guaranteed minimum tensile strength (in N/mm^2) of the metal to be used (see 6.7.2.3.3);

A_1 = guaranteed minimum elongation at fracture (in %) of the metal to be used according to national or international standards.

6.7.2.4.8 In no case must the wall thickness be less than that prescribed in 6.7.2.4.2, 6.7.2.4.3 and 6.7.2.4.4. All parts of the shell must have a minimum thickness as determined by 6.7.2.4.2 to 6.7.2.4.4. This thickness must be exclusive of any corrosion allowance.

6.7.2.4.9 When mild steel is used (see 6.7.2.1), calculation using the formula in 6.7.2.4.6 is not required.

6.7.2.4.10 There must be no sudden change of plate thickness at the attachment of the ends (heads) to the cylindrical portion of the shell.

6.7.2.5 Service equipment

6.7.2.5.1 Service equipment must be so arranged as to be protected against the risk of being wrenched off or damaged during handling and transport. When the connection between the frame and the shell allows relative movement between the sub-assemblies, the equipment must be so fastened as to permit such movement without risk of damage to working parts. The external discharge fittings (pipe sockets, shut-off devices), the internal stop-valve and its seating must be protected against the danger of being wrenched off by external forces (for example using shear sections). The filling and discharge devices (including flanges or threaded plugs) and any protective caps must be capable of being secured against unintended opening.

6.7.2.5.2 All openings in the shell, intended for filling or discharging the portable tank must be fitted with a manually operated stop-valve located as close to the shell as reasonably practicable. Other openings, except for openings leading to venting or pressure-relief devices, must be equipped with either a stop-valve or another suitable means of closure located as close to the shell as reasonably practicable.

6.7.2.5.3 All portable tanks must be fitted with a manhole or other inspection openings of a suitable size to allow for internal inspection and adequate access for maintenance and repair of the interior. Compartmented portable tanks must have a manhole or other inspection openings for each compartment.

6.7.2.5.4 As far as reasonably practicable, external fittings must be grouped together. For insulated portable tanks, top fittings must be surrounded by a spill collection reservoir with suitable drains.

6.7.2.5.5 Each connection to a portable tank must be clearly marked to indicate its function.

6.7.2.5.6 Each stop-valve or other means of closure must be designed and constructed to a rated pressure not less than the MAWP of the shell taking into account the temperatures expected during transport. All stop-valves with screwed spindles must close by a clockwise motion of the handwheel. For other stop-valves the position (open and closed) and direction of closure must be clearly indicated. All stop-valves must be designed to prevent unintentional opening.

6.7.2.5.7 No moving parts, such as covers, components of closures, etc., must be made of unprotected corrodible steel when they are liable to come into frictional or percussive contact with aluminium portable tanks intended for the transport of substances meeting the flash point criteria of Class 3 including elevated temperature substances transported at or above their flash point.

6.7.2.5.8 Piping must be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping must be of a suitable metallic material. Welded pipe joints must be used wherever possible.

6.7.2.5.9 Joints in copper tubing must be brazed or have an equally strong metal union. The melting point of brazing materials must be no lower than 525 °C. The joints must not decrease the strength of the tubing as may happen when cutting threads.

6.7.2.5.10 The burst pressure of all piping and pipe fittings must be not less than the highest of four times the MAWP of the shell or four times the pressure to which it may be subjected in service by the action of a pump or other device (except pressure-relief devices).

6.7.2.5.11 Ductile metals must be used in the construction of valves and accessories.

6.7.2.5.12 The heating system must be designed or controlled so that a substance cannot reach a temperature at which the pressure in the tank exceeds its MAWP or causes other hazards (e.g. dangerous thermal decomposition).

6.7.2.5.13 The heating system must be designed or controlled so that power for internal heating elements must not be available unless the heating elements are completely submerged. The temperature at the surface of the heating elements for internal heating equipment, or the temperature at the shell for external heating equipment must, in no case, exceed 80% of the autoignition temperature (in °C) of the substance transported.

6.7.2.5.14 If an electrical heating system is installed inside the tank, it must be equipped with an earth leakage circuit breaker with a releasing current of less than 100 mA.

6.7.2.5.15 Electrical switch cabinets mounted to tanks must not have a direct connection to the tank interior and must provide protection of at least the equivalent of type IP56 according to IEC 144 or IEC 529.

6.7.2.6 Bottom openings

6.7.2.6.1 Certain substances must not be transported in portable tanks with bottom openings. When the applicable portable tank instruction identified in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6 indicates that bottom openings are prohibited there must be no openings below the liquid level of the shell when it is filled to its maximum permissible filling limit. When an existing opening is closed it must be accomplished by internally and externally welding one plate to the shell.

6.7.2.6.2 Bottom discharge outlets for portable tanks carrying certain solid, crystallisable or highly viscous substances must be equipped with not less than two serially fitted and mutually independent shut-off devices. The design of the equipment must be to the satisfaction of the competent authority or its authorised body and must include:

(a) An external stop-valve, fitted as close to the shell as reasonably practicable, and so designed as to prevent any unintended opening through impact or other inadvertent act; and

(b) A liquid tight closure at the end of the discharge pipe, which may be a bolted blank flange or a screw cap.

6.7.2.6.3 Every bottom discharge outlet, except as provided in 6.7.2.6.2, must be equipped with three serially fitted and mutually independent shut-off devices. The design of the equipment must be to the satisfaction of the competent authority or its authorised body and include:

(a) A self-closing internal stop-valve, that is a stop-valve within the shell or within a welded flange or its companion flange, such that:

(i) The control devices for the operation of the valve are designed so as to prevent any unintended opening through impact or other inadvertent act;

(ii) The valve may be operable from above or below;

(iii) If possible, the setting of the valve (open or closed) must be capable of being verified from the ground;

(iv) Except for portable tanks having a capacity of not more than 1,000 litres, it must be possible to close the valve from an accessible position of the portable tank that is remote from the valve itself; and

(v) The valve must continue to be effective in the event of damage to the external device for controlling the operation of the valve;

(b) An external stop-valve fitted as close to the shell as reasonably practicable; and

(c) A liquid tight closure at the end of the discharge pipe, which may be a bolted blank flange or a screw cap.

6.7.2.6.4 For a lined shell, the internal stop-valve required by 6.7.2.6.3(a) may be replaced by an additional external stop-valve. The manufacturer must satisfy the requirements of the competent authority or its authorised body.

6.7.2.7 Safety relief devices

6.7.2.7.1 All portable tanks must be fitted with at least one pressure-relief device. All relief devices must be designed, constructed and marked to the satisfaction of the competent authority or its authorised body.

6.7.2.8 Pressure-relief devices

6.7.2.8.1 Every portable tank with a capacity not less than 1,900 litres and every independent compartment of a portable tank with a similar capacity, must be provided with one or more pressure-relief devices of the spring-loaded type and may in addition have a frangible disc or fusible element in parallel with the spring-loaded devices except when prohibited by reference to 6.7.2.8.3 in the applicable portable tank instruction in 4.2.5.2.6. The pressure-relief devices must have sufficient capacity to prevent rupture of the shell due to over pressurisation or vacuum resulting from filling, discharging, or from heating of the contents.

6.7.2.8.2 Pressure-relief devices must be designed to prevent the entry of foreign matter, the leakage of liquid and the development of any dangerous excess pressure.

6.7.2.8.3 When required for certain substances by the applicable portable tank instruction identified in Column 10 of the Dangerous Goods List and described in 4.2.5.2.6, portable tanks must have a pressure-relief device approved by the competent authority. Unless a portable tank in dedicated service is fitted with an approved relief device constructed of materials compatible with the load, the relief device must comprise a frangible disc preceding a spring-loaded pressure-relief device. When a frangible disc is inserted in series with the required pressure-relief device, the space between the frangible disc and the pressure-relief device must be provided with a pressure gauge or suitable tell-tale indicator for the detection of disc rupture, pinholing, or leakage which could cause a malfunction of the pressure-relief system. The frangible disc must rupture at a nominal pressure 10% above the start to discharge pressure of the relief device.

6.7.2.8.4 Every portable tank with a capacity less than 1,900 litres must be fitted with a pressure-relief device which may be a frangible disc when this disc complies with the requirements of 6.7.2.11.1. When no spring-loaded pressure-relief device is used, the frangible disc must be set to rupture at a nominal pressure equal to the test pressure. In addition, fusible elements conforming to 6.7.2.10.1 may also be used.

6.7.2.8.5 When the shell is fitted for pressure discharge, the inlet line must be provided with a suitable pressure-relief device set to operate at a pressure not higher than the MAWP of the shell, and a stop-valve must be fitted as close to the shell as reasonably practicable.

6.7.2.9 Setting of pressure-relief devices

6.7.2.9.1 It must be noted that the pressure-relief devices must operate only in conditions of excessive rise in temperature, since the shell must not be subject to undue fluctuations of pressure during normal conditions of transport (see 6.7.2.12.2).

6.7.2.9.2 Except where 6.7.2.9.3 applies, the required pressure-relief device must be set to start-to-discharge at a nominal pressure of five-sixths of the test pressure for shells having a test pressure of not more than 4.5 bar and 110% of two-thirds of the test pressure for shells having a test pressure of more than 4.5 bar. After discharge the device must close at a pressure not more than 10% below the pressure at which the discharge starts. The device must remain closed at all lower pressures. This requirement does not prevent the use of vacuum-relief or combination pressure-relief and vacuum-relief devices.

6.7.2.9.3 Where required by legislation governing the design and use of pressure vessels in the jurisdiction, the settings for pressure relief devices must comply with those specified in AS 1210 rather than 6.7.2.9.2.

6.7.2.10 Fusible elements

6.7.2.10.1 Fusible elements must operate at a temperature between 100 °C and 149 °C on condition that the pressure in the shell at the fusing temperature will be not more than the test pressure. They must be placed at the top of the shell with their inlets in the vapour space and when used for transport safety purposes, they must not be shielded from external heat.

Fusible elements must not be used on portable tanks with a test pressure which exceeds 2.65 bar unless specified by special provision TP36 in Column 11 of the Dangerous Goods List of Chapter 3.2. Fusible elements used on portable tanks intended for the transport of elevated temperature substances must be designed to operate at a temperature higher than the maximum temperature that will be experienced during transport and must be to the satisfaction of the competent authority or its authorised body.

6.7.2.11 Frangible discs

6.7.2.11.1 Except as specified in 6.7.2.8.3, frangible discs must be set to rupture at a nominal pressure equal to the test pressure throughout the design temperature range. Particular attention must be given to the requirements of 6.7.2.5.1 and 6.7.2.8.3 if frangible discs are used.

6.7.2.11.2 Frangible discs must be appropriate for the vacuum pressures which may be produced in the portable tank.

6.7.2.12 Capacity of pressure-relief devices

6.7.2.12.1 The spring-loaded pressure-relief device required by 6.7.2.8.1 must have a minimum cross sectional flow area equivalent to an orifice of 31.75 mm diameter. Vacuum-relief devices, when used, must have a cross sectional flow area not less than 284 mm^2.

6.7.2.12.2 The combined delivery capacity of the pressure relief system (taking into account the reduction of the flow when the portable tank is fitted with frangible-discs preceding spring-loaded pressure-relief devices or when the spring-loaded pressure-relief devices are provided with a device to prevent the passage of the flame), in condition of complete fire engulfment of the portable tank must be sufficient to limit the pressure in the shell to 20% above the start-to-discharge pressure of the pressure limiting device. Emergency pressure-relief devices may be used to achieve the full relief capacity prescribed. These devices may be fusible, spring loaded or frangible disc components, or a combination of spring-loaded and frangible disc devices. The total required capacity of the relief devices may be determined using the formula in 6.7.2.12.2.1 or the table in 6.7.2.12.2.3.

6.7.2.12.2.1 To determine the total required capacity of the relief devices, which must be regarded as being the sum of the individual capacities of all the contributing devices, the following formula must be used:

$$Q = 12.4 \frac{FA^{0.82}}{LC} \sqrt{\frac{ZT}{M}}$$

where:

Q = minimum required rate of discharge in cubic metres of air per second (m^3/s) at standard conditions: 1 bar and 0 °C (273 K);

F = is a coefficient with the following value:

for uninsulated shells F = 1;

for insulated shells F = U(649 - t)/13.6

but in no case is less than 0.25 where:

U = thermal conductance of the insulation, in kW m^{-2} K^{-1}, at 38 °C

t = actual temperature of the substance during filling (in °C); when this temperature is unknown, let t = 15 °C:

The value of F given above for insulated shells may be taken provided that the insulation is in conformance with 6.7.2.12.2.4;

A = total external surface area of shell in square metres;

Z = the gas compressibility factor in the accumulating condition (when this factor is unknown, let Z equal 1.0);

T = absolute temperature in Kelvin (°C + 273) above the pressure-relief devices in the accumulating condition;

L = the latent heat of vaporisation of the liquid, in kJ/kg, in the accumulating condition;

M = molecular mass of the discharged gas;

C = a constant which is derived from one of the following formulae as a function of the ratio k of specific heats:

$$k = \frac{c_p}{c_v}$$

where:

c_p is the specific heat at constant pressure; and

c_v is the specific heat at constant volume.

When k > 1: $$C = \sqrt{k\left(\frac{2}{k+1}\right)^{\frac{k+1}{k-1}}}$$

When k = 1, or k is unknown: $$C = \frac{1}{\sqrt{e}} = 0.607$$

where e is the mathematical constant 2.7183

C may also be taken from the following table:

k	**C**	**k**	**C**	**k**	**C**
1.00	0.607	1.26	0.660	1.52	0.704
1.02	0.611	1.28	0.664	1.54	0.707
1.04	0.615	1.30	0.667	1.56	0.710
1.06	0.620	1.32	0.671	1.58	0.713
1.08	0.624	1.34	0.674	1.60	0.716
1.10	0.628	1.36	0.678	1.62	0.719
1.12	0.633	1.38	0.681	1.64	0.722
1.14	0.637	1.40	0.685	1.66	0.725
1.16	0.641	1.42	0.688	1.68	0.728
1.18	0.645	1.44	0.691	1.70	0.731
1.20	0.649	1.46	0.695	2.00	0.770
1.22	0.652	1.48	0.698	2.20	0.793
1.24	0.656	1.50	0.701		

6.7.2.12.2.2 As an alternative to the formula above, shells designed for the transport of liquids may have their relief devices sized in accordance with the table in 6.7.2.12.2.3. This table assumes an insulation value of F = 1 and must be adjusted accordingly when the shell is insulated. Other values used in determining this table are:

M = 86.7

T = 394 K

L = 334.94 kJ/kg

C = 0.607

Z = 1

6.7.2.12.2.3 Minimum required rate of discharge, Q, in cubic metres of air per second at 1 bar and 0 °C (273 K).

A Exposed area (square metres)	Q (Cubic metres of air per second)	A Exposed area (square metres)	Q (Cubic metres of air per second)
2	0.230	37.5	2.539
3	0.320	40	2.677
4	0.405	42.5	2.814
5	0.487	45	2.949
6	0.565	47.5	3.082
7	0.641	50	3.215
8	0.715	52.5	3.346
9	0.788	55	3.476
10	0.859	57.5	3.605
12	0.998	60	3.733
14	1.132	62.5	3.860
16	1.263	65	3.987
18	1.391	67.5	4.112
20	1.517	70	4.236
22.5	1.670	75	4.483
25	1.821	80	4.726
27.5	1.969	85	4.967
30	2.115	90	5.206
32.5	2.258	95	5.442
35	2.400	100	5.676

6.7.2.12.2.4 Insulation systems, used for the purpose of reducing venting capacity, must be approved by the competent authority or its authorised body. In all cases, insulation systems approved for this purpose must:

(a) Remain effective at all temperatures up to 649 °C; and

(b) Be jacketed with a material having a melting point of 700 °C or greater.

6.7.2.13 Marking of pressure-relief devices

6.7.2.13.1 Every pressure-relief device must be clearly and permanently marked with the following:

(a) The pressure (in bar or kPa) or temperature (in °C) at which it is set to discharge;

(b) The allowable tolerance at the discharge pressure for spring-loaded devices;

(c) The reference temperature corresponding to the rated pressure for frangible discs;

(d) The allowable temperature tolerance for fusible elements;

(e) The rated flow capacity of the spring-loaded pressure relief devices, frangible discs or fusible elements in standard cubic meters of air per second (m^3/s); and

(f) The cross sectional flow areas of the spring loaded pressure-relief devices, frangible discs and fusible elements in mm^2.

When practicable, the following information must also be shown:

(g) The manufacturer's name and relevant catalogue number.

6.7.2.13.2 The rated flow capacity marked on the spring-loaded pressure-relief devices must be determined according to ISO 4126 1:2004 and ISO 4126-7:2004.

6.7.2.14 Connections to pressure-relief devices

6.7.2.14.1 Connections to pressure-relief devices must be of sufficient size to enable the required discharge to pass unrestricted to the safety device. No stop-valve must be installed between the shell and the pressure-relief devices except where duplicate devices are provided for maintenance or other reasons and the stop-valves serving the devices actually in use are locked open or the stop-valves are interlocked so that at least one of the duplicate devices is always in use. There must be no obstruction in an opening leading to a vent or pressure-relief device which might restrict or cut-off the flow from the shell to that device. Vents or pipes from the pressure-relief device outlets, when used, must deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving devices.

6.7.2.15 Siting of pressure-relief devices

6.7.2.15.1 Each pressure-relief device inlet must be situated on top of the shell in a position as near the longitudinal and transverse centre of the shell as reasonably practicable. All pressure-relief device inlets must under maximum filling conditions be situated in the vapour space of the shell and the devices must be so arranged as to ensure the escaping vapour is discharged unrestrictedly. For flammable substances, the escaping vapour must be directed away from the shell in such a manner that it cannot impinge upon the shell. Protective devices which deflect the flow of vapour are permissible provided the required relief-device capacity is not reduced.

6.7.2.15.2 Arrangements must be made to prevent access to the pressure-relief devices by unauthorised persons and to protect the devices from damage caused by the portable tank overturning.

6.7.2.16 Gauging devices

6.7.2.16.1 Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the tank must not be used.

6.7.2.17 Portable tank supports, frameworks, lifting and tie-down attachments

6.7.2.17.1 Portable tanks must be designed and constructed with a support structure to provide a secure base during transport. The forces specified in 6.7.2.2.12 and the safety factor specified in 6.7.2.2.13. must be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.2.17.2 The combined stresses caused by portable tank mountings (e.g. cradles, framework, etc.) and portable tank lifting and tie-down attachments must not cause excessive stress in any portion of the shell. Permanent lifting and tie-down attachments must be fitted to all portable tanks. Preferably they must be fitted to the portable tank supports but may be secured to reinforcing plates located on the shell at the points of support.

6.7.2.17.3 In the design of supports and frameworks the effects of environmental corrosion must be taken into account.

6.7.2.17.4 Forklift pockets must be capable of being closed off. The means of closing forklift pockets must be a permanent part of the framework or permanently attached to the framework. Single compartment portable tanks with a length less than 3.65 m need not have closed off forklift pockets provided that:

(a) The shell including all the fittings are well protected from being hit by the forklift blades; and
(b) The distance between the centres of the forklift pockets is at least half of the maximum length of the portable tank.

6.7.2.17.5 When portable tanks are not protected during transport, according to 4.2.1.2, the shells and service equipment must be protected against damage to the shell and service equipment resulting from lateral or longitudinal impact or overturning. External fittings must be protected so as to preclude the release of the shell contents upon impact or overturning of the portable tank on its fittings. Examples of protection include:

(a) Protection against lateral impact which may consist of longitudinal bars protecting the shell on both sides at the level of the median line;
(b) Protection of the portable tank against overturning which may consist of reinforcement rings or bars fixed across the frame;

(c) Protection against rear impact which may consist of a bumper or frame;

(d) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496-3:1995.

6.7.2.18 Design approval

6.7.2.18.1 The competent authority or its authorised body may issue a design approval certificate for any new design of a portable tank. This certificate must attest that a portable tank has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter and where appropriate, the provisions for substances provided in Chapter 4.2 and in the Dangerous Goods List in Chapter 3.2. When a series of portable tanks are manufactured without change in the design, the certificate must be valid for the entire series. The certificate must refer to the prototype test report, the substances or group of substances allowed to be transported, the materials of construction of the shell and lining (when applicable) and an approval number. The approval number must consist of the distinguishing sign or mark of the State in whose territory the approval was granted, indicated by the distinguishing sign used on vehicles in international road traffic[1](for Australia, the letters 'AUS'), and a registration number. Any alternative arrangements according to 6.7.1.2 must be indicated on the certificate. A design approval may serve for the approval of smaller portable tanks made of materials of the same kind and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.2.18.2 The prototype test report for the design approval must include at least the following:

(a) The results of the applicable framework test specified in ISO 1496-3:1995;

(b) The results of the initial inspection and test in 6.7.2.19.3; and

(c) The results of the impact test in 6.7.2.19.1, when applicable.

6.7.2.19 Inspection and testing

6.7.2.19.1 Portable tanks meeting the definition of container in the International Convention for Safe Containers (CSC), 1972, as amended, must not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the Manual for Tests and Criteria, Part IV, Section 40.

6.7.2.19.2 The shell and items of equipment of each portable tank must be inspected and tested before being put into service for the first time (initial inspection and test) and thereafter at not more than five-year intervals (5 year periodic inspection and test) with an intermediate periodic inspection and

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[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

test (2.5 year periodic inspection and test) midway between the 5 year periodic inspections and tests. The 2.5 year inspection and test may be performed within 3 months of the specified date. An exceptional inspection and test must be performed regardless of the date of the last periodic inspection and test when necessary according to 6.7.2.19.7.

6.7.2.19.3 The initial inspection and test of a portable tank must include a check of the design characteristics, an internal and external examination of the portable tank and its fittings with due regard to the substances to be transported, and a pressure test. Before the portable tank is placed into service, a leakproofness test and a test of the satisfactory operation of all service equipment must also be performed. When the shell and its fittings have been pressure-tested separately, they must be subjected together after assembly to a leakproofness test.

6.7.2.19.4 The 5-year periodic inspection and test must include an internal and external examination and, as a general rule, a hydraulic pressure test. For tanks only used for the transport of solid substances, other than toxic or corrosive substances that do not liquefy during transport, the hydraulic pressure test may be replaced by a suitable pressure test at 1.5 times the MAWP, subject to competent authority exemption. Sheathing, thermal insulation and the like must be removed only to the extent required for reliable appraisal of the condition of the portable tank. When the shell and equipment have been pressure-tested separately, they must also be subjected to a leakproofness test together after assembly.

6.7.2.19.5 The intermediate 2.5 year periodic inspection and test must at least include an internal and external examination of the portable tank and its fittings with due regard to the substances intended to be transported, a leakproofness test and a test of the satisfactory operation of all service equipment. Sheathing, thermal insulation and the like must be removed only to the extent required for reliable appraisal of the condition of the portable tank. For portable tanks dedicated to the transport of a single substance, the 2.5 year internal examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorised body.

6.7.2.19.6 A portable tank may not be filled and offered for transport after the date of expiry of the last 5 year or 2.5 year periodic inspection and test as required by 6.7.2.19.2. However a portable tank filled prior to the date of expiry of the last periodic inspection and test may be transported for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, a portable tank may be transported after the date of expiry of the last periodic test and inspection:

(a) After emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling; and

(b) Unless otherwise exempted by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption must be mentioned in the transport document.

6.7.2.19.6.1 Except as provided for in 6.7.2.19.6, portable tanks which have missed the timeframe for their scheduled 5 year or 2.5 year periodic inspection and test may only be filled and offered for transport if a new 5 year periodic inspection and test is performed according to 6.7.2.19.4

6.7.2.19.7 The exceptional inspection and test is necessary when the portable tank shows evidence of damaged or corroded areas, or leakage, or other conditions that indicate a deficiency that could affect the integrity of the portable tank. The extent of the exceptional inspection and test must depend on the amount of damage or deterioration of the portable tank. It must include at least the 2.5 year inspection and test according to 6.7.2.19.5.

6.7.2.19.8 The internal and external examinations must ensure that:

(a) The shell is inspected for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the portable tank unsafe for transport. The wall thickness shall be verified by appropriate measurement if this inspection indicates a reduction of wall thickness;

(b) The piping, valves, heating/cooling system, and gaskets are inspected for corroded areas, defects, or any other conditions, including leakage, that might render the portable tank unsafe for filling, discharge or transport;

(c) Devices for tightening manhole covers are operative and there is no leakage at manhole covers or gaskets;

(d) Missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;

(e) All emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves must be operated to demonstrate proper operation;

(f) Linings, if any, are inspected in accordance with criteria outlined by the lining manufacturer;

(g) Required marks on the portable tank are legible and in accordance with the applicable requirements; and

(h) The framework, supports and arrangements for lifting the portable tank are in a satisfactory condition.

6.7.2.19.9 The inspections and tests in 6.7.2.19.1, 6.7.2.19.3, 6.7.2.19.4, 6.7.2.19.5 and 6.7.2.19.7 must be performed or witnessed by an expert recognised by the competent authority or its authorised body. When the pressure test is a part of the inspection and test, the test pressure must be the one indicated on the data plate of the portable tank. While under pressure, the portable tank must be inspected for any leaks in the shell, piping or equipment.

6.7.2.19.10 In all cases when cutting, burning or welding operations on the shell have been effected, that work must be to the approval of the competent authority or its authorised body taking into account the pressure vessel code used for the construction of the shell. A pressure test to the original test pressure must be performed after the work is completed.

6.7.2.19.11 When evidence of any unsafe condition is discovered, the portable tank must not be returned to service until it has been corrected and the test is repeated and passed.

6.7.2.20 Marking

6.7.2.20.1 Every portable tank must be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell must be marked with at least the information required by the pressure vessel code. As a minimum, at least the following information must be marked on the plate by stamping or by any other similar method:

(a) Owner information
- (i) Owner's registration number;

(b) Manufacturing information
- (i) Country of manufacture;
- (ii) Year of manufacture;
- (iii) Manufacturer's name or mark;
- (iv) Manufacturer's serial number;

(c) Approval information
- (i) The United Nations packaging symbol

  This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6 or 6.7;
- (ii) Approval country;
- (iii) Authorised body for the design approval;
- (iv) Design approval number;
- (v) Letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);
- (vi) Pressure vessel code to which the shell is designed;

(d) Pressures
- (i) MAWP (in bar gauge or kPa gauge)*;
- (ii) Test pressure (in bar gauge or kPa gauge)*;
- (iii) Initial pressure test date (month and year);
- (iv) Identification mark of the initial pressure test witness;

(v) External design pressure[1] (in bar gauge or kPa gauge)*;

(vi) MAWP for heating/cooling system (in bar gauge or kPa gauge)* (when applicable);

(e) Temperatures

(i) Design temperature range (in °C)*;

(f) Materials

(i) Shell material(s) and material standard reference(s);

(ii) Equivalent thickness in reference steel (in mm) *;

(iii) Lining material (when applicable);

(g) Capacity

(i) Tank water capacity at 20 °C (in litres)*;

This indication is to be followed by the symbol "S" when the shell is divided by surge plates into sections of not more than 7 500 litres capacity;

(ii) Water capacity of each compartment at 20 °C (in litres)* (when applicable, for multi-compartment tanks).

This indication is to be followed by the symbol "S" when the compartment is divided by surge plates into sections of not more than 7 500 litres capacity;

(j) Periodic inspections and tests

(i) Type of the most recent periodic test (2.5-year, 5-year or exceptional);

(ii) Date of the most recent periodic test (month and year);

(iii) Test pressure (in bar gauge or kPa gauge)* of the most recent periodic test (if applicable);

(iv) Identification mark of the authorised body who performed or witnessed the most recent test.

* the unit must be indicated

[1] *See 6.7.2.2.10*

Figure 6.7.2.20.1: Example of identification plate marking

<table>
<tr><td colspan="4">Owner’s registration number</td><td colspan="4"></td></tr>
<tr><td colspan="8">MANUFACTURING INFORMATION</td></tr>
<tr><td colspan="4">Country of manufacture</td><td colspan="4"></td></tr>
<tr><td colspan="4">Year of manufacture</td><td colspan="4"></td></tr>
<tr><td colspan="4">Manufacturer</td><td colspan="4"></td></tr>
<tr><td colspan="4">Manufacturer’s serial number</td><td colspan="4"></td></tr>
<tr><td colspan="8">APPROVAL INFORMATION</td></tr>
<tr><td rowspan="3">u
n</td><td colspan="3">Approval country</td><td colspan="4"></td></tr>
<tr><td colspan="3">Authorised body for design approval</td><td colspan="4"></td></tr>
<tr><td colspan="3">Design approval number</td><td colspan="2"></td><td colspan="2">‘AA’ (if applicable)</td></tr>
<tr><td colspan="4">Shell design code (pressure vessel code)</td><td colspan="4"></td></tr>
<tr><td colspan="8">PRESSURES</td></tr>
<tr><td colspan="4">MAWP</td><td colspan="4">bar or kPa</td></tr>
<tr><td colspan="4">Test pressure</td><td colspan="4">bar or kPa</td></tr>
<tr><td colspan="2">Initial pressure test date:</td><td colspan="2">(mm/yyyy)</td><td colspan="2">Witness stamp:</td><td colspan="2"></td></tr>
<tr><td colspan="4">External design pressure</td><td colspan="4">bar or kPa</td></tr>
<tr><td colspan="4">MAWP for heating/cooling system
(when applicable)</td><td colspan="4">bar or kPa</td></tr>
<tr><td colspan="8">TEMPERATURES</td></tr>
<tr><td colspan="4">Design temperature range</td><td colspan="4">°C to °C</td></tr>
<tr><td colspan="8">MATERIALS</td></tr>
<tr><td colspan="4">Shell material(s) and material standard reference(s)</td><td colspan="4"></td></tr>
<tr><td colspan="4">Equivalent thickness in reference steel</td><td colspan="4">mm</td></tr>
<tr><td colspan="4">Lining material (when applicable)</td><td colspan="4"></td></tr>
<tr><td colspan="8">CAPACITY</td></tr>
<tr><td colspan="4">Tank water capacity at 20 °C</td><td colspan="2">litres</td><td colspan="2">‘S’ (if applicable)</td></tr>
<tr><td colspan="4">Water capacity of compartment ___ at 20 °C
(when applicable, for multi-compartment tanks)</td><td colspan="2">litres</td><td colspan="2">‘S’ (if applicable)</td></tr>
<tr><td colspan="4"></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="8">PERIODIC INSPECTIONS / TESTS</td></tr>
<tr><td>Test type</td><td>Test date</td><td colspan="2">Witness stamp and test pressure[a]</td><td>Test type</td><td>Test date</td><td colspan="2">Witness stamp and test pressure[a]</td></tr>
<tr><td></td><td>(mm/yyyy)</td><td></td><td>bar or kPa</td><td></td><td>(mm/yyyy)</td><td></td><td>bar or kPa</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Table note:

a Test pressure if applicable.

6.7.2.20.2 The following information must be durably marked either on the portable tank itself or on a metal plate firmly secured to the portable tank:

Name of the operator

Maximum permissible gross mass (MPGM) ___________ kg

Unladen (tare) mass ___________ kg

Portable tank instruction in accordance with 4.2.5.2.6

NOTE: For the identification of the substances being transported, see also Part 5.

6.7.2.20.3 If a portable tank is designed and approved for handling in open seas, the words “OFFSHORE PORTABLE TANK” must be marked on the identification plate.

6.7.3 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF PORTABLE TANKS INTENDED FOR THE TRANSPORT OF NON-REFRIGERATED LIQUEFIED GASES

NOTE: *These requirements also apply to portable tanks intended for the transport of chemicals under pressure (UN Nos. 3500, 3501, 3502, 3503, 3504 and 3505).*

6.7.3.1 Application and Definitions

6.7.3.1.1 Application

This Section must be applied in conjunction with the legislation applicable in the particular State or Territory to pressure vessels. Where there is conflict, the requirements of that legislation and any Codes and Standards mandated by that legislation take precedence over this Section.

6.7.3.1.2 Definitions

For the purposes of this section:

Design pressure means the pressure to be used in calculations required by a recognised pressure vessel code. The design pressure must be not less than the highest of the following pressures:

(a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or

(b) The sum of:

   (i) the maximum effective gauge pressure to which the shell is designed as defined in (b) of the MAWP definition (see above); and

   (ii) a head pressure determined on the basis of the static forces specified in 6.7.3.2.9, but not less than 0.35 bar;

Design reference temperature means the temperature at which the vapour pressure of the contents is determined for the purpose of calculating the MAWP. The design reference temperature must be less than the critical temperature of the non-refrigerated liquefied gas or liquefied gas propellants of chemicals under pressure intended to be transported to ensure that the gas at all times is liquefied. This value for each portable tank type is as follows:

(a) Shell with a diameter of 1.5 metres or less: 65 °C;

(b) Shell with a diameter of more than 1.5 metres:

  (i) without insulation or sun shield: 60 °C;

  (ii) with sun shield (see 6.7.3.2.12): 55 °C; and

  (iii) with insulation (see 6.7.3.2.12): 50 °C;

Design temperature range for the shell must be -40 °C to 50 °C for non-refrigerated liquefied gases transported under ambient conditions. More severe design temperatures must be considered for portable tanks subjected to severe climatic conditions;

Filling density means the average mass of non-refrigerated liquefied gas per litre of shell capacity (kg/L). The filling density is given in portable tank instruction T50 in 4.2.5.2.6;

Leakproofness test means a test using gas subjecting the shell and its service equipment to an effective internal pressure of not less than 25% of the MAWP;

Maximum allowable working pressure (MAWP) means a pressure that must be not less than the highest of the following pressures measured at the top of the shell while in operating position, but in no case less than 7 bar:

(a) The maximum effective gauge pressure allowed in the shell during filling or discharge; or

(b) The maximum effective gauge pressure to which the shell is designed, which must be:

  (i) for a non-refrigerated liquefied gas listed in the portable tank instruction T50 in 4.2.5.2.6, the MAWP (in bar) given in T50 portable tank instruction for that gas;

  (ii) for other non-refrigerated liquefied gases, not less than the sum of:

  - the absolute vapour pressure (in bar) of the non-refrigerated liquefied gas at the design reference temperature minus 1 bar; and

  - the partial pressure (in bar) of air or other gases in the ullage space being determined by the design reference temperature and the liquid phase expansion due to an increase of the mean bulk temperature of t_r-t_f (t_f = filling temperature, usually 15 °C, t_r = 50 °C maximum mean bulk temperature);

  (iii) for chemicals under pressure, the MAWP (in bar) given in T50 portable tank instruction for the liquefied gas portion of the propellants listed in T50 in 4.2.5.2.6;

Maximum permissible gross mass (MPGM) means the sum of the tare mass of the portable tank and the heaviest load authorised for transport;

Mild steel means a steel with a guaranteed minimum tensile strength of 360 N/mm^2 to 440 N/mm^2 and a guaranteed minimum elongation at fracture conforming to 6.7.3.3.3.3;

Portable tank means a multimodal tank having a capacity of more than 450 litres used for the transport of non-refrigerated liquefied gases of Class 2. The portable tank includes a shell fitted with service equipment and structural equipment necessary for the transport of gases. The portable tank must be capable of being filled and discharged without the removal of its structural equipment. It must possess stabilising members external to the shell, and must be capable of being lifted when full. It must be designed primarily to be loaded onto a transport vehicle or ship and must be equipped with skids, mountings or accessories to facilitate mechanical handling. Road tank-vehicles, rail tank-wagons, non-metallic tanks, intermediate bulk containers (IBCs), gas cylinders and large receptacles are not considered to fall within the definition for portable tanks;

Reference steel means a steel with a tensile strength of 370 N/mm^2 and an elongation at fracture of 27%;

Service equipment means measuring instruments and filling, discharge, venting, safety and insulating devices;

Shell means the part of the portable tank which retains the non-refrigerated liquefied gas intended for transport (tank proper), including openings and their closures, but does not include service equipment or external structural equipment;

Structural equipment means the reinforcing, fastening, protective and stabilising members external to the shell;

Test pressure means the maximum gauge pressure at the top of the shell during the pressure test.

6.7.3.2 General design and construction requirements

6.7.3.2.1 Shells must be designed and constructed in accordance with the requirements of a pressure vessel code recognised by the competent authority. Shells must be made of steel suitable for forming. The materials must in principle conform to national or international material standards. For welded shells, only a material whose weldability has been fully demonstrated must be used. Welds must be skilfully made and afford complete safety. When the manufacturing process or the materials make it necessary, the shells must be suitability heat-treated to guarantee adequate toughness in the weld and in the heat affected zones. In choosing the material the design temperature range must be taken into account with respect to risk of brittle fracture, to stress corrosion cracking and to resistance to impact. When fine grain steel is used, the guaranteed value of the yield strength must be not more than 460 N/mm^2 and the guaranteed value of the upper limit of the tensile strength must be not more than 725 N/mm^2 according to the material specification. Portable tank materials must be suitable for the external environment in which they may be transported.

6.7.3.2.2 Portable tank shells, fittings and pipework must be constructed of materials which are:

(a) Substantially immune to attack by the non-refrigerated liquefied gas(es) intended to be transported; or

(b) Properly passivated or neutralised by chemical reaction.

6.7.3.2.3 Gaskets must be made of materials compatible with the non-refrigerated liquefied gas(es) intended to be transported.

6.7.3.2.4 Contact between dissimilar metals which could result in damage by galvanic action must be avoided.

6.7.3.2.5 The materials of the portable tank, including any devices, gaskets, and accessories, must not adversely affect the non-refrigerated liquefied gas(es) intended for transport in the portable tank.

6.7.3.2.6 Portable tanks must be designed and constructed with supports to provide a secure base during transport and with suitable lifting and tie-down attachments.

6.7.3.2.7 Portable tanks must be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and transport. The design must demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the portable tank, have been taken into account.

6.7.3.2.8 Shells must be designed to withstand an external pressure of at least 0.4 bar gauge above the internal pressure without permanent deformation. When the shell is to be subjected to a significant vacuum before filling or during discharge it must be designed to withstand an external pressure of at least 0.9 bar gauge above the internal pressure and must be proven at that pressure.

6.7.3.2.9 Portable tanks and their fastenings must, under the maximum permissible load, be capable of absorbing the following separately applied static forces:

(a) In the direction of travel: –twice the MPGM multiplied by the acceleration due to gravity (g)[5]; and

(b) Horizontally at right angles to the direction of travel: –the MPGM (when the direction of travel is not clearly determined, the forces must be equal to twice the MPGM) multiplied by the acceleration due to gravity (g)[5]; and

(c) Vertically upwards: –the MPGM multiplied by the acceleration due to gravity (g)[5]; and

(d) Vertically downwards: –twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity (g)[5].

Note: 5. For calculation purposes g= 9.81 metres per second

6.7.3.2.10 Under each of the forces in 6.7.3.2.9, the safety factor to be observed must be as follows:

(a) For steels having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or

(b) For steels with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength and, for austenitic steels, the 1% proof strength.

6.7.3.2.11 The values of yield strength or proof strength must be the values according to national or international material standards. When austenitic steels are used, the specified minimum values of yield strength and proof strength according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the steel in question, the value of yield strength or proof strength used must be approved by the competent authority.

6.7.3.2.12 When the shells intended for the transport of non-refrigerated liquefied gases are equipped with thermal insulation, the thermal insulation systems must satisfy the following requirements:

(a) It must consist of a shield covering not less than the upper third but not more than the upper half of the surface of the shell and separated from the shell by an air space about 40 mm across; or

(b) It must consist of a complete cladding of adequate thickness of insulating materials protected so as to prevent the ingress of moisture and damage under normal conditions of transport and so as to provide a thermal conductance of not more than 0.67 ($W\ m^{2}\ K^{-1}$);

(c) When the protective covering is so closed as to be gas-tight, a device must be provided to prevent any dangerous pressure from developing in the insulating layer in the event of inadequate gas tightness of the shell or of its items of equipment;

(d) The thermal insulation must not inhibit access to the fittings and discharge devices.

6.7.3.2.13 Portable tanks intended for the transport of flammable non-refrigerated liquefied gases must be capable of being electrically earthed.

6.7.3.3 Design criteria

6.7.3.3.1 Shells must be of a circular cross-section.

6.7.3.3.2 Shells must be designed and constructed to withstand a test pressure not less than 1.3 times the design pressure. The shell design must take into account the minimum MAWP values provided in portable tank instruction T50 in 4.2.5.2.6 for each non-refrigerated liquefied gas intended for transport. Attention is drawn to the minimum shell thickness requirements for these shells specified in 6.7.3.4.

6.7.3.3.3 For steels exhibiting a clearly defined yield point or characterised by a guaranteed proof strength (0.2% proof strength, generally, or 1% proof strength for austenitic steels) the primary membrane stress in the shell must not exceed 0.75 Re or 0.50 Rm, whichever is lower, at the test pressure, where:

Re = yield strength in N/mm^2, or 0.2% proof strength or, for austenitic steels, 1% proof strength;

Rm = minimum tensile strength in N/mm^2.

6.7.3.3.3.1 The values of Re and Rm to be used must be the specified minimum values according to national or international material standards. When austenitic steels are used, the specified minimum values for Re and Rm according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the steel in question, the values of Re and Rm used must be approved by the competent authority or its authorised body.

6.7.3.3.3.2 Steels which have an Re/Rm ratio of more than 0.85 are not allowed for the construction of welded shells. The values of Re and Rm to be used in determining this ratio must be the values specified in the material inspection certificate.

6.7.3.3.3.3 Steels used in the construction of shells must have an elongation at fracture, in %, of not less than 10 000/Rm with an absolute minimum of 16% for fine grain steels and 20% for other steels.

6.7.3.3.3.4 For the purpose of determining actual values for materials, it must be noted that for sheet metal, the axis of the tensile test specimen must be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture must be measured on test specimens of rectangular cross sections in accordance with ISO 6892:1998 using a 50 mm gauge length.

6.7.3.4 Minimum shell thickness

6.7.3.4.1 The minimum shell thickness must be the greater thickness based on:

(a) The minimum thickness determined in accordance with the requirements in 6.7.3.4; and

(b) The minimum thickness determined in accordance with the recognised pressure vessel code including the requirements in 6.7.3.3.

In addition, any relevant portable tank special provision indicated in Column 11 of the Dangerous Goods List and described in 4.2.5.3 shall be taken into account.

6.7.3.4.2 The cylindrical portions, ends (heads) and manhole covers of shells of not more than 1.80 m in diameter must be not less than 5 mm thick in the reference steel or of equivalent thickness in the steel to be used. Shells of more than 1.80 m in diameter must be not less than 6 mm thick in the reference steel or of equivalent thickness in the steel to be used.

6.7.3.4.3 The cylindrical portions, ends (heads) and manhole covers of all shells must be not less than 4 mm thick regardless of the material of construction.

6.7.3.4.4 The equivalent thickness of a steel other than the thickness prescribed for the reference steel in 6.7.3.4.2 must be determined using the following formula:

$$e_1 = \frac{21.4 e_0}{\sqrt[3]{Rm_1 \times A_1}}$$

where:

e_1 = required equivalent thickness (in mm) of the steel to be used;

e_0 = minimum thickness (in mm) for the reference steel specified in 6.7.3.4.2;

Rm_1 = guaranteed minimum tensile strength (in N/mm^2) of the steel to be used (see 6.7.3.3.3);

A_1 = guaranteed minimum elongation at fracture (in %) of the steel to be used according to national or international standards.

6.7.3.4.5 In no case must the wall thickness be less than that prescribed in 6.7.3.4.1 to 6.7.3.4.3. All parts of the shell must have a minimum thickness as determined by 6.7.3.4.1 to 6.7.3.4.3. This thickness must be exclusive of any corrosion allowance.

6.7.3.4.6 When mild steel is used (see 6.7.3.1), calculation using the formula in 6.7.3.4.4 is not required.

6.7.3.4.7 There must be no sudden change of plate thickness at the attachment of the ends (heads) to the cylindrical portion of the shell.

6.7.3.5 Service equipment

6.7.3.5.1 Service equipment must be so arranged as to be protected against the risk of being wrenched off or damaged during handling and transport. When the connection between the frame and the shell allows relative movement between the sub-assemblies, the equipment must be so fastened as to permit such movement without risk of damage to working parts. The external discharge fittings (pipe sockets, shut-off devices), the internal stop-valve and its seating must be protected against the danger of being wrenched off by external forces (for example using shear sections). The filling and discharge devices (including flanges or threaded plugs) and any protective caps must be capable of being secured against unintended opening.

6.7.3.5.2 All openings with a diameter of more than 1.5 mm in shells of portable tanks, except openings for pressure-relief devices, inspection openings and closed bleed holes, must be fitted with at least three mutually independent shut-off devices in series, the first being an internal stop-valve, excess flow valve or equivalent device, the second being an external stop-valve and the third being a blank flange or equivalent device.

6.7.3.5.2.1 When a portable tank is fitted with an excess flow valve the excess flow valve must be so fitted that its seating is inside the shell or inside a welded flange or, when fitted externally, its mountings must be designed so that in the event of impact its effectiveness must be maintained. The excess flow valves must be selected and fitted so as to close automatically when the rated flow specified by the manufacturer is reached. Connections and accessories leading to or from such a valve must have a capacity for a flow more than the rated flow of the excess flow valve.

6.7.3.5.3 For filling and discharge openings the first shut-off device must be an internal stop-valve and the second must be a stop-valve placed in an accessible position on each discharge and filling pipe.

6.7.3.5.4 For filling and discharge bottom openings of portable tanks intended for the transport of flammable and/or toxic non-refrigerated liquefied gases or chemicals under pressure the internal stop-valve must be a quick closing safety device which closes automatically in the event of unintended movement of the portable tank during filling or discharge or fire engulfment. Except for portable tanks having a capacity of not more than 1 000 litres, it must be possible to operate this device by remote control.

6.7.3.5.5 In addition to filling, discharge and gas pressure equalising orifices, shells may have openings in which gauges, thermometers and manometers can be fitted. Connections for such instruments must be made by suitable welded nozzles or pockets and not be screwed connections through the shell.

6.7.3.5.6 All portable tanks must be fitted with manholes or other inspection openings of suitable size to allow for internal inspection and adequate access for maintenance and repair of the interior.

6.7.3.5.7 External fittings must be grouped together as far as reasonably practicable.

6.7.3.5.8 Each connection on a portable tank must be clearly marked to indicate its function.

6.7.3.5.9 Each stop-valve or other means of closure must be designed and constructed to a rated pressure not less than the MAWP of the shell taking into account the temperatures expected during transport. All stop-valves with a screwed spindle must close by a clockwise motion of the handwheel. For other stop-valves the position (open and closed) and direction of closure must be clearly indicated. All stop-valves must be designed to prevent unintentional opening.

6.7.3.5.10 Piping must be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping must be of suitable metallic material. Welded pipe joints must be used wherever possible.

6.7.3.5.11 Joints in copper tubing must be brazed or have an equally strong metal union. The melting point of brazing materials must be no lower than 525 °C. The joints must not decrease the strength of tubing as may happen when cutting threads.

6.7.3.5.12 The burst pressure of all piping and pipe fittings must be not less than the highest of four times the MAWP of the shell or four times the pressure to which it may be subjected in service by the action of a pump or other device (except pressure-relief devices).

6.7.3.5.13 Ductile metals must be used in the construction of valves and accessories.

6.7.3.6 Bottom openings

6.7.3.6.1 Certain non-refrigerated liquefied gases must not be transported in portable tanks with bottom openings. When portable tank instruction T50 in 4.2.5.2.6 indicates that bottom openings are not allowed, there must be no openings below the liquid level of the shell when it is filled to its maximum permissible filling limit.

6.7.3.7 Pressure-relief devices

6.7.3.7.1 Portable tanks must be provided with one or more spring-loaded pressure-relief devices. The pressure-relief devices must open automatically at a pressure not less than the MAWP and be fully open at a pressure equal to 110% of the MAWP. These devices must, after discharge, close at a pressure not lower than 10% below the pressure at which discharge starts and must remain closed at all lower pressures. The pressure-relief devices must be of a type that will resist dynamic forces including liquid surge. Frangible discs not in series with a spring-loaded pressure-relief device are not permitted.

6.7.3.7.2 Pressure-relief devices must be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure.

6.7.3.7.3 Portable tanks intended for the transport of certain non-refrigerated liquefied gases identified in portable tank instruction T50 in 4.2.5.2.6 must have a pressure-relief device approved by the competent authority. Unless a portable tank in dedicated service is fitted with an approved relief device constructed of materials compatible with the load, such device must comprise a frangible disc preceding a spring-loaded device. The space between the frangible disc and the device must be provided with a pressure gauge or a suitable tell-tale indicator. This arrangement permits the detection of disc rupture, pinholing or leakage which could cause a malfunction of the pressure-relief device. The frangible discs must rupture at a nominal pressure 10% above the start-to-discharge pressure of the relief device.

6.7.3.7.4 In the case of multi-purpose portable tanks, the pressure-relief devices must open at a pressure indicated in 6.7.3.7.1 for the gas having the highest maximum allowable pressure of the gases allowed to be transported in the portable tank.

6.7.3.8 Capacity of relief devices

6.7.3.8.1 The combined delivery capacity of the relief devices must be sufficient that, in the event of total fire engulfment, the pressure (including accumulation) inside the shell does not exceed 120% of the MAWP. Spring-loaded relief devices must be used to achieve the full relief capacity prescribed. In the case of multi-purpose tanks, the combined delivery capacity of the pressure-relief devices must be taken for the gas which requires the highest delivery capacity of the gases allowed to be transported in portable tanks.

6.7.3.8.1.1 To determine the total required capacity of the relief devices, which must be regarded as being the sum of the individual capacities of the several devices, the following formula[1] must be used:

$$Q = 12.4 \frac{FA^{0.82}}{LC} \sqrt{\frac{ZT}{M}}$$

where:

Q =minimum required rate of discharge in cubic metres of air per second (m^3/s) at standard conditions: 1 bar and 0°C (273 K);

F =is a coefficient with the following value:

for uninsulated shells F = 1;

[1] *This formula applies only to non-refrigerated liquefied gases which have critical temperatures well above the temperature at the accumulating condition. For gases which have critical temperatures near or below the temperature at the accumulating condition, the calculation of the pressure-relief device delivery capacity must consider further thermodynamic properties of the gas (see for example CGA S-1.2-2003 "Pressure Relief Device Standards-Part 2-Cargo and Portable Tanks for Compressed Gases").*

for insulated shells F = U(649-t)/13.6;

but in no case is less than 0.25 where.

U = thermal conductance of the insulation, in kW m^{-2} K^{-1}, at 38 °C;

t = actual temperature of the non-refrigerated liquefied gas during filling(°C); when this temperature is unknown, let t=15 °C.

The value of F given above for insulated shells may be taken provided that the insulation is in conformance with 6.7.3.8.1.2;

A =total external surface area of shell in square metres;

Z =the gas compressibility factor in the accumulating condition (when this factor is unknown, let Z equal 1.0);

T =absolute temperature in Kelvin (°C + 273) above the pressure-relief devices in the accumulating condition;

L =the latent heat of vaporisation of the liquid, in kJ/kg, in the accumulating condition;

M = molecular mass of the discharged gas;

C = a constant which is derived from one of the following formulae as a function of the ratio k of specific heats.

$$k = \frac{C_p}{C_v}$$

where:

c_p is the specific heat at constant pressure; and

c_v is the specific heat at constant volume.

When k > 1: $$C = \sqrt{k\left(\frac{2}{k+1}\right)^{\frac{k+1}{k-1}}}$$

When k = 1, or k is unknown: $$C = \frac{1}{\sqrt{e}} = 0.607$$

where e is the mathematical constant 2.7183

C may also be taken from the following table:

k	C	k	C	k	C
1.00	0.607	1.26	0.660	1.52	0.704
1.02	0.611	1.28	0.664	1.54	0.707
1.04	0.615	1.30	0.667	1.56	0.710

1.06	0.620	1.32	0.671	1.58	0.713
1.08	0.624	1.34	0.674	1.60	0.716
1.10	0.628	1.36	0.678	1.62	0.719
1.12	0.633	1.38	0.681	1.64	0.722
1.14	0.637	1.40	0.685	1.66	0.725
1.16	0.641	1.42	0.688	1.68	0.728
1.18	0.645	1.44	0.691	1.70	0.731
1.20	0.649	1.46	0.695	2.00	0.770
1.22	0.652	1.48	0.698	2.20	0.793
1.24	0.656	1.50	0.701		

6.7.3.8.1.2 Insulation systems, used for the purpose of reducing the venting capacity, must be approved by the competent authority or its authorised body. In all cases, insulation systems approved for this purpose must:

(a) Remain effective at all temperatures up to 649 °C; and

(b) Be jacketed with a material having a melting point of 700 °C or greater.

6.7.3.9 Marking of pressure-relief devices

6.7.3.9.1 Every pressure-relief device must be plainly and permanently marked with the following:

(a) The pressure (in bar or kPa) at which it is set to discharge;

(b) The allowable tolerance at the discharge pressure for spring-loaded devices;

(c) The reference temperature corresponding to the rated pressure for frangible discs;

(d) The rated flow capacity of the device in standard cubic metres of air per second (m^3/s); and

(e) The cross sectional flow areas of the spring loaded pressure-relief devices and frangible discs in mm^2.

When practicable, the following information must also be shown:

(f) The manufacturer's name and relevant catalogue number.

6.7.3.9.2 The rated flow capacity marked on the pressure-relief devices must be determined according to ISO 4126 1:2004 and ISO 4126-7:2004.

6.7.3.10 Connections to pressure-relief devices

6.7.3.10.1 Connections to pressure-relief devices must be of sufficient size to enable the required discharge to pass unrestricted to the safety device. No stop-valve must be installed between the shell and the pressure-relief devices except when duplicate devices are provided for maintenance or other reasons and the stop-valves serving the devices actually in use are locked open or the stop-valves are interlocked so that at least one of the duplicate devices is always operable and capable of meeting the requirements of 6.7.3.8. There must be no obstruction in an opening leading to a vent or pressure-relief device which might restrict or cut-off the flow from the shell to that device. Vents from the pressure-relief devices, when used, must deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving device.

6.7.3.11 Siting of pressure-relief devices

6.7.3.11.1 Each pressure-relief device inlet must be situated on top of the shell in a position as near the longitudinal and transverse centre of the shell as reasonably practicable. All pressure relief device inlets must under maximum filling conditions be situated in the vapour space of the shell and the devices must be so arranged as to ensure that the escaping vapour is discharged unrestrictedly. For flammable non-refrigerated liquefied gases, the escaping vapour must be directed away from the shell in such a manner that it cannot impinge upon the shell. Protective devices which deflect the flow of vapour are permissible provided the required relief-device capacity is not reduced.

6.7.3.11.2 Arrangements must be made to prevent access to the pressure-relief devices by unauthorised persons and to protect the devices from damage caused by the portable tank overturning.

6.7.3.12 Gauging devices

6.7.3.12.1 Unless a portable tank is intended to be filled by weight it must be equipped with one or more gauging devices. Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the shell must not be used.

6.7.3.13 Portable tank supports, frameworks, lifting and tie-down attachments

6.7.3.13.1 Portable tanks must be designed and constructed with a support structure to provide a secure base during transport. The forces specified in 6.7.3.2.9 and the safety factor specified in 6.7.3.2.10 must be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.3.13.2 The combined stresses caused by portable tank mountings (e.g. cradles, frameworks, etc.) and portable tank lifting and tie-down attachments must not cause excessive stress in any portion of the shell. Permanent lifting and tie-down attachments must be fitted to all portable tanks. Preferably they must be fitted to the portable tank supports but may be secured to reinforcing plates located on the shell at the points of support.

6.7.3.13.3 In the design of supports and frameworks the effects of environmental corrosion must be taken into account.

6.7.3.13.4 Forklift pockets must be capable of being closed off. The means of closing forklift pockets must be a permanent part of the framework or permanently attached to the framework. Single compartment portable tanks with a length less than 3.65 m need not have closed off forklift pockets provided that:

(a) The shell and all the fittings are well protected from being hit by the forklift blades; and

(b) The distance between the centres of the forklift pockets is at least half of the maximum length of the portable tank.

6.7.3.13.5 When portable tanks are not protected during transport, according to 4.2.2.3, the shells and service equipment must be protected against damage to the shell and service equipment resulting from lateral or longitudinal impact or overturning. External fittings must be protected so as to preclude the release of the shell contents upon impact or overturning of the portable tank on its fittings. Examples of protection include:

(a) Protection against lateral impact which may consist of longitudinal bars protecting the shell on both sides at the level of the median line;

(b) Protection of the portable tank against overturning which may consist of reinforcement rings or bars fixed across the frame;

(c) Protection against rear impact which may consist of a bumper or frame;

(d) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496-3:1995.

6.7.3.14 Design approval

6.7.3.14.1 The competent authority or its authorised body must issue a design approval certificate for any new design of a portable tank. This certificate must attest that a portable tank has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter and where appropriate the provisions for gases provided in portable tank instruction T50 in 4.2.5.2.6. When a series of portable tanks are manufactured without change in the design, the certificate must be valid for the entire series.

The certificate must refer to the prototype test report, the gases allowed to be transported, the materials of construction of the shell and an approval number. The approval number shall consist of the distinguishing sign or mark of the State in whose territory the approval was granted, indicated by the distinguishing sign used on vehicles in international road traffic[1] (for Australia, the letters 'AUS'), and a registration number. Any alternative arrangements according to 6.7.1.2 must be indicated on the certificate.

A design approval may serve for the approval of smaller portable tanks made of materials of the same kind and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

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[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

6.7.3.14.2 The prototype test report for the design approval must include at least the following:

(a) The results of the applicable framework test specified in ISO 1496-3:1995;

(b) The results of the initial inspection and test in 6.7.3.15.3; and

(c) The results of the impact test in 6.7.3.15.1, when applicable.

6.7.3.15 Inspection and testing

6.7.3.15.1 Portable tanks meeting the definition of container in the International Convention for Safe Containers (CSC), 1972, as amended, must not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the Manual for Tests and Criteria, Part IV, Section 41.

6.7.3.15.2 The shell and items of equipment of each portable tank must be inspected and tested before being put into service for the first time (initial inspection and test) and thereafter at not more than five-year intervals (5 year periodic inspection and test) with an intermediate periodic inspection and test (2.5 year periodic inspection and test) midway between the 5 year periodic inspections and tests. The 2.5 year inspection and test may be performed within 3 months of the specified date. An exceptional inspection and test must be performed regardless of the last periodic inspection and test when necessary according to 6.7.3.15.7.

6.7.3.15.3 The initial inspection and test of a portable tank must include a check of the design characteristics, an internal and external examination of the portable tank and its fittings with due regard to the non-refrigerated liquefied gases to be transported, and a pressure test referring to the test pressures according to 6.7.3.3.2. The pressure test may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorised body. Before the portable tank is placed into service, a leakproofness test and a test of the satisfactory operation of all service equipment must also be performed. When the shell and its fittings have been pressure-tested separately, they must be subjected together after assembly to a leakproofness test. All welds subject to full stress level in the shell must be inspected during the initial test by radiographic, ultrasonic, or another suitable non-destructive test method. This does not apply to the jacket.

6.7.3.15.4 The 5 year periodic inspection and test must include an internal and external examination and, as a general rule, a hydraulic pressure test. Sheathing, thermal insulation and the like must be removed only to the extent required for reliable appraisal of the condition of the portable tank. When the shell and equipment have been pressure-tested separately, they must be subjected together after assembly to a leakproofness test.

6.7.3.15.5 The intermediate 2.5 year periodic inspection and test must at least include an internal and external examination of the portable tank and its fittings with due regard to the non-refrigerated liquefied gases intended to be transported, a leakproofness test and a test of the satisfactory operation of all service equipment. Sheathing thermal insulation and the like must be removed only to the extent required for reliable appraisal of the condition of the portable tank. For portable tanks intended for the transport of a single non-refrigerated liquefied gas, the 2.5 year internal examination may be waived or substituted by other test methods or inspection procedures specified by the competent authority or its authorised body.

6.7.3.15.6 A portable tank may not be filled and offered for transport after the date of expiry of the last 5 year or 2.5 year periodic inspection and test as required by 6.7.3.15.2. However a portable tank filled prior to the date of expiry of the last periodic inspection and test may be transported for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, a portable tank may be transported after the date of expiry of the last periodic test and inspection:

(a) After emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling; and
(b) Unless otherwise exempted by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption must be mentioned in the transport document.

6.7.3.15.6.1 Except as provided for in 6.7.3.15.6, portable tanks which have missed the timeframe for their scheduled 5 year or 2.5 year periodic inspection and test may only be filled and offered for transport if a new 5 year periodic inspection and test is performed according to 6.7.3.15.4

6.7.3.15.7 The exceptional inspection and test is necessary when the portable tank shows evidence of damaged or corroded areas, or leakage, or other conditions that indicate a deficiency that could affect the integrity of the portable tank. The extent of the exceptional inspection and test must depend on the amount of damage or deterioration of the portable tank. It must include at least the 2.5 year inspection and test according to 6.7.3.15.5.

6.7.3.15.8 The internal and external examinations must ensure that:

(a) The shell is inspected for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the portable tank unsafe for transport. The wall thickness shall be verified by appropriate measurement if this inspection indicates a reduction in wall thickness;
(b) The piping, valves, and gaskets are inspected for corroded areas, defects, or any other conditions, including leakage, that might render the portable tank unsafe for filling, discharge or transport;
(c) Devices for tightening manhole covers are operative and there is no leakage at manhole covers or gaskets;
(d) Missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;

(e) All emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves must be operated to demonstrate proper operation;

(f) Required marks on the portable tank are legible and in accordance with the applicable requirements; and

(g) The framework, the supports and the arrangements for lifting the portable tank are in satisfactory condition.

6.7.3.15.9 The inspections and tests in 6.7.3.15.1, 6.7.3.15.3, 6.7.3.15.4, 6.7.3.15.5 and 6.7.3.15.7 must be performed or witnessed by an expert recognised by the competent authority or its authorised body. When the pressure test is a part of the inspection and test, the test pressure must be the one indicated on the data plate of the portable tank. While under pressure, the portable tank must be inspected for any leaks in the shell, piping or equipment.

6.7.3.15.10 In all cases when cutting, burning or welding operations on the shell have been effected, that work must be to the approval of the competent authority or its authorised body taking into account the pressure vessel code used for the construction of the shell. A pressure test to the original test pressure must be performed after the work is completed.

6.7.3.15.11 When evidence of any unsafe condition is discovered, the portable tank must not be returned to service until it has been corrected and the pressure test is repeated and passed.

6.7.3.16 Marking

6.7.3.16.1 Every portable tank must be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell must be marked with at least the information required by the pressure vessel code. As a minimum, at least the following information must be marked on the plate by stamping or by any other similar method:

(a) Owner information

- (i) Owner's registration number;

(b) Manufacturing information

- (i) Country of manufacture;
- (ii) Year of manufacture;
- (iii) Manufacturer's name or mark;
- (iv) Manufacturer's serial number;

(c) Approval information

- i) The United Nations packaging symbol

  This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6 or 6.7;

(ii) Approval country;

(iii) Authorised body for the design approval;

(iv) Design approval number;

(v) Letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);

(vi) Pressure vessel code to which the shell is designed;

(d) Pressures

(i) MAWP (in bar gauge or kPa gauge)[6];

(ii) Test pressure (in bar gauge or kPa gauge)[6];

(iii) Initial pressure test date (month and year);

(iv) Identification mark of the initial pressure test witness;

(v) External design pressure (in bar gauge or kPa gauge)[6];

(e) Temperatures

(i) Design temperature range (in °C)[6];

(ii) Design reference temperature (in °C)[6];

(f) Materials

(i) Shell material(s) and material standard reference(s);

(ii) Equivalent thickness in reference steel (in mm)[6];

(g) Capacity

(i) Tank water capacity at 20 °C (in litres)[6];

(h) Periodic inspections and tests

(i) Type of the most recent periodic test (2.5-year, 5-year or exceptional);

(ii) Date of the most recent periodic test (month and year);

(iii) Test pressure (in bar gauge or kPa gauge)[6] of the most recent periodic test (if applicable);

(iv) Identification mark of the authorised body who performed or witnessed the most recent test.

Note: 6. Means the unit used should be indicated.

Figure 6.7.3.16.1: Example of identification plate marking

<table>
<tr><td colspan="2">Owner's registration number</td><td colspan="2"></td></tr>
<tr><td colspan="4">MANUFACTURING INFORMATION</td></tr>
<tr><td colspan="2">Country of manufacture</td><td colspan="2"></td></tr>
<tr><td colspan="2">Year of manufacture</td><td colspan="2"></td></tr>
<tr><td colspan="2">Manufacturer</td><td colspan="2"></td></tr>
<tr><td colspan="2">Manufacturer's serial number</td><td colspan="2"></td></tr>
<tr><td colspan="4">APPROVAL INFORMATION</td></tr>
<tr><td rowspan="3">u
n</td><td>Approval country</td><td colspan="2"></td></tr>
<tr><td>Authorised body for design approval</td><td colspan="2"></td></tr>
<tr><td>Design approval number</td><td></td><td>'AA' (if applicable)</td></tr>
<tr><td colspan="2">Shell design code (pressure vessel code)</td><td colspan="2"></td></tr>
<tr><td colspan="4">PRESSURES</td></tr>
<tr><td colspan="2">MAWP</td><td colspan="2">bar or kPa</td></tr>
<tr><td colspan="2">Test pressure</td><td colspan="2">bar or kPa</td></tr>
<tr><td>Initial pressure test date:</td><td>(mm/yyyy)</td><td>Witness stamp:</td><td></td></tr>
<tr><td colspan="2">External design pressure</td><td colspan="2">bar or kPa</td></tr>
<tr><td colspan="4">TEMPERATURES</td></tr>
<tr><td colspan="2">Design temperature range</td><td colspan="2">°C to °C</td></tr>
<tr><td colspan="2">Design reference temperature</td><td colspan="2">°C</td></tr>
<tr><td colspan="4">MATERIALS</td></tr>
<tr><td colspan="2">Shell material(s) and material standard reference(s)</td><td colspan="2"></td></tr>
<tr><td colspan="2">Equivalent thickness in reference steel</td><td colspan="2">mm</td></tr>
<tr><td colspan="4">CAPACITY</td></tr>
<tr><td colspan="2">Tank water capacity at 20 °C</td><td colspan="2">litres</td></tr>
<tr><td colspan="4">PERIODIC INSPECTIONS / TESTS</td></tr>
</table>

<table>
<tr><td>Test type</td><td>Test date</td><td colspan="2">Witness stamp and test pressure[a]</td><td>Test type</td><td>Test date</td><td colspan="2">Witness stamp and test pressure[a]</td></tr>
<tr><td></td><td>(mm/yyyy)</td><td></td><td>bar or kPa</td><td></td><td>(mm/yyyy)</td><td></td><td>bar or kPa</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Table note:
a Test pressure if applicable.

6.7.3.16.2 The following information must be durably marked either on the portable tank itself or on a metal plate firmly secured to the portable tank:

Name of the operator

Name of non-refrigerated liquefied gas(es) permitted for transport

Maximum permissible load mass for each non-refrigerated liquefied gas permitted ______kg

Maximum permissible gross mass (MPGM) __________ kg

Unladen (tare) mass _________ kg

Portable tank instruction in accordance with 4.2.5.2.6

NOTE: For the identification of the non-refrigerated liquefied gases being transported, see also Part 5.

6.7.3.16.3 If a portable tank is designed and approved for handling in open seas, the words “OFFSHORE PORTABLE TANK” must be marked on the identification plate.

6.7.4 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF PORTABLE TANKS INTENDED FOR THE TRANSPORT OF REFRIGERATED LIQUEFIED GASES

6.7.4.1 Application and Definitions

6.7.4.1.1 Application

This Section must be applied in conjunction with the legislation applicable in the particular State or Territory to pressure vessels. Where there is conflict, the requirements of that legislation and any Codes and Standards mandated by that legislation take precedence over this Section.

6.7.4.1.2 Definitions

For the purposes of this section:

Holding time means the time that will elapse from the establishment of the initial filling condition until the pressure has risen due to heat influx to the lowest set pressure of the pressure limiting device(s);

Jacket means the outer insulation cover or cladding which may be part of the insulation system;

Leakproofness test means a test using gas subjecting the shell and its service equipment, to an effective internal pressure not less than 90% of the MAWP;

Maximum allowable working pressure (MAWP) means the maximum effective gauge pressure permissible at the top of the shell of a loaded portable tank in its operating position including the highest effective pressure during filling and discharge;

Maximum permissible gross mass (MPGM) means the sum of the tare mass of the portable tank and the heaviest load authorised for transport;

Minimum design temperature means the temperature which is used for the design and construction of the shell not higher than the lowest (coldest) temperature (service temperature) of the contents during normal conditions of filling, discharge and transport;

Portable tank means a thermally insulated multimodal tank having a capacity of more than 450 litres fitted with service equipment and structural equipment necessary for the transport of refrigerated liquefied gases. The portable tank must be capable of being filled and discharged without the removal of its structural equipment. It must possess stabilising members external to the tank, and must be capable of being lifted when full. It must be designed primarily to be loaded onto a transport vehicle or ship and must be equipped with skids, mountings or accessories to facilitate mechanical handling. Road tank-vehicles, rail tank-wagons, non-metallic tanks, intermediate bulk containers (IBCs), gas cylinders and large receptacles are not considered to fall within the definition for portable tanks;

Reference steel means a steel with a tensile strength of 370 N/mm^2 and an elongation at fracture of 27%;

Shell means the part of the portable tank which retains the refrigerated liquefied gas intended for transport, including openings and their closures, but does not include service equipment or external structural equipment;

Service equipment means measuring instruments and filling, discharge, venting, safety, pressurising, cooling and thermal insulation devices;

Structural equipment means the reinforcing, fastening, protective and stabilising members external to the shell;

Tank means a construction which normally consists of either:

(a) A jacket and one or more inner shells where the space between the shell(s) and the jacket is exhausted of air (vacuum insulation) and may incorporate a thermal insulation system; or

(b) A jacket and an inner shell with an intermediate layer of solid thermally insulating material (e.g. solid foam);

Test pressure means the maximum gauge pressure at the top of the shell during the pressure test.

6.7.4.2 General design and construction requirements

6.7.4.2.1 Shells must be designed and constructed in accordance with the requirements of a pressure vessel code recognised by the competent authority. Shells and jackets must be made of metallic materials suitable for forming. Jackets must be made of steel. Non-metallic materials may be used for the attachments and supports between the shell and jacket, provided their material properties at the minimum design temperature are proven to be sufficient. The materials must in principle conform to national or international material standards. For welded shells and jackets only materials whose weldability has been fully demonstrated must be used. Welds must be skilfully made and afford complete safety. When the manufacturing process or the materials make it necessary, the shell must be suitably heat treated to guarantee adequate toughness in the weld and in the heat affected zones. In choosing the material, the minimum design temperature must be taken into account with respect to risk of brittle fracture, to hydrogen embrittlement, to stress corrosion cracking and to resistance to impact. When fine grain steel is used, the guaranteed value of the yield strength must be not more than 460 N/mm^2 and the guaranteed value of the upper limit of the tensile strength must be not more than 725 N/mm^2 in accordance with the material specifications. Portable tank materials must be suitable for the external environment in which they may be transported.

6.7.4.2.2 Any part of a portable tank, including fittings, gaskets and pipe-work, which can be expected normally to come into contact with the refrigerated liquefied gas transported must be compatible with that refrigerated liquefied gas.

6.7.4.2.3 Contact between dissimilar metals which could result in damage by galvanic action must be avoided.

6.7.4.2.4 The thermal insulation system must include a complete covering of the shell(s) with effective insulating materials. External insulation must be protected by a jacket so as to prevent the ingress of moisture and other damage under normal transport conditions.

6.7.4.2.5 When a jacket is so closed as to be gas-tight, a device must be provided to prevent any dangerous pressure from developing in the insulation space.

6.7.4.2.6 Portable tanks intended for the transport of refrigerated liquefied gases having a boiling point below minus 182 °C at atmospheric pressure must not include materials which may react with oxygen or oxygen enriched atmospheres in a dangerous manner, when located in parts of the thermal insulation when there is a risk of contact with oxygen or with oxygen enriched fluid.

6.7.4.2.7 Insulating materials must not deteriorate unduly in service.

6.7.4.2.8 A reference holding time must be determined for each refrigerated liquefied gas intended for transport in a portable tank.

6.7.4.2.8.1 The reference holding time must be determined by a method recognised by the competent authority on the basis of the following:

(a) The effectiveness of the insulation system, determined in accordance with 6.7.4.2.8.2;

(b) The lowest set pressure of the pressure limiting device(s);

(c) The initial filling conditions;

(d) An assumed ambient temperature of 30 °C;

(e) The physical properties of the individual refrigerated liquefied gas intended to be transported.

6.7.4.2.8.2 The effectiveness of the insulation system (heat influx in watts) must be determined by type testing the portable tank in accordance with a procedure recognised by the competent authority. This test must consist of either:

(a) A constant pressure test (for example at atmospheric pressure) when the loss of refrigerated liquefied gas is measured over a period of time; or

(b) A closed system test when the rise in pressure in the shell is measured over a period of time.

When performing the constant pressure test, variations in atmospheric pressure must be taken into account. When performing either tests corrections must be made for any variation of the ambient temperature from the assumed ambient temperature reference value of 30 °C.

NOTE: For the determination of the actual holding time before each journey, refer to 4.2.3.7.

6.7.4.2.9 The jacket of a vacuum-insulated double-wall tank must have either an external design pressure not less than 100 kPa (1 bar) gauge pressure calculated in accordance with a recognised technical code or a calculated critical collapsing pressure of not less than 200 kPa (2 bar) gauge pressure. Internal and external reinforcements may be included in calculating the ability of the jacket to resist the external pressure.

6.7.4.2.10 Portable tanks must be designed and constructed with supports to provide a secure base during transport and with suitable lifting and tie-down attachments.

6.7.4.2.11 Portable tanks must be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and transport. The design must demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the portable tank, have been taken into account.

6.7.4.2.12 Portable tanks and their fastenings under the maximum permissible load must be capable of absorbing the following separately applied static forces:

(a) In the direction of travel: twice the MPGM multiplied by the acceleration due to gravity (g)[5];

(b) Horizontally at right angles to the direction of travel: the MPGM (when the direction of travel is not clearly determined, the forces must be equal to twice the MPGM) multiplied by the acceleration due to gravity (g)[5];

(c) Vertically upwards: the MPGM multiplied by the acceleration due to gravity (g)[5]; and

(d) Vertically downwards: twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity (g)[5].

Note: 5. Means g = 9.81 metres per second

6.7.4.2.13 Under each of the forces in 6.7.4.2.12, the safety factor to be observed must be as follows:

(a) For materials having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or

(b) For materials with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength or, for austenitic steels, the 1% proof strength.

6.7.4.2.14 The values of yield strength or proof strength must be the values according to national or international material standards. When austenitic steels are used, the specified minimum values according to the material standards may be increased by up to 15% when these greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, or when non-metallic materials are used the values of yield strength or proof strength must be approved by the competent authority.

6.7.4.2.15 Portable tanks intended for the transport of flammable refrigerated liquefied gases must be capable of being electrically earthed.

6.7.4.3 Design criteria

6.7.4.3.1 Shells must be of a circular cross section.

6.7.4.3.2 Shells must be designed and constructed to withstand a test pressure not less than 1.3 times the MAWP. For shells with vacuum insulation the test pressure must not be less than 1.3 times the sum of the MAWP and 100 kPa (1 bar). In no case must the test pressure be less than 300 kPa (3 bar) gauge pressure. Attention is drawn to the minimum shell thickness requirements, specified in 6.7.4.4.2 to 6.7.4.4.7.

6.7.4.3.3 For metals exhibiting a clearly defined yield point or characterised by a guaranteed proof strength (0.2% proof strength, generally, or 1% proof strength for austenitic steels) the primary membrane stress Õ (sigma) in the shell must not exceed 0.75 Re or 0.50 Rm, whichever is lower, at the test pressure, where:

Re = yield strength in N/mm^2, or 0.2% proof strength or, for austenitic steels, 1% proof strength;

Rm = minimum tensile strength in N/mm^2.

6.7.4.3.3.1 The values of Re and Rm to be used must be the specified minimum values according to national or international material standards. When austenitic steels are used, the specified minimum values for Re and Rm according to the material standards may be increased by up to 15% when greater values are attested in the material inspection certificate. When no material standard exists for the metal in question, the values of Re and Rm used must be approved by the competent authority or its authorised body.

6.7.4.3.3.2 Steels which have a Re/Rm ratio of more than 0.85 are not allowed for the construction of welded shells. The values of Re and Rm to be used in determining this ratio must be the values specified in the material inspection certificate.

6.7.4.3.3.3 Steels used in the construction of shells must have an elongation at fracture, in %, of not less than 10 000/Rm with an absolute minimum of 16% for fine grain steels and 20% for other steels. Aluminium and aluminium alloys used in the construction of shells must have an elongation at fracture, in %, of not less than 10 000/6Rm with an absolute minimum of 12%.

6.7.4.3.3.4 For the purpose of determining actual values for materials, it must be noted that for sheet metal, the axis of the tensile test specimen must be at right angles (transversely) to the direction of rolling. The permanent elongation at fracture must be measured on test specimens of rectangular cross sections in accordance with ISO 6892:1998 using a 50 mm gauge length.

6.7.4.4 Minimum shell thickness

6.7.4.4.1 The minimum shell thickness must be the greater thickness based on:

(a) The minimum thickness determined in accordance with the requirements in 6.7.4.4.2 to 6.7.4.4.7; and

(b) The minimum thickness determined in accordance with the recognised pressure vessel code including the requirements in 6.7.4.3.

6.7.4.4.2 Shells of not more than 1.80 m in diameter must be not less than 5 mm thick in the reference steel or of equivalent thickness in the metal to be used. Shells of more than 1.80 m in diameter must be not less than 6 mm thick in the reference steel or of equivalent thickness in the metal to be used.

6.7.4.4.3 Shells of vacuum-insulated tanks of not more than 1.80 m in diameter must be not less than 3 mm thick in the reference steel or of equivalent thickness in the metal to be used. Such shells of more than 1.80 m in diameter must be not less than 4 mm thick in the reference steel or of equivalent thickness in the metal to be used.

6.7.4.4.4 For vacuum-insulated tanks, the aggregate thickness of the jacket and the shell must correspond to the minimum thickness prescribed in 6.7.4.4.2, the thickness of the shell itself being not less than the minimum thickness prescribed in 6.7.4.4.3.

6.7.4.4.5 Shells must be not less than 3 mm thick regardless of the material of construction.

6.7.4.4.6 The equivalent thickness of a metal other than the thickness prescribed for the reference steel in 6.7.4.4.2 and 6.7.4.4.3 must be determined using the following formula:

$$e_1 = \frac{21.4 \times e_0}{\sqrt[3]{Rm_1 \times A_1}}$$

where:

e_1	=	required equivalent thickness (in mm) of the metal to be used;
e_0	=	minimum thickness (in mm) of the reference steel specified in 6.7.4.4.2 and 6.7.4.4.3;
Rm_1	=	guaranteed minimum tensile strength (in N/mm^2) of the metal to be used (see 6.7.4.3.3);
A1	=	guaranteed minimum elongation at fracture (in %) of the metal to be used according to national or international standards.

6.7.4.4.7 In no case must the wall thickness be less than that prescribed in 6.7.4.4.1 to 6.7.4.4.5. All parts of the shell must have a minimum thickness as determined by 6.7.4.4.1 to 6.7.4.4.6. This thickness must be exclusive of any corrosion allowance.

6.7.4.4.8 There must be no sudden change of plate thickness at the attachment of the ends (heads) to the cylindrical portion of the shell.

6.7.4.5 Service equipment

6.7.4.5.1 Service equipment must be so arranged as to be protected against the risk of being wrenched off or damaged during handling and transport. When the connection between the frame and the tank or the jacket and the shell allows relative movement, the equipment must be so fastened as to permit such movement without risk of damage to working parts. The external discharge fittings (pipe sockets, shut-off devices), the stop-valve and its seating must be protected against the danger of being wrenched off by external forces (for example using shear sections). The filling and discharge devices (including flanges or threaded plugs) and any protective caps must be capable of being secured against unintended opening.

6.7.4.5.2 Each filling and discharge opening in portable tanks used for the transport of flammable refrigerated liquefied gases must be fitted with at least three mutually independent shut-off devices in series, the first being a stop-valve situated as close as reasonably practicable to the jacket, the second being a stop-valve and the third being a blank flange or equivalent device.

The shut-off device closest to the jacket must be a quick closing device, which closes automatically in the event of unintended movement of the portable tank during filling or discharge or fire engulfment. This device must also be possible to operate by remote control.

6.7.4.5.3 Each filling and discharge opening in portable tanks used for the transport of non-flammable refrigerated liquefied gases must be fitted with at least two mutually independent shut-off devices in series, the first being a stop-valve situated as close as reasonably practicable to the jacket, the second a blank flange or equivalent device.

6.7.4.5.4 For sections of piping which can be closed at both ends and where liquid product can be trapped, a method of automatic pressure relief must be provided to prevent excess pressure build-up within the piping.

6.7.4.5.5 Vacuum insulated tanks need not have an opening for inspection.

6.7.4.5.6 External fittings must be grouped together as far as reasonably practicable.

6.7.4.5.7 Each connection on a portable tank must be clearly marked to indicate its function.

6.7.4.5.8 Each stop-valve or other means of closure must be designed and constructed to a rated pressure not less than the MAWP of the shell taking into account the temperature expected during transport. All stop-valves with a screwed spindle must be closed by a clockwise motion of the handwheel. In the case of other stop-valves the position (open and closed) and direction of closure must be clearly indicated. All stop-valves must be designed to prevent unintentional opening.

6.7.4.5.9 When pressure-building units are used, the liquid and vapour connections to that unit must be provided with a valve as close to the jacket as reasonably practicable to prevent the loss of contents in case of damage to the pressure-building unit.

6.7.4.5.10 Piping must be designed, constructed and installed so as to avoid the risk of damage due to thermal expansion and contraction, mechanical shock and vibration. All piping must be of a suitable material. To prevent leakage due to fire, only steel piping and welded joints must be used between the jacket and the connection to the first closure of any outlet. The method of attaching the closure to this connection must be to the satisfaction of the competent authority or its authorised body. Elsewhere pipe joints must be welded when necessary.

6.7.4.5.11 Joints in copper tubing must be brazed or have an equally strong metal union. The melting point of brazing materials must be no lower than 525 °C. The joints must not decrease the strength of the tubing as may happen when cutting threads.

6.7.4.5.12 The materials of construction of valves and accessories must have satisfactory properties at the lowest operating temperature of the portable tank.

6.7.4.5.13 The burst pressure of all piping and pipe fittings must be not less than the highest of four times the MAWP of the shell or four times the pressure to which it may be subjected in service by the action of a pump or other device (except pressure-relief devices).

6.7.4.6 Pressure-relief devices

6.7.4.6.1 Every shell must be provided with not less than two independent spring-loaded pressure-relief devices. The pressure-relief devices must open automatically at a pressure not less than the MAWP and be fully open at a pressure equal to 110% of the MAWP. These devices must, after discharge, close at a pressure not lower than 10% below the pressure at which discharge starts and must remain closed at all lower pressures. The pressure-relief devices must be of the type that will resist dynamic forces including surge.

6.7.4.6.2 Shells for non-flammable refrigerated liquefied gases and hydrogen may in addition have frangible discs in parallel with the spring-loaded devices as specified in 6.7.4.7.2 and 6.7.4.7.3.

6.7.4.6.3 Pressure-relief devices must be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure.

6.7.4.6.4 Pressure-relief devices must be approved by the competent authority or its authorised body.

6.7.4.7 Capacity and setting of pressure-relief devices

6.7.4.7.1 In the case of the loss of vacuum in a vacuum-insulated tank or of loss of 20% of the insulation of a tank insulated with solid materials, the combined capacity of all pressure-relief devices installed must be sufficient so that the pressure (including accumulation) inside the shell does not exceed 120% of the MAWP.

6.7.4.7.2 For non-flammable refrigerated liquefied gases (except oxygen) and hydrogen, this capacity may be achieved by the use of frangible discs in parallel with the required safety-relief devices. Frangible discs must rupture at nominal pressure equal to the test pressure of the shell.

6.7.4.7.3 Under the circumstances described in 6.7.4.7.1 and 6.7.4.7.2 together with complete fire engulfment the combined capacity of all pressure-relief devices installed must be sufficient to limit the pressure in the shell to the test pressure.

6.7.4.7.4 The required capacity of the relief devices must be calculated in accordance with a well-established technical code recognised by the competent authority[1] .

6.7.4.8 Marking of pressure-relief devices

6.7.4.8.1 Every pressure-relief device must be plainly and permanently marked with the following:

(a) The pressure (in bar or kPa) at which it is set to discharge;

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[1] *See for example CGA S-1.2-2003 “Pressure Relief Device Standards-Part 2-Cargo and Portable Tanks for Compressed Gases*

(b) The allowable tolerance at the discharge pressure for spring-loaded devices;

(c) The reference temperature corresponding to the rated pressure for frangible discs;

(d) The rated flow capacity of the device in standard cubic meters of air per second (m^3/s); and

(e) The cross sectional flow areas of the spring loaded pressure-relief devices and frangible discs in mm^2.

When practicable, the following information must also be shown:

(f) The manufacturer's name and relevant catalogue number.

6.7.4.8.2 The rated flow capacity marked on the pressure-relief devices must be determined according to ISO 4126 1:2004 and ISO 4126-7:2004.

6.7.4.9 Connections to pressure-relief devices

6.7.4.9.1 Connections to pressure-relief devices must be of sufficient size to enable the required discharge to pass unrestricted to the safety device. No stop-valve must be installed between the shell and the pressure-relief devices except when duplicate devices are provided for maintenance or other reasons and the stop-valves serving the devices actually in use are locked open or the stop-valves are interlocked so that the requirements of 6.7.4.7 are always fulfilled. There must be no obstruction in an opening leading to a vent or pressure-relief device which might restrict or cut-off the flow from the shell to that device.

Pipework to vent the vapour or liquid from the outlet of the pressure-relief devices, when used, must deliver the relieved vapour or liquid to the atmosphere in conditions of minimum back-pressure on the relieving device.

6.7.4.10 Siting of pressure-relief devices

6.7.4.10.1 Each pressure-relief device inlet must be situated on top of the shell in a position as near the longitudinal and transverse centre of the shell as reasonably practicable. All pressure-relief device inlets must under maximum filling conditions be situated in the vapour space of the shell and the devices must be so arranged as to ensure that the escaping vapour is discharged unrestrictedly. For refrigerated liquefied gases, the escaping vapour must be directed away from the tank and in such a manner that it cannot impinge upon the tank. Protective devices which deflect the flow of vapour are permissible provided the required relief-device capacity is not reduced.

6.7.4.10.2 Arrangements must be made to prevent access to the devices by unauthorised persons and to protect the devices from damage caused by the portable tank overturning.

6.7.4.11 Gauging devices

6.7.4.11.1 Unless a portable tank is intended to be filled by weight, it must be equipped with one or more gauging devices. Glass level-gauges and gauges made of other fragile material, which are in direct communication with the contents of the shell must not be used.

6.7.4.11.2 A connection for a vacuum gauge must be provided in the jacket of a vacuum-insulated portable tank.

6.7.4.12 Portable tank supports, frameworks, lifting and tie-down attachments

6.7.4.12.1 Portable tanks must be designed and constructed with a support structure to provide a secure base during transport. The forces specified in 6.7.4.2.12 and the safety factor specified in 6.7.4.2.13 must be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.4.12.2 The combined stresses caused by portable tank mountings (e.g. cradles, frameworks, etc.) and portable tank lifting and tie-down attachments must not cause excessive stress in any portion of the tank.

Permanent lifting and tie-down attachments must be fitted to all portable tanks. Preferably they must be fitted to the portable tank supports but may be secured to reinforcing plates located on the tank at the points of support.

6.7.4.12.3 In the design of supports and frameworks the effects of environmental corrosion must be taken into account.

6.7.4.12.4 Forklift pockets must be capable of being closed off. The means of closing forklift pockets must be a permanent part of the framework or permanently attached to the framework. Single compartment portable tanks with a length less than 3.65 m need not have closed off forklift pockets provided that:

(a) The tank and all the fittings are well protected from being hit by the forklift blades; and
(b) The distance between the centres of the forklift pockets is at least half of the maximum length of the portable tank.

6.7.4.12.5 When portable tanks are not protected during transport, according to 4.2.3.3, the shells and service equipment must be protected against damage to the shell and service equipment resulting from lateral or longitudinal impact or overturning. External fittings must be protected so as to preclude the release of the shell contents upon impact or overturning of the portable tank on its fittings. Examples of protection include:

(a) Protection against lateral impact which may consist of longitudinal bars protecting the shell on both sides at the level of the median line;
(b) Protection of the portable tank against overturning which may consist of reinforcement rings or bars fixed across the frame;

(c) Protection against rear impact which may consist of a bumper or frame;

(d) Protection of the shell against damage from impact or overturning by use of an ISO frame in accordance with ISO 1496-3:1995;

(e) Protection of the portable tank from impact or overturning by a vacuum insulation jacket.

6.7.4.13 Design approval

6.7.4.13.1 The competent authority or its authorised body must issue a design approval certificate for any new design of a portable tank. This certificate must attest that a portable tank has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter. When a series of portable tanks is manufactured without change in the design, the certificate must be valid for the entire series. The certificate must refer to the prototype test report, the refrigerated liquefied gases allowed to be transported, the materials of construction of the shell and jacket and an approval number. The approval number must consist of the distinguishing sign or mark of the State in whose territory the approval was granted, indicated by the distinguishing sign for use in international road traffic[1](for Australia, the letters ‘AUS’), and a registration number. Any alternative arrangements according to 6.7.1.2 must be indicated on the certificate. A design approval may serve for the approval of smaller portable tanks made of materials of the same kind and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.4.13.2 The prototype test report for the design approval must include at least the following:

(a) The results of the applicable frame-work test specified in ISO 1496-3:1995;

(b) The results of the initial inspection and test in 6.7.4.14.3; and

(c) The results of the impact test in 6.7.4.14.1, when applicable.

6.7.4.14 Inspection and testing

6.7.4.14.1 Portable tanks meeting the definition of container in the International Convention for Safe Containers (CSC), 1972, as amended, must not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the Manual for Tests and Criteria, Part IV, Section 40

6.7.4.14.2 The tank and items of equipment of each portable tank must be inspected and tested before being put into service for the first time (initial inspection and test) and thereafter at not more than five-year intervals (5 year periodic inspection and test) with an intermediate periodic inspection and

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[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

test (2.5 year periodic inspection and test) midway between the 5 year periodic inspections and tests. The 2.5 year inspection and test may be performed within 3 months of the specified date. An exceptional inspection and test must be performed regardless of the last periodic inspection and test when necessary according to 6.7.4.14.7.

6.7.4.14.3 The initial inspection and test of a portable tank must include a check of the design characteristics, an internal and external examination of the portable tank shell and its fittings with due regard to the refrigerated liquefied gases to be transported, and a pressure test referring to the test pressures according to 6.7.4.3.2. The pressure test may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorised body. Before the portable tank is placed into service, a leakproofness test and a test of the satisfactory operation of all service equipment must also be performed. When the shell and its fittings have been pressure-tested separately, they must be subjected together after assembly to a leakproofness test. All welds subject to full stress level must be inspected during the initial test by radiographic, ultrasonic, or another suitable non-destructive test method. This does not apply to the jacket.

6.7.4.14.4 The 5 and 2.5 year periodic inspection and test must include an external examination of the portable tank and its fittings with due regard to the refrigerated liquefied gases transported, a leakproofness test, a test of the satisfactory operation of all service equipment and a vacuum reading, when applicable. In the case of non-vacuum insulated tanks, the jacket and insulation must be removed during a 2.5 year and a 5 year periodic inspection and tests but only to the extent necessary for a reliable appraisal.

6.7.4.14.5 <Reserved>

6.7.4.14.6 A portable tank may not be filled and offered for transport after the date of expiry of the last 5 year or 2.5 year periodic inspection and test as required by 6.7.4.14.2. However a portable tank filled prior to the date of expiry of the last periodic inspection and test may be transported for a period not to exceed three months beyond the date of expiry of the last periodic test or inspection. In addition, a portable tank may be transported after the date of expiry of the last periodic test and inspection:

(a) After emptying but before cleaning, for purposes of performing the next required test or inspection prior to refilling; and

(b) Unless otherwise exempted by the competent authority, for a period not to exceed six months beyond the date of expiry of the last periodic test or inspection, in order to allow the return of dangerous goods for proper disposal or recycling. Reference to this exemption must be mentioned in the transport document.

6.7.4.14.6.1 Except as provided for in 6.7.4.14.6, portable tanks which have missed the timeframe for their scheduled 5 year or 2.5 year periodic inspection and test may only be filled and offered for transport if a new 5 year periodic inspection and test is performed according to 6.7.4.14.4

6.7.4.14.7 The exceptional inspection and test is necessary when the portable tank shows evidence of damaged or corroded areas, leakage, or any other conditions that indicate a deficiency that could affect the integrity of the portable tank. The extent of the exceptional inspection and test must depend on the amount of damage or deterioration of the portable tank. It must include at least the 2.5 year inspection and test according to 6.7.4.14.4.

6.7.4.14.8 The internal examination during the initial inspection and test must ensure that the shell is inspected for pitting, corrosion, or abrasions, dents, distortions, defects in welds or any other conditions, that might render the portable tank unsafe for transport.

6.7.4.14.9 The external examination must ensure that:

(a) The external piping, valves, pressurising/cooling systems when applicable and gaskets are inspected for corroded areas, defects, or any other conditions, including leakage, that might render the portable tank unsafe for filling, discharge or transport;
(b) There is no leakage at any manhole covers or gaskets;
(c) Missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;
(d) All emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves must be operated to demonstrate proper operation;
(e) Required marks on the portable tank are legible and in accordance with the applicable requirements; and
(f) The framework, the supports and the arrangements for lifting the portable tank are in satisfactory condition.

6.7.4.14.10 The inspections and tests in 6.7.4.14.1, 6.7.4.14.3, 6.7.4.14.4 and 6.7.4.14.7 must be performed or witnessed by an expert recognised by the competent authority or its authorised body. When the pressure test is a part of the inspection and test, the test pressure must be the one indicated on the data plate of the portable tank. While under pressure, the portable tank must be inspected for any leaks in the shell, piping or equipment.

6.7.4.14.11 In all cases when cutting, burning or welding operations on the shell of a portable tank have been effected, that work must be to the approval of the competent authority or its authorised body taking into account the pressure vessel code used for the construction of the shell. A pressure test to the original test pressure must be performed after the work is completed.

6.7.4.14.12 When evidence of any unsafe condition is discovered, the portable tank must not be returned to service until it has been corrected and the test is repeated and passed.

6.7.4.15 Marking

6.7.4.15.1 Every portable tank must be fitted with a corrosion resistant metal plate permanently attached to the portable tank in a conspicuous place readily accessible for inspection. When for reasons of portable tank arrangements the plate cannot be permanently attached to the shell, the shell must be marked with at least the information required by the pressure vessel code. As a minimum, at least the following information must be marked on the plate by stamping or by any other similar method:

(a) Owner information

- (i) Owner's registration number;

(b) Manufacturing information

- (i) Country of manufacture;
- (ii) Year of manufacture;
- (iii) Manufacturer's name or mark;
- (iv) Manufacturer's serial number;

(c) Approval information

- (i) The United Nations packaging symbol

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6 or 6.7;

;

- (ii) Approval country;
- (iii) Authorised body for the design approval;
- (iv) Design approval number;
- (v) Letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);
- (vi) Pressure vessel code to which the shell is designed;

(d) Pressures

- (i) MAWP (in bar gauge or kPa gauge)[6];
- (ii) Test pressure (in bar gauge or kPa gauge)[6];
- (iii) Initial pressure test date (month and year);
- (iv) Identification mark of the initial pressure test witness;

(e) Temperatures

- (i) Minimum design temperature (in °C)[6];

(f) Materials

- (i) Shell material(s) and material standard reference(s);
- (ii) Equivalent thickness in reference steel (in mm)[6];

(g) Capacity

- (i) Tank water capacity at 20 °C (in litres)[6];

(h) Insulation

(i) Either "Thermally insulated" or "Vacuum insulated" (as applicable);

(ii) Effectiveness of the insulation system (heat influx) (in Watts)[6];

(i) Holding times – For each refrigerated liquefied gas permitted to be transported in the portable tank:

(i) Name, in full, of the refrigerated liquefied gas;

(ii) Reference holding time (in days or hours)[6];

(iii) Initial pressure (in bar gauge or kPa gauge)[6];

(iv) Degree of filling (in kg)[6];

(j) Periodic inspections and tests

(i) Type of the most recent periodic test (2.5-year, 5-year or exceptional);

(ii) Date of the most recent periodic test (month and year);

(i) Identification mark of the authorised body who performed or witnessed the most recent test.

Note: 6. Means the unit must be indicated.

Figure 6.7.4.15.1: Example of identification plate marking

<table>
<tr><td colspan="3">Owner’s registration number</td><td colspan="3"></td></tr>
<tr><td colspan="6">MANUFACTURING INFORMATION</td></tr>
<tr><td colspan="3">Country of manufacture</td><td colspan="3"></td></tr>
<tr><td colspan="3">Year of manufacture</td><td colspan="3"></td></tr>
<tr><td colspan="3">Manufacturer</td><td colspan="3"></td></tr>
<tr><td colspan="3">Manufacturer’s serial number</td><td colspan="3"></td></tr>
<tr><td colspan="6">APPROVAL INFORMATION</td></tr>
<tr><td rowspan="3">u n</td><td colspan="3">Approval country</td><td colspan="2"></td></tr>
<tr><td colspan="3">Authorised body for design approval</td><td colspan="2"></td></tr>
<tr><td colspan="3">Design approval number</td><td></td><td>‘AA’ (if applicable)</td></tr>
<tr><td colspan="3">Shell design code (pressure vessel code)</td><td colspan="3"></td></tr>
<tr><td colspan="6">PRESSURES</td></tr>
<tr><td colspan="3">MAWP</td><td colspan="3">bar or kPa</td></tr>
<tr><td colspan="3">Test pressure</td><td colspan="3">bar or kPa</td></tr>
<tr><td colspan="2">Initial pressure test date:</td><td>(mm/yyyy)</td><td>Witness stamp:</td><td colspan="2"></td></tr>
<tr><td colspan="6">TEMPERATURES</td></tr>
<tr><td colspan="3">Minimum design temperature</td><td colspan="3">°C</td></tr>
<tr><td colspan="6">MATERIALS</td></tr>
<tr><td colspan="3">Shell material(s) and material standard reference(s)</td><td colspan="3"></td></tr>
<tr><td colspan="3">Equivalent thickness in reference steel</td><td colspan="3">mm</td></tr>
<tr><td colspan="6">CAPACITY</td></tr>
<tr><td colspan="3">Tank water capacity at 20 °C</td><td colspan="3">litres</td></tr>
<tr><td colspan="6">INSULATION</td></tr>
<tr><td colspan="6">‘Thermally insulated’ or ‘Vacuum insulated’ (as applicable)</td></tr>
<tr><td colspan="3">Heat influx</td><td colspan="3">Watts</td></tr>
<tr><td colspan="6">HOLDING TIMES</td></tr>
<tr><td colspan="2">Refrigerated liquefied gas(es) permitted</td><td colspan="2">Reference holding time</td><td>Initial pressure</td><td>Degree of filling</td></tr>
<tr><td colspan="2"></td><td colspan="2">days or hours</td><td>bar or kPa</td><td>kg</td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td><td></td><td></td></tr>
<tr><td colspan="6">PERIODIC INSPECTIONS / TESTS</td></tr>
<tr><td>Test type</td><td>Test date</td><td>Witness stamp</td><td>Test type</td><td>Test date</td><td>Witness stamp</td></tr>
<tr><td></td><td>(mm/yyyy)</td><td></td><td></td><td>(mm/yyyy)</td><td></td></tr>
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</table>

6.7.4.15.2 The following information must be durably marked either on the portable tank itself or on a metal plate firmly secured to the portable tank.

Name of the owner and the operator

Name of the refrigerated liquefied gas being transported (and minimum mean bulk temperature)

Maximum permissible gross mass (MPGM) ________ kg

Unladen (tare) mass ________ kg

Actual holding time for gas being transported ______ days (or hours)

Portable tank instruction in accordance with 4.2.5.2.6

NOTE: *For the identification of the refrigerated liquefied gas(es) being transported, see also Part 5.*

6.7.4.15.3 If a portable tank is designed and approved for handling in open seas, the words “OFFSHORE PORTABLE TANK” must be marked on the identification plate.

6.7.5 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF MULTIPLE-ELEMENT GAS CONTAINERS (MEGCS) INTENDED FOR THE TRANSPORT OF NON-REFRIGERATED GASES

6.7.5.1 Application and Definitions

6.7.5.1.1 Application

This Section must be applied in conjunction with the legislation applicable in the particular State or Territory to pressure vessels. Where there is conflict, the requirements of that legislation and any Codes and Standards mandated by that legislation take precedence over this Section.

6.7.5.1.2 Definitions

For the purposes of this section:

Elements are cylinders, tubes or bundles of cylinders;

Leakproofness test means a test using gas subjecting the elements and the service equipment of the MEGC to an effective internal pressure of not less than 20% of the test pressure;

Manifold means an assembly of piping and valves connecting the filling and/or discharge openings of the elements;

Maximum permissible gross mass (MPGM) means the sum of the tare mass of the MEGC and the heaviest load authorised for transport;

Service equipment means measuring instruments and filling, discharge, venting and safety devices;

Structural equipment means the reinforcing, fastening, protective and stabilising members external to the elements.

6.7.5.2 General design and construction requirements

6.7.5.2.1 The MEGC must be capable of being filled and discharged without the removal of its structural equipment. It must possess stabilising members external to the elements to provide structural integrity for handling and transport. MEGCs must be designed and constructed with supports to provide a secure base during transport and with lifting and tie-down attachments which are adequate for lifting the MEGC including when loaded to its maximum permissible gross mass. The MEGC must be designed to be loaded onto a cargo transport unit or ship and must be equipped with skids, mountings or accessories to facilitate mechanical handling.

6.7.5.2.2 MEGCs must be designed, manufactured and equipped in such a way as to withstand all conditions to which they will be subjected during normal conditions of handling and transport. The design must take into account the effects of dynamic loading and fatigue.

6.7.5.2.3 Elements of an MEGC must be made of seamless steel or composite construction and be constructed and tested according to Chapter 6.2. All of the elements in an MEGC must be of the same design type.

6.7.5.2.4 Elements of MEGCs, fittings and pipework must be:

(a) compatible with the substances intended to be transported (for gases see ISO 11114-1:2012 + Amd 1:2017 and ISO 11114-2:2013); or

(b) properly passivated or neutralised by chemical reaction.

6.7.5.2.5 Contact between dissimilar metals which could result in damage by galvanic action must be avoided.

6.7.5.2.6 The materials of the MEGC, including any devices, gaskets, and accessories, must not adversely affect the gases intended for transport in the MEGC.

6.7.5.2.7 MEGCs must be designed to withstand, without loss of contents, at least the internal pressure due to the contents, and the static, dynamic and thermal loads during normal conditions of handling and transport. The design must demonstrate that the effects of fatigue, caused by repeated application of these loads through the expected life of the multiple-element gas container, have been taken into account.

6.7.5.2.8 MEGCs and their fastenings must, under the maximum permissible load, be capable of withstanding the following separately applied static forces:

(a) in the direction of travel: twice the MPGM multiplied by the acceleration due to gravity (g)[5];

(b) horizontally at right angles to the direction of travel: the MPGM (when the direction of travel is not clearly determined, the forces must be equal to twice the MPGM) multiplied by the acceleration due to gravity (g)[5];

(c) vertically upwards: the MPGM multiplied by the acceleration due to gravity (g)[5]; and

(d) vertically downwards: twice the MPGM (total loading including the effect of gravity) multiplied by the acceleration due to gravity (g)[5].

Note: 5 means g = 9.81 metres per second

6.7.5.2.9 Under the forces defined above, the stress at the most severely stressed point of the elements must not exceed the values given in either the relevant standards of 6.2.2.1 or, if the elements are not designed, constructed and tested according to those standards, in the technical code or standard recognised or approved by the competent authority of the country of use (see 6.2.3.1).

6.7.5.2.10 Under each of the forces in 6.7.5.2.8, the safety factor for the framework and fastenings to be observed must be as follows:

(a) for steels having a clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed yield strength; or

(b) for steels with no clearly defined yield point, a safety factor of 1.5 in relation to the guaranteed 0.2% proof strength and, for austenitic steels, the 1% proof strength.

6.7.5.2.11 MEGCs intended for the transport of flammable gases must be capable of being electrically earthed.

6.7.5.2.12 The elements must be secured in a manner that prevents undesired movement in relation to the structure and the concentration of harmful localised stresses.

6.7.5.3 Service equipment

6.7.5.3.1 Service equipment must be configured or designed to prevent damage that could result in the release of the pressure receptacle contents during normal conditions of handling and transport. When the connection between the frame and the elements allows relative movement between the sub-assemblies, the equipment must be so fastened as to permit such movement without damage to working parts. The manifolds, the discharge fittings (pipe sockets, shut-off devices), and the stop-valves must be protected from being wrenched off by external forces. Manifold piping leading to shut-off valves must be sufficiently flexible to protect the valves and the piping from shearing, or releasing the pressure receptacle contents. The filling and discharge devices (including flanges or threaded plugs) and any protective caps must be capable of being secured against unintended opening.

6.7.5.3.2 Each element intended for the transport of gases of Division 2.3 must be fitted with a valve. The manifold for liquefied gases of Division 2.3 must be so designed that the elements can be filled separately and be kept isolated by a valve capable of being sealed. For the transport of gases of Division 2.1, the elements must be divided into groups of not more than 3000 litres isolated by a valve.

6.7.5.3.3 For filling and discharge openings of the MEGC, two valves in series must be placed in an accessible position on each discharge and filling pipe. One of the valves may be a non-return valve. The filling and discharge devices may be fitted to a manifold. For sections of piping which can be closed at both ends and where a liquid product can be trapped, a pressure-relief valve must be provided to prevent excessive pressure build-up. The main isolation valves on an MEGC must be clearly marked to indicate their directions of closure. Each stop-valve or other means of closure must be designed and constructed to withstand a pressure equal to or greater than 1.5 times the test pressure of the MEGC. All stop-valves with screwed spindles must close by a clockwise motion of the handwheel. For other stop-valves, the position (open or closed) and direction of closure must be clearly indicated. All stop-valves must be designed and positioned to prevent unintentional opening. Ductile metals must be used in the construction of valves or accessories.

6.7.5.3.4 Piping must be designed, constructed and installed so as to avoid damage due to expansion and contraction, mechanical shock and vibration. Joints in tubing must be brazed or have an equally strong metal union. The melting point of brazing materials must be no lower than 525 °C. The rated pressure of the service equipment and of the manifold must be not less than two thirds of the test pressure of the elements.

6.7.5.4 Pressure-relief devices

6.7.5.4.1 The elements of MEGCs used for the transport of UN 1013 carbon dioxide and UN 1070 nitrous oxide must be isolated by a valve into assemblies of not more than 3000 litres. Each assembly must be fitted with one or more pressure relief devices. If so required by the competent authority of the country of use, MEGCs for other gases must be fitted with pressure relief devices as specified by that competent authority.

6.7.5.4.2 When pressure relief devices are fitted, every element or group of elements of an MEGC that can be isolated must then be fitted with one or more pressure relief devices. Pressure relief devices must be of a type that will resist dynamic forces including liquid surge and must be designed to prevent the entry of foreign matter, the leakage of gas and the development of any dangerous excess pressure.

6.7.5.4.3 MEGCs used for the transport of certain non-refrigerated gases identified in instruction T50 in 4.2.5.2.6 may have a pressure-relief device as required by the competent authority of the country of use. Unless an MEGC in dedicated service is fitted with an approved pressure relief device constructed of materials compatible with the load, such a device must comprise a frangible disc preceding a spring-loaded device. The space between the frangible disc and the spring-loaded device may be equipped with a pressure gauge or a suitable telltale indicator. This arrangement permits the detection of disc rupture, pinholing or leakage which could cause a malfunction of the pressure relief device. The frangible disc must rupture at a nominal pressure 10% above the start-to-discharge pressure of the spring-loaded device.

6.7.5.4.4 In the case of multi-purpose MEGCs used for the transport of low-pressure liquefied gases, the pressure-relief devices must open at a pressure as specified in 6.7.3.7.1 for the gas having the highest maximum allowable working pressure of the gases allowed to be transported in the MEGC.

6.7.5.5 Capacity of pressure relief devices

6.7.5.5.1 The combined delivery capacity of the pressure relief devices when fitted must be sufficient that, in the event of total fire engulfment of the MEGC, the pressure (including accumulation) inside the elements does not exceed 120% of the set pressure of the pressure relief device. The formula provided in CGA S-1.2-2003 “Pressure Relief Device Standards, Part 2, Cargo and Portable Tanks for Compressed Gases” must be used to determine the minimum total flow capacity for the system of pressure relief devices. CGA S-1.1-2003 “Pressure Relief Device Standards, Part 1, Cylinders for Compressed Gases” may be used to determine the relief capacity of individual elements. Spring-loaded pressure relief devices may be used to achieve the full relief capacity prescribed in the case of low pressure liquefied gases. In the case of multi-purpose MEGCs, the combined delivery capacity of the pressure-relief devices must be taken for the gas which requires the highest delivery capacity of the gases allowed to be transported in the MEGC.

6.7.5.5.2 To determine the total required capacity of the pressure relief devices installed on the elements for the transport of liquefied gases, the thermodynamic properties of the gas must be considered (see, for example, CGA S-1.2-2003 “Pressure Relief Device Standards – Part 2 – Cargo and Portable Tanks for Compressed Gases” for low pressure liquefied gases and CGA S-1.1-2003 “Pressure Relief Device Standards, Part 1, Cylinders for Compressed Gases” for high pressure liquefied gases).

6.7.5.6 Marking of pressure-relief devices

6.7.5.6.1 Pressure relief devices must be clearly and permanently marked with the following:

(a) the manufacturer's name and relevant catalogue number.

(b) the set pressure and/or the set temperature;

(c) the date of the last test;

(d) The cross sectional flow areas of the spring loaded pressure-relief devices and frangible discs in mm².

6.7.5.6.2 The rated flow capacity marked on spring loaded pressure relief devices for low pressure liquefied gases must be determined according to ISO 4126 1:2004 and ISO 4126-7:2004.

6.7.5.7 Connections to pressure-relief devices

6.7.5.7.1 Connections to pressure-relief devices must be of sufficient size to enable the required discharge to pass unrestricted to the pressure relief device.

No stop-valve must be installed between the element and the pressure-relief devices, except when duplicate devices are provided for maintenance or other reasons, and the stop-valves serving the devices actually in use are locked open, or the stop-valves are interlocked so that at least one of the duplicate devices is always operable and capable of meeting the requirements of 6.7.5.5. There must be no obstruction in an opening leading to or leaving from a vent or pressure-relief device which might restrict or cut-off the flow from the element to that device. The opening through all piping and fittings must have at least the same flow area as the inlet of the pressure relief device to which it is connected. The nominal size of the discharge piping must be at least as large as that of the pressure relief device outlet. Vents from the pressure-relief devices, when used, must deliver the relieved vapour or liquid to the atmosphere in conditions of minimum backpressure on the relieving device.

6.7.5.8 Siting of pressure-relief devices

6.7.5.8.1 Each pressure relief device must, under maximum filling conditions, be in communication with the vapour space of the elements for the transport of liquefied gases. The devices, when fitted, must be so arranged as to ensure that the escaping vapour is discharged upwards and unrestrictedly as to prevent any impingement of escaping gas or liquid upon the MEGC, its elements or personnel. For flammable, pyrophoric and oxidising gases, the escaping gas must be directed away from the element in such a manner that it cannot impinge upon the other elements. Heat resistant protective devices which deflect the flow of gas are permissible provided the required pressure relief device capacity is not reduced.

6.7.5.8.2 Arrangements must be made to prevent access to the pressure-relief devices by unauthorised persons and to protect the devices from damage caused by the MEGC overturning.

6.7.5.9 Gauging devices

6.7.5.9.1 When a MEGC is intended to be filled by mass, it must be equipped with one or more gauging devices. Level-gauges made of glass or other fragile material must not be used.

6.7.5.10 MEGC supports, frameworks, lifting and tie-down attachments

6.7.5.10.1 MEGCs must be designed and constructed with a support structure to provide a secure base during transport. The forces specified in 6.7.5.2.8 and the safety factor specified in 6.7.5.2.10 must be considered in this aspect of the design. Skids, frameworks, cradles or other similar structures are acceptable.

6.7.5.10.2 The combined stresses caused by element mountings (e.g. cradles, frameworks, etc.) and MEGC lifting and tie-down attachments must not cause excessive stress in any element. Permanent lifting and tie-down attachments must be fitted to all MEGCs. In no case must mountings or attachments be welded onto the elements.

6.7.5.10.3 In the design of supports and frameworks, the effects of environmental corrosion must be taken into account.

6.7.5.10.4 When MEGCs are not protected during transport, according to 4.2.5.3, the elements and service equipment must be protected against damage resulting from lateral or longitudinal impact or overturning. External fittings must be protected so as to preclude the release of the elements' contents upon impact or overturning of the MEGC on its fittings. Particular attention must be paid to the protection of the manifold. Examples of protection include:

(a) protection against lateral impact which may consist of longitudinal bars;

(b) protection against overturning which may consist of reinforcement rings or bars fixed across the frame;

(c) protection against rear impact which may consist of a bumper or frame;

(d) protection of the elements and service equipment against damage from impact or overturning by use of an ISO frame in accordance with the relevant provisions of ISO 1496-3:1995.

6.7.5.11 Design approval

6.7.5.11.1 The competent authority or its authorised body must issue a design approval certificate for any new design of a MEGC. This certificate must attest that the MEGC has been surveyed by that authority, is suitable for its intended purpose and meets the requirements of this Chapter, the applicable provisions for gases of Chapter 4.1 and of packing instruction P200. When a series of MEGCs are manufactured without change in the design, the certificate must be valid for the entire series. The certificate must refer to the prototype test report, the materials of construction of the manifold, the standards to which the elements are made and an approval number. The approval number must consist of the distinguishing sign or mark of the country granting the approval, indicated by the distinguishing sign used on vehicles in international road traffic[1](for Australia, the letters 'AUS'), and a registration number. Any alternative arrangements according to 6.7.1.2 must be indicated on the certificate. A design approval may serve for the approval of smaller MEGCs made of materials of the same type and thickness, by the same fabrication techniques and with identical supports, equivalent closures and other appurtenances.

6.7.5.11.2 The prototype test report for the design approval must include at least the following:

(a) the results of the applicable framework test specified in ISO 1496-3:1995;

(b) the results of the initial inspection and test specified in 6.7.5.12.3;

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[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

(c) the results of the impact test specified in 6.7.5.12.1; and

(d) certification documents verifying that the cylinders and tubes comply with the applicable standards.

6.7.5.12 Inspection and testing

6.7.5.12.1 MEGCs meeting the definition of container in the CSC must not be used unless they are successfully qualified by subjecting a representative prototype of each design to the Dynamic, Longitudinal Impact Test prescribed in the Manual for Tests and Criteria, Part IV, Section 41.

6.7.5.12.2 The elements and items of equipment of each MEGC must be inspected and tested before being put into service for the first time (initial inspection and test). Thereafter, MEGCs must be inspected at no more than five-year intervals (5 year periodic inspection). An exceptional inspection and test must be performed, regardless of the last periodic inspection and test, when necessary according to 6.7.5.12.5.

6.7.5.12.3 The initial inspection and test of an MEGC must include a check of the design characteristics, an external examination of the MEGC and its fittings with due regard to the gases to be transported, and a pressure test performed at the test pressures according to packing instruction P200. The pressure test of the manifold may be performed as a hydraulic test or by using another liquid or gas with the agreement of the competent authority or its authorised body. Before the MEGC is placed into service, a leakproofness test and a test of the satisfactory operation of all service equipment must also be performed. When the elements and their fittings have been pressure-tested separately, they must be subjected together after assembly to a leakproofness test.

6.7.5.12.4 The 5-year periodic inspection must include an external examination of the structure, the elements and the service equipment in accordance with 6.7.5.12.6. The elements and the piping must be tested at the periodicity specified in packing instruction P200 and in accordance with the provisions described in 6.2.1.6. When the elements and equipment have been pressure-tested separately, they must be subjected together after assembly to a leakproofness test.

6.7.5.12.5 An exceptional inspection and test is necessary when the MEGC shows evidence of damaged or corroded areas, leakage, or other conditions that indicate a deficiency that could affect the integrity of the MEGC. The extent of the exceptional inspection and test must depend on the amount of damage or deterioration of the MEGC. It must include at least the examinations required under 6.7.5.12.6.

6.7.5.12.6 The examinations must ensure that:

(a) the elements are inspected externally for pitting, corrosion, abrasions, dents, distortions, defects in welds or any other conditions, including leakage, that might render the MEGC unsafe for transport;

(b) the piping, valves, and gaskets are inspected for corroded areas, defects, and other conditions, including leakage, that might render the MEGC unsafe for filling, discharge or transport;

(c) missing or loose bolts or nuts on any flanged connection or blank flange are replaced or tightened;

(d) all emergency devices and valves are free from corrosion, distortion and any damage or defect that could prevent their normal operation. Remote closure devices and self-closing stop-valves must be operated to demonstrate proper operation;

(e) required marks on the MEGC are legible and in accordance with the applicable requirements; and

(f) the framework, the supports and the arrangements for lifting the MEGC are in satisfactory condition.

6.7.5.12.7 The inspections and tests in 6.7.5.12.1, 6.7.5.12.3, 6.7.5.12.4 and 6.7.5.12.5 must be performed or witnessed by a body authorised by the competent authority. When the pressure test is a part of the inspection and test, the test pressure must be the one indicated on the data plate of the MEGC. While under pressure, the MEGC must be inspected for any leaks in the elements, piping or equipment.

6.7.5.12.8 When evidence of any unsafe condition is discovered, the MEGC must not be returned to service until it has been corrected and the applicable tests and verifications are passed.

6.7.5.13 Marking

6.7.5.13.1 Every MEGC must be fitted with a corrosion resistant metal plate permanently attached to the MEGC in a conspicuous place readily accessible for inspection. The metal plate must not be affixed to the elements. The elements must be marked in accordance with Chapter 6.2. As a minimum, at least the following information must be marked on the plate by stamping or by any other similar method:

(a) Owner information

- (i) Owner's registration number;

(b) Manufacturing information

- (i) Country of manufacture;
- (ii) Year of manufacture;
- (iii) Manufacturer's name or mark;
- (iv) Manufacturer's serial number;

(c) Approval information

- (i) The United Nations packaging symbol u n ;

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6 or 6.7;

(ii) Approval country;

(iii) Authorised body for the design approval;

(iv) Design approval number;

(v) Letters 'AA', if the design was approved under alternative arrangements (see 6.7.1.2);

(d) Pressures

(i) Test pressure (in bar gauge)*;

(ii) Initial pressure test date (month and year);

(iii) Identification mark of the initial pressure test witness;

(e) Temperatures

(i) Design temperature range (in °C)*;

(f) Elements / Capacity

(i) Number of elements;

(ii) Total water capacity (in litres)*;

(g) Periodic inspections and tests

(i) Type of the most recent periodic test (5-year or exceptional);

(ii) Date of the most recent periodic test (month and year);

(iii) Identification mark of the authorised body who performed or witnessed the most recent test.

* the unit used must be indicated.

Figure 6.7.5.13.1: Example of identification plate marking

Owner's registration number			
MANUFACTURING INFORMATION			
Country of manufacture			
Year of manufacture			
Manufacturer			
Manufacturer's serial number			
APPROVAL INFORMATION			
u n	Approval country		
	Authorised body for design approval		
	Design approval number		'AA' (if applicable)
PRESSURES			
Test pressure		bar	
Initial pressure test date:	(mm/yyyy)	Witness stamp:	
TEMPERATURES			
Design temperature range		°C to °C	
ELEMENTS / CAPACITY			
Number of elements			
Total water capacity		litres	
PERIODIC INSPECTIONS / TESTS			

Test type	Test date	Witness stamp	Test type	Test date	Witness stamp
	(mm/yyyy)			(mm/yyyy)	

6.7.5.13.2 The following information must be durably marked on a metal plate firmly secured to the MEGC:

Name of the operator

Maximum permissible load mass ________ kg

Working pressure at 15°C ________ bar gauge

Maximum permissible gross mass (MPGM) __________ kg

Unladen (tare) mass _________ kg

CHAPTER 6.8 - REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF BULK CONTAINERS

6.8.1 DEFINITIONS

For the purposes of this section:

Closed bulk container means a totally closed bulk container having a rigid roof, sidewalls, end walls and floor (including hopper-type bottoms). The term includes bulk containers with an opening roof, side or end wall that can be closed during transport. Closed bulk containers may be equipped with openings to allow for the exchange of vapours and gases with air and which prevent under normal conditions of transport the release of solid contents as well as the penetration of rain and splash water.

Flexible bulk container means a flexible container with a capacity not exceeding 15 m^3 and includes liners and attached handling devices and service equipment.

Sheeted bulk container means an open top bulk container with rigid bottom (including hopper-type bottom), side and end walls and a non-rigid covering;

6.8.2 APPLICATION AND GENERAL REQUIREMENTS

6.8.2.1 Bulk containers and their service and structural equipment must be designed and constructed to withstand, without loss of contents, the internal pressure of the contents and the stresses of normal handling and transport.

6.8.2.2 Where a discharge valve is fitted, it must be capable of being made secure in the closed position and the whole discharge system must be suitably protected from damage. Valves having lever closures must be able to be secured against unintended opening and the open or closed position must be readily apparent.

6.8.2.3 Code for designating types of bulk container

The following table indicates the codes to be used for designating types of bulk containers:

Types of bulk containers	Code
Sheeted bulk container	BK1
Closed bulk container	BK2
Flexible bulk container	BK3

6.8.2.4 In order to take account of progress in science and technology, the use of alternative arrangements which offer at least equivalent safety as provided by the requirements of this chapter may be considered by the competent authority.

6.8.3 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF FREIGHT CONTAINERS USED AS BK1 OR BK2 BULK CONTAINERS

6.8.3.1 Design and construction requirements

6.8.3.1.1 The general design and construction requirements of this section are deemed to be met if the bulk container complies with the requirements of ISO 1496-4:1991 "Series 1 Freight containers- Specification and testing - Part 4: Non pressurised containers for dry bulk" and the container is siftproof.

6.8.3.1.2 Freight containers designed and tested in accordance with ISO 1496 1:1990 "Series 1 Freight containers- Specification and testing – Part 1: General cargo containers for general purposes" must be equipped with operational equipment which is, including its connection to the freight container, designed to strengthen the end walls and to improve the longitudinal restraint as necessary to comply with the test requirements of ISO 1496-4:1991 as relevant.

6.8.3.1.3 Bulk containers must be siftproof. Where a liner is used to make the container siftproof it must be made of a suitable material. The strength of material used for, and the construction of, the liner must be appropriate to the capacity of the container and its intended use. Joins and closures of the liner must withstand pressures and impacts liable to occur under normal conditions of handling and transport. For ventilated bulk containers any liner must not impair the operation of ventilating devices.

6.8.3.1.4 The operational equipment of bulk containers designed to be emptied by tilting must be capable of withstanding the total filling mass in the tilted orientation.

6.8.3.1.5 Any movable roof or side or end wall or roof section must be fitted with locking devices with securing devices designed to show the locked state to an observer at ground level.

6.8.3.2 Service equipment

6.8.3.2.1 Filling and discharge devices must be so constructed and arranged as to be protected against the risk of being wrenched off or damaged during transport and handling. The filling and discharge devices must be capable of being secured against unintended opening. The open and closed position and direction of closure must be clearly indicated.

6.8.3.2.2 Seals of openings must be so arranged as to avoid any damage by the operation, filling and emptying of the bulk container.

6.8.3.2.3 Where ventilation is required bulk containers must be equipped with means of air exchange, either by natural convection, e.g. by openings, or active elements, e.g. fans. The ventilation must be designed to prevent negative pressures in the container at all times. Ventilating elements of bulk containers for the transport of flammable substances or substances emitting flammable gases or vapours must be designed so as not to be a source of ignition.

6.8.3.3 Inspection and testing

6.8.3.3.1 Freight containers used maintained and qualified as bulk containers in accordance with the requirements of this section must be tested and approved in accordance with the Convention for Safe Containers (CSC), 1972, as amended.

6.8.3.3.2 Freight containers used and qualified as bulk containers must be inspected periodically according to the CSC.

6.8.3.4 Marking

6.8.3.4.1 Freight containers used as bulk containers must be marked with a Safety Approval Plate in accordance with the CSC.

6.8.4 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION AND APPROVAL OF BK1 OR BK2 BULK CONTAINERS OTHER THAN FREIGHT CONTAINERS

6.8.4.1 Bulk containers covered in this section include skips, offshore bulk containers, bulk bins, swap bodies, trough shaped containers, roller containers, and load compartments of vehicles.

6.8.4.2 These bulk containers must be designed and constructed so as to be strong enough to withstand the shocks and loadings normally encountered during transport including, as applicable, transhipment between modes of transport.

6.8.4.3 Vehicles must comply with the requirements of, and be acceptable to, the competent authority responsible for land transport of the materials to be transported in bulk.

6.8.4.4 These bulk containers must be approved by the competent authority and the approval must include the code for designating types of bulk containers in accordance with 6.8.2.3 and the requirements for inspection and testing as appropriate.

6.8.4.5 Where it is necessary to use a liner in order to retain the dangerous goods it must meet the provisions of 6.8.3.1.3.

6.8.4.6 Except where 6.8.4.6.1 applies, the following statement must be shown on the transport document:

"Bulk container BK(x)[1] approved by the competent authority of ……………………".

6.8.4.6.1 For transport only by road or rail within Australia, if the statement required by 6.8.4.6 is clearly and prominently marked on the outside of the bulk container, it may be omitted from the transport document.

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[1] *BK(x) refers to the type of bulk container, BK1 or BK2 (see 6.8.2.3). (Not used from UN 18).*

6.8.5 REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION AND TESTING OF FLEXIBLE BULK CONTAINERS BK3

6.8.5.1 Design and construction requirements

6.8.5.1.1 Flexible bulk containers must be sift-proof.

6.8.5.1.2 Flexible bulk containers must be completely closed to prevent the release of contents.

6.8.5.1.3 Flexible bulk containers must be waterproof.

6.8.5.1.4 Parts of the flexible bulk container which are in direct contact with dangerous goods:

(a) Must not be affected or significantly weakened by those dangerous goods;
(b) Must not cause a dangerous effect e.g. catalysing a reaction or reacting with the dangerous goods; and
(c) Must not allow permeation of the dangerous goods that could constitute a danger under normal conditions of transport.

6.8.5.2 Service equipment and handling devices

6.8.5.2.1 Filling and discharge devices must be so constructed as to be protected against damage during transport and handling. The filling and discharge devices must be capable of being secured against unintended opening.

6.8.5.2.2 Slings of the flexible bulk container, if fitted, must withstand pressure and dynamic forces which can appear in normal conditions of handling and transport.

6.8.5.2.3 The handling devices must be strong enough to withstand repeated use.

6.8.5.3 Inspection and testing

6.8.5.3.1 Each flexible bulk container design type must successfully pass the tests prescribed in this Chapter before being used.

6.8.5.3.2 Tests must also be repeated after each modification of design type which alters the design, material or manner of construction of a flexible bulk container.

6.8.5.3.3 Tests must be carried out on flexible bulk containers prepared as for transport. Flexible bulk containers must be filled to the maximum mass at which they may be used and the contents must be evenly distributed. The substances to be transported in the flexible bulk container may be replaced by other substances except where this would invalidate the results of the tests. When another substance is used it must have the same physical characteristics (mass, grain size, etc.) as the substance to be transported. It is permissible to use additives, such as bags of lead shot, to achieve the requisite total mass of the flexible bulk container, so long as they are placed so that the test results are not affected.

6.8.5.3.4 Flexible bulk containers must be manufactured and tested under a quality assurance programme which satisfies the competent authority, in order to ensure that each manufactured flexible bulk container meets the requirements of this Chapter.

6.8.5.3.5 *Drop test*

6.8.5.3.5.1 Applicability

For all types of flexible bulk containers, as a design type test.

6.8.5.3.5.2 Preparation for testing

The flexible bulk container must be filled to its maximum permissible gross mass.

6.8.5.3.5.3 The flexible bulk container must be dropped onto a target surface that is non-resilient and horizontal. The target surface must be:

(a) Integral and massive enough to be immovable;

(b) Flat with a surface kept free from local defects capable of influencing the test results;

(c) Rigid enough to be non-deformable under test conditions and not liable to become damaged by the tests; and

(d) Sufficiently large to ensure that the test flexible bulk container falls entirely upon the surface.

Following the drop, the flexible bulk container must be restored to the upright position for observation.

6.8.5.3.5.4 Drop height is:

Packing group III: 0.8 m

6.8.5.3.5.5 Criteria for passing the test:

(a) There must be no loss of contents. A slight discharge, e.g. from closures or stitch holes, upon impact is not to be considered to be a failure of the flexible bulk container provided that no further leakage occurs after the container has been restored to the upright position;

(b) There must be no damage which renders the flexible bulk container unsafe to be transported for salvage or for disposal.

6.8.5.3.6 Top lift test

6.8.5.3.6.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.6.2 Preparation for testing

Flexible bulk containers must be filled to six times the maximum net mass, the load being evenly distributed.

6.8.5.3.6.3 A flexible bulk container must be lifted in the manner for which it is designed until clear of the floor and maintained in that position for a period of five minutes.

6.8.5.3.6.4 Criteria for passing the test: there must be no damage to the flexible bulk container or its lifting devices which renders the flexible bulk container unsafe for transport or handling, and no loss of contents.

6.8.5.3.7 Topple test

6.8.5.3.7.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.7.2 Preparation for testing

The flexible bulk container must be filled to its maximum permissible gross mass.

6.8.5.3.7.3 Flexible bulk container must be toppled onto any part of its top by lifting the side furthest from the drop edge upon a target surface that is non-resilient and horizontal. The target surface must be:

(a) Integral and massive enough to be immovable;
(b) Flat with a surface kept free from local defects capable of influencing the test results;
(c) Rigid enough to be non-deformable under test conditions and not liable to become damaged by the tests; and
(d) Sufficiently large to ensure that the test flexible bulk container falls entirely upon the surface.

6.8.5.3.7.4 For all flexible bulk containers, the topple height is specified as follows:

Packing group III: 0.8 m

6.8.5.3.7.5 Criterion for passing the test: there must be no loss of contents. A slight discharge, e.g., from closures or stitch holes, upon impact is not to be considered to be a failure of the flexible bulk container provided that no further leakage occurs.

6.8.5.3.8 Righting test

6.8.5.3.8.1 Applicability

For all types of flexible bulk containers designed to be lifted from the top or side, as a design type test.

6.8.5.3.8.2 Preparation for testing

The flexible bulk container must be filled to not less than 95% of its capacity and to its maximum permissible gross mass.

6.8.5.3.8.3 The flexible bulk container, lying on its side, must be lifted at a speed of at least 0.1 m/s to an upright position, clear of the floor, by no more than half of the lifting devices.

6.8.5.3.8.4 Criterion for passing the test: there must be no damage to the flexible bulk container or its lifting devices which renders the flexible bulk container unsafe for transport or handling.

6.8.5.3.9 Tear test

6.8.5.3.9.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.9.2 Preparation for testing

The flexible bulk container must be filled to its maximum permissible gross mass.

6.8.5.3.9.3 With the flexible bulk container placed on the ground, a 300 mm cut must be made, completely penetrating all layers of the flexible bulk container on a wall of a wide face. The cut must be made at a 45º angle to the principal axis of the flexible bulk container, halfway between the bottom surface and the top level of the contents. The flexible bulk container must then be subjected to a uniformly distributed superimposed load equivalent to twice the maximum gross mass. The load must be applied for at least fifteen minutes. A flexible bulk container which is designed to be lifted from the top or the side must, after removal of the superimposed load, be lifted clear of the floor and maintained in that position for a period of fifteen minutes.

6.8.5.3.9.4 Criterion for passing the test: the cut must not propagate more than 25% of its original length.

6.8.5.3.10 Stacking test

6.8.5.3.10.1 Applicability

For all types of flexible bulk containers as a design type test.

6.8.5.3.10.2 Preparation for testing

The flexible bulk container must be filled to its maximum permissible gross mass.

6.8.5.3.10.3 The flexible bulk container must be subjected to a force applied to its top surface that is four times the design load-carrying capacity for 24 hours.

6.8.5.3.10.4 Criterion for passing the test: there must be no loss of contents during the test or after removal of the load.

6.8.5.4 Test report

6.8.5.4.1 A test report containing at least the following particulars must be drawn up and must be available to the users of the flexible bulk container:

1. Name and address of the test facility;
2. Name and address of applicant (where appropriate);
3. Unique test report identification;

4. Date of the test report;
5. Manufacturer of the flexible bulk container;
6. Description of the flexible bulk container design type (e.g. dimensions, materials, closures, thickness, etc.) and/or photograph(s);
7. Maximum capacity/maximum permissible gross mass;
8. Characteristics of test contents, e.g. particle size for solids;
9. Test descriptions and results;
10. The test report must be signed with the name and status of the signatory.

6.8.5.4.2 The test report must contain statements that the flexible bulk container prepared as for transport was tested in accordance with the appropriate provisions of this Chapter and that the use of other containment methods or components may render it invalid. A copy of the test report must be available to the competent authority.

6.8.5.5 Marking

6.8.5.5.1 Each flexible bulk container manufactured and intended for use according to this Code must bear marks that are durable, legible and placed in a location so as to be readily visible. Letters, numerals and symbols must be at least 24 mm high and must show:

(a) The United Nations packaging symbol u n

This symbol must not be used for any purpose other than certifying that a packaging, a flexible bulk container, a portable tank or a MEGC complies with the relevant requirements in Chapter 6.1, 6.2, 6.3, 6.5, 6.6, 6.7 or 6.8 ;

(b) The code BK3;

(c) A capital letter designating the packing group(s) for which the design type has been approved:

Z for packing group III only;

(d) The month and year (last two digits) of manufacture;

(e) The character(s) identifying the country authorising the allocation of the mark; as indicated by the distinguishing signs used on vehicles in international road traffic[1];

(f) The name or symbol of the manufacturer and other identification of the flexible bulk container as specified by the competent authority;

(g) The stacking test load in kg;

(h) The maximum permissible gross mass in kg.

Marks must be applied in the sequence shown in (a) to (h); each mark, required in these subparagraphs, must be clearly separated, e.g. by a

[1] *Distinguishing sign of the State of registration used on motor vehicles and trailers in international road traffic, e.g. in accordance with the Geneva Convention on Road Traffic of 1949 or the Vienna Convention on Road Traffic of 1968.*

slash or space and presented in a way that ensures that all of the parts of the mark are easily identified.

6.8.5.5.2 Example of marking

(u n) BK3/Z/11 09

RUS/NTT/MK-14-10
56000/14000".

CHAPTER 6.9 - REQUIREMENTS FOR THE DESIGN, CONSTRUCTION, INSPECTION, TESTING AND APPROVAL OF TANK VEHICLES

6.9.1 APPLICATION

The requirements of this Chapter apply to road tank vehicles and rail tank wagons intended for the transport of dangerous goods of Classes 2, 3, 4, 5, 6, 8 and 9.

6.9.2 REQUIREMENTS FOR TANK VEHICLES

6.9.2.1 Approval of tank designs

6.9.2.1.1 The design of a tank that forms part of or is used on a tank vehicle must be approved by the Competent Authority before it can be used for the transport of dangerous goods.

6.9.2.1.2 An application for design approval of a tank must demonstrate compliance with all of the applicable standards and codes that are relevant to the type of tank and vehicle, and the classes and types of dangerous goods it is intended to transport, as follows:

(a) for road tank vehicles - the relevant parts of AS 2809, as detailed in Table 6.1;

(b) for rail tank wagons - such codes or standards as are acceptable to the authority responsible for rail safety[1] and the competent authority;

(c) for pressure vessels –AS 1210;

(d) for tanks to transport anhydrous ammonia –AS 2022.

Table 6.1: Construction standards for road tank vehicles

Standard	Type of dangerous goods
AS 2809 – Part 1	Part 1 applies to all road tank vehicles, in addition to the requirements of the applicable Part 2 – 6 according to the type of goods
AS 2809 – Part 2	Flammable liquids
AS 2809 – Part 3	Liquefied compressed gases
AS 2809 – Part 4	Toxic or corrosive liquids The correct Type of tank (1–5)[§] under this Part should be selected according to the properties of the dangerous goods to be transported
AS 2809 – Part 5	Bitumen-based products
AS 2809 – Part 6	Cryogenic gases & liquids
Table note:	

[1] *Until a recognised Australian standard or national code of practice covering the design of rail tank wagons has been published, it is recommended that tank designs comply with standards applicable in North America or Europe.*

§ Where a Type 4 tank is specified by AS 2809 Part 4, a Type 5 tank may also be used.

6.9.2.1.3 The Competent Authority may also approve the design of a tank that forms part of, or is used, on a tank vehicle and that does not comply with the relevant requirements specified in 6.9.2.1.2 if –

(a) the application for design approval of the tank demonstrates compliance with other criteria which are acceptable to the Competent Authority; and

(b) the Competent Authority is satisfied that the use of the tank will not result in greater risk than a design that complies with the relevant requirements specified in 6.9.2.1.2.

6.9.2.2 Marking

6.9.2.2.1 Every tank vehicle must be fitted with a corrosion resistant metal plate permanently attached to the tank or its mounting in a conspicuous place readily accessible for inspection.

6.9.2.2.2 The compliance plate of a road tank vehicle must be in accordance with AS 2809 and 6.9.2.2.3.

6.9.2.2.3 A compliance plate fixed to a road tank vehicle or a rail tank wagon must include:

(a) the name of the manufacturer of the tank;

(b) the date on which the tank was manufactured;

(c) the tank serial number;

(d) the maximum allowable working pressure for the tank;

(e) the test pressure;

(f) the metallurgical design temperature of the tank if the temperature is above 50°C or below -20°C;

(g) the capacity of the tank;

(h) the maximum mass of dangerous goods that may be transported in the tank under the design approval;

(i) the maximum gross mass of the tank;

(j) the name of the Competent Authority who granted the approval and the approval number;

(k) the initial hydraulic test date and subsequent test dates for the tank;

(l) the name of the authority or organisation that witnessed the last hydraulic test; and

(m) if the design approval is based on compliance with an Australian Standard or other standard or code, the standard or code to which the tank or vehicle has been designed.

6.9.2.2.4 The details required by 6.9.2.2.3 must be stamped, embossed, engraved or otherwise permanently marked on the compliance plate.

6.9.2.3 Inspection and maintenance

6.9.2.3.1 Road tank vehicles must be inspected and maintained in accordance with AS 2809.

6.9.2.3.2 Rail tank wagons must be inspected and maintained in accordance with the relevant design standard (see 6.9.2.1.2).

NOTE: Where the tank of a road or rail tank vehicle is also a pressure vessel, it must be maintained, tested and inspected in accordance with AS 3788 and any State or Territory law applicable to pressure vessels.

CHAPTER 6.10 - FREIGHT CONTAINERS

6.10.1 STANDARDS FOR FREIGHT CONTAINERS

A freight container used to transport dangerous goods must comply with:

(a) the standards specified in AS/NZS 3711 relating to the construction, maintenance and use of freight containers; or

(b) the standards specified by ISO for freight containers used to transport dangerous goods.

NOTE: Freight containers intended for transport by sea must comply with the International Convention for Safe Containers.

CHAPTER 6.11 - SEGREGATION DEVICES

NOTE 1: *Segregation devices may only be used to facilitate the transport of incompatible goods where permitted by Section 9.2.2.*

NOTE 2: *Requirements for packing, using, marking and labelling of segregation devices are in Section 4.4.5.*

6.11.1 TYPES OF SEGREGATION DEVICES

A segregation device may be:

(a) an Overpacking Drum Segregation Device as described in 6.11.2; or

(b) a Type I Segregation Device as detailed in 6.11.3; or

(c) a Type II Segregation Device in accordance with 6.11.4, used in accordance with an approval issued by the Competent Authority in 6.11.6; or

(d) a Non-Type I Underslung Segregation Device.

6.11.2 OVERPACKING DRUM SEGREGATION DEVICE

A removable head drum may be used as an Overpacking Drum Segregation Device provided the drum is:

(a) an approved drum for dangerous goods transport (Type Designator 1A2, 1B2 or 1H2), meeting the appropriate requirements of Chapter 6.1; and

(b) securely closed with its approved lid and closure.

6.11.3 TYPE I SEGREGATION DEVICE

6.11.3.1 A Type I Segregation Device must not exceed 450 litres in capacity. It need not be performance tested.

6.11.3.2 The device must be rigid, of substantial construction, liquid tight, with a permanently attached hinged lid and at least two suitable closing devices.

6.11.3.3 The device must be fixed to the vehicle by bolting, clamping or other suitable means and must not be lifted onto or from the vehicle when filled.

6.11.3.4 The interior of the Segregation Device must be smooth and free of any protrusion or fitting likely to cause damage to the packages within. It must allow for easy cleaning and be free of any cavities wherein spillage, dirt or contaminants might collect.

6.11.4 TYPE II SEGREGATION DEVICE

6.11.4.1 A Type II Segregation Device must be design-type approved in accordance with this sub-section. Each design type must be capable of successfully passing the design type tests specified in 6.11.5 and be approved by the Competent Authority.

6.11.4.2 General requirements

6.11.4.2.1 A Type II Segregation Device must not exceed 3000 litres in capacity.

6.11.4.2.2 A Type II Segregation Device may include a packaging, a large packaging, a tank, an Intermediate Bulk Container or a freight container provided it meets the requirements of this sub-section and is approved by the Competent Authority.

6.11.4.2.3 In approving a Type II Segregation Device, the Competent Authority may restrict the use of a particular device to certain specified dangerous goods or specified classes of dangerous goods.

6.11.4.3 Design and construction requirements

6.11.4.3.1 The segregation device must be of suitable design, construction, materials and strength for the intended service.

6.11.4.3.2 All body panels must be solid, substantial and resistant to penetration. Mesh, crate construction or similar is not acceptable but mesh reinforcing layers may be used. The body and panels must be resistant to or adequately protected from environmental deterioration.

6.11.4.3.3 The segregation device may be of fixed construction or may be designed to be folded, dismantled or collapsed for return transport.

6.11.4.3.4 The device must incorporate a base (which may also function as a lifting device) which raises the floor of the device at least 100mm above the floor of the transport vehicle at all times.

6.11.4.3.5 The segregation device must be designed for safe mechanical handling when fully loaded.

6.11.4.3.6 If intended to be stacked the device must be designed for safe stacking and be sufficiently strong to support the load imposed by similar devices to the maximum height likely to occur in transport.

6.11.4.3.7 The segregation device must be able to be restrained on or attached to the transport vehicle. Restraint components must be of sufficient strength to securely restrain the device when it is loaded to twice the approved gross load. Restraints must be of a type and so positioned that no distortion or undue stress is imposed on the device.

6.11.4.3.8 The interior of the segregation device must be smooth and free of any protrusion or fitting likely to cause damage to the packages transported within. It must allow for cleaning and be free of any cavities in which spillage, dirt or contaminants may collect.

6.11.4.3.9 Each type of segregation device must be designed, manufactured and tested under a quality assurance program in order to ensure that each meets the requirements of this Code.

6.11.5 DESIGN TYPE TESTS FOR TYPE II SEGREGATION DEVICES

6.11.5.1 The tests to which Type II Segregation Devices must be subjected are those specified for Large Packagings in Chapter 6.6, except that:

(a) the preparation for testing must be in accordance with 6.11.5.7; and

(b) irrespective of the intended contents, the drop height must be based on the requirements for packing group III.

6.11.5.2 Subject to 6.11.5.9, tests must be carried out on a segregation device design-type as it would be prepared for transport.

6.11.5.3 One Type II Segregation Device of each type, size and manner of construction must be subjected to the tests specified in order in the table below, as set out in the clauses indicated in the table.

Test	Reference Clause	Applicability
Bottom Lift	6.6.5.3.1	required[a]
Top Lift	6.6.5.3.2	required[a]
Stacking	6..6.5.3.3	required[b]
Drop	6.6.5.3.4	required

Table notes:

a When the device is designed for this means of lifting

b When the device is designed to be stacked.

6.11.5.4 A segregation device must be design type tested to a minimum rating of 0.75 kg per litre of available capacity. The person submitting the segregation device for approval must nominate any higher test rating required, before testing is initiated.

6.11.5.5 These tests must be repeated after each modification which significantly alters the design, material or manner of construction of the device.

6.11.5.6 The Competent Authority may at any time require proof, by tests in accordance with this section, that a Type II Segregation Device meets the requirements of the design type tests.

6.11.5.7 The design type tests must be performed:

(a) by a testing laboratory registered by the National Association of Testing Authorities (NATA) for the relevant tests and the results reported on a NATA endorsed test certificate;

(b) by a testing laboratory located overseas and recognised by the Competent Authority; or

(c) where no such laboratory is available, at a suitable facility where the tests are supervised by a representative witnesses from the Competent Authority and the results are reported on a test certificate in accordance with the ADG Code.

6.11.5.8 The Competent Authority may permit the selective testing of segregation devices which differ only in minor aspects from the tested design type.

6.11.5.9 Preparation of Test Samples

6.11.5.9.1 *Liner Bag*

A 70-micron linear low-density polyethylene bag must be inserted into the test sample. The liner bag may be a pillow or gusseted bag of the following dimensions:

For pillow bags:

Length = H + 1.5 W

Width = 1.2 (L + W)

For gusseted bags:

Length = H + 1.5W

Width + Gusset Width = 1.2 (L + W)

Where:

L = Length of Segregation Device in metres

W = Width of Segregation Device in metres

H = Height of Segregation Device in metres

6.11.5.9.2 *Filling Material*

High flow plastic granules of approximately 0.75kg/L bulk density are to be used as the bulk filling material. For lift tests it is permissible to use additives such as bags of lead shot to achieve the requisite total contained mass with the condition that they are placed so that the test results are not affected in any way.

6.11.5.9.3 *Filling*

The Segregation Device is to be filled so that the filling material occupies not less than 95% of the total volume of the test sample (see 6.11.5.4).

6.11.6 MARKING

Each Type II Segregation Device manufactured in accordance with an approved design-type must be clearly and permanently marked on each side in lettering not less than 25mm high with the identification:

“AUSTRALIAN COMPETENT AUTHORITIES APPROVED SEGREGATION DEVICE FOR USE IN AUSTRALIA ONLY APPROVAL XXX TARE YYY GROSS ZZZ”

Where:

XXX is the unique number issued by the Competent Authority

YYY is the Tare Mass of the segregation device

ZZZ is the maximum permitted gross mass of the segregation device and contents

6.11.7 NON-TYPE I UNDERSLUNG SEGREGATION DEVICE

6.11.7.1 Any proposed underslung segregation device (which is not a Type I device) submitted for approval must comply with the requirements in this subsection and must be approved by the Competent Authority.

6.11.7.2 Design and construction requirements

6.11.7.2.1 The device must be designed to a maximum design load and be built with sufficient strength and rigidity to transport the maximum design load without failure or such distortion as would compromise any of the device's function or features.

6.11.7.2.2 The device must be fitted with a permanently attached door and be liquid tight.

6.11.7.2.3 The device must have a door fitted with at least 2 securing devices and be capable of being locked against unauthorised access.

6.11.7.2.4 The device must be permanently attached to the vehicle to withstand a 2g force in any direction when loaded to its maximum design load.

6.11.7.2.5 The device must have a smooth interior free of any protrusion or fitting likely to damage packages within.

6.11.7.2.6 The device must be easy to clean and free from cavities where spillage or dirt or contaminants might collect.

6.11.7.2.7 The device must have a means of draining any liquid from the device which may accumulate due to leakage of any contents. When the device is in use the drainage facility must be tightly sealed.

6.11.7.2.8 The device, including supports and attachments, must have a ground clearance of at least 350mm and not project beyond the perimeter of the vehicle.

6.11.7.3 Application for approval

6.11.7.3.1 An application for the approval of a Competent Authority of a proposed underslung segregation device must be in writing and must include:

(a) a full description of the device;
(b) details of the dimensions, volumetric capacity and maximum design load (kg) of the device;
(c) signed detailed drawings of the device;
(d) details of the materials used in the device;
(e) details of the construction of the device;
(f) details of how the device is to be attached to the vehicle;
(g) any other information necessary to enable an assessment of whether the device complies with 6.11.7.2.

6.11.7.4 Approval number to be displayed

6.11.7.4.1 An approved underslung segregation device must be clearly and permanently marked, in a conspicuous position, in lettering not less than 25mm high with the following:

(a) for a device approved by a Competent Authority:

Name of Competent Authority
APPROVED SEGREGATION DEVICE
FOR USE IN (State/Territory) ONLY
APPROVAL XXX   DESIGN LOAD YYY

(b) for a device approved by the Competent Authorities Panel:

AUSTRALIAN COMPETENT AUTHORITIES
APPROVED SEGREGATION DEVICE
FOR USE IN AUSTRALIA ONLY
AP REFERENCE CA20--/----
DESIGN LOAD YYY

where:

XXX is the approval number issued by the Competent Authority
YYY is the maximum weight, in kg, that the device may carry.".

PART 7: PROVISIONS CONCERNING TRANSPORT OPERATIONS

Introductory Note

In UN21:

Chapter 7.1 contains operational provisions that are applicable to all modes of transport, covering:

(a) general provisions for transporting, offering and accepting for transport;

(b) new requirements for carrying and retaining documentation;

(c) loading requirements, including new provisions for loading and restraining flexible bulk containers;

(d) segregation of dangerous goods;

(e) special provisions applicable to some types of dangerous goods; and

(f) reporting of accidents and incidents.

Chapter 7.2 is "generally reserved for additional provisions applicable to the individual modes of transport that may be added by national, modal or regional authorities." It includes special provisions for:

(g) transport of portable tanks on vehicles

(h) transport of radioactive material

(i) security of transport by road, rail or inland waterway

In this Code:

Chapter 7.1 includes only (a) and (e) of the above.

(b) is covered in Chapter 11.1.

(c) is covered in Chapter 8.1 which, in this Code, covers all stowage provisions.

(d) is covered in Part 9, that includes all compatibility and segregation issues.

(f) is not covered by this Code as it is addressed by the Regulations.

Australian specific special provisions that are applicable to particular types of dangerous goods have also been included in Chapter 7.1 so that all such provisions are grouped together.

Chapter 7.2 contains only special provisions for the transport of nominally empty storage vessels. The content of (g) above has been covered in Chapter 8.2. Neither (h) nor (i) are included in this Code, being subject to other legislation.

CHAPTER 7.1 - TRANSPORT PROVISIONS [1]

NOTE: *Additional general transport provisions may also exist in the Regulations. Among other things, there may be requirements concerning the retention of transport documents for specified periods.*

7.1.1 GENERAL PROVISIONS

7.1.1.1 **<Reserved>**

7.1.1.2 Dangerous goods must not be offered for transport unless:

(a) the goods have been properly classified, packed, marked, labelled and described on a dangerous goods transport document; and

(b) the goods are in a fit condition for transport as required by this Code, and no dangerous residue of the dangerous goods adheres to the outside of the package.

7.1.1.3 **<Reserved>** [2]

7.1.1.4 Dangerous goods must not be transported unless:

(a) cargo transport units have been appropriately marked, labelled and placarded; and

(b) cargo transport units are otherwise in a condition for transport as required by this Code.

7.1.1.5 — 7.1.1.11 **<Reserved>** [3]

7.1.1.12 If a cargo transport unit, pressure drum, MEGC or IBC is marked with notations indicating how it should be handled in the transport of dangerous goods, it must be handled in accordance with those notations.

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[1] *Chapter 7.1 of UN20 is headed "Provisions Concerning Transport Operations by all Modes of Transport".*

[2] *7.1.1.3 of UN20 has documentation requirements that are covered by Chapter 11.1 of this Code.*

[3] *7.1.1.5—7.1.1.10 of UN20 deals briefly with loading, segregating and restraining of packages of dangerous goods in cargo transport units. These provisions have been incorporated into Chapter 8.1 and Part 9 of this Code. 7.1.1.11 of UN20 has provisions for the loading of flexible bulk containers that, for consistency, have been relocated to Chapter 8.1.*

7.1.2 <RESERVED> [1]

7.1.3 <RESERVED> [2]

7.1.4 SPECIAL PROVISIONS APPLICABLE TO THE TRANSPORT OF CLASS 2 SUBSTANCES AND ARTICLES [3]

7.1.4.1 Aerosols transported for the purposes of reprocessing or disposal under the provisions of Special Provision 327 must only be transported in well-ventilated cargo transport units as described in 7.1.4.5.

7.1.4.2 Dangerous goods of Class 2 must not be stowed near a source of heat.

7.1.4.3 If liquefied gas is transported in a cylinder fitted with a pressure relief device and the venting of the liquid would create a risk greater than the venting of the gas, the cylinder must be stowed so that the pressure relief device communicates with the vapour space

7.1.4.4 When transporting gases in cylinders, the main cylinder valve must always be shut and any regulator removed prior to loading.

7.1.4.5 **Ventilation**

The following dangerous goods must not be transported in a placard load unless the cargo transport unit or compartment in which they are transported is ventilated to prevent the build-up of vapours that are likely to increase risk:

(a) dangerous goods [other than aerosols (UN 1950) and gas cartridges (UN 2037)] of Division 2.1 or 2.3, or subsidiary hazard of 2.1; or

(b) liquefied oxygen.

The ventilation must produce a flow of air that circulates throughout the unit or compartment, in particular through the highest and lowest parts of the unit or compartment, and must provide for the air to be released from the unit or compartment after it has circulated. However the requirements in the previous sentence do not apply in the case of a shipping container that is being used:

(a) to import those goods if appropriate measures are taken to check for vapours before the container is opened, and to be able to deal, when the container is opened, with any build-up of vapours that may have occurred; and

(b) to export those goods if the container will be accepted for carriage by sea or air without needing to comply with those requirements.

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[1] Section 7.1.2 of UN20 deals briefly with the principles of segregating incompatible dangerous goods. Part 9 of this Code provides detailed requirements for segregating and separating dangerous goods when transported by road or rail in Australia.
[2] Section 7.1.3 of U209 contains special provisions applicable to the transport of explosives. Refer to the Australian Explosives Code.
[3] Refer to Safety Data Sheets for detailed safety information about particular dangerous goods.

7.1.4.6 Transport of LP Gas on buses [1]

LP Gas in cylinders must not be transported on a bus unless:

(a) no LP Gas cylinder individually has a capacity of more than 2.5 litres; and

(b) the total quantity of LP Gas on the bus is less than 250 litres.

7.1.5 SPECIAL PROVISIONS APPLICABLE TO THE TRANSPORT OF SELF-REACTIVE SUBSTANCES OF DIVISION 4.1, ORGANIC PEROXIDES OF DIVISION 5.2 AND SUBSTANCES STABILIZED BY TEMPERATURE CONTROL (OTHER THAN SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES)

7.1.5.1 All self-reactive substances, organic peroxides and polymerizing substances shall be protected from direct sunlight and all sources of heat, and placed in adequately ventilated areas.

NOTE: Some substances which are transported under temperature control are prohibited from transport by certain modes

7.1.5.2 Where a number of packages are assembled in a freight container, closed road vehicle or unit load, the total quantity of substance, the type and number of packages and the stacking arrangement shall not create an explosion hazard.

7.1.5.3 Temperature control provisions

7.1.5.3.1 These provisions apply to certain self-reactive substances when required by 2.4.2.3.4, and certain organic peroxides when required by 2.5.3.4.1 and certain polymerizing substances when required by 2.4.2.5.2 or special provision 386 of Chapter 3.3 which may only be transported under conditions where the temperature is controlled

7.1.5.3.2 These provisions also apply to the transport of substances for which:

(b) The proper shipping name as indicated in column 2 of the Dangerous Goods List of Chapter 3.2 or according to 3.1.2.6 contains the word “STABILIZED”; and

(c) The self-accelerating decomposition temperature (SADT) or the self-accelerating polymerisation temperature (SAPT)[2] determined for the substance (with or without chemical stabilization) as offered for transport is:
   (i) 50 °C or less for single packagings and IBCs; or
   (ii) 45 °C or less for portable tanks.

When chemical inhibition is not used to stabilize a reactive substance which may generate dangerous amounts of heat and gas, or vapour, under normal transport conditions, these substances need to be transported under temperature control. These provisions do not apply to substances which are stabilized by the addition of chemical inhibitors

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[1] For transport of dangerous goods on passenger trains, see 9.2.4.7.

[2] The SAPT shall be determined in accordance with the test procedures established for the SADT for selfreactive substances in accordance with Part II, Section 28 of the Manual of Tests and Criteria.

such that the SADT or the SAPT is greater than that prescribed in (b) (i) or (ii), above

7.1.5.3.3 In addition, if a self-reactive substance or organic peroxide or a substance the proper shipping name of which contains the word “STABILIZED” and which is not normally required to be transported under temperature control is transported under conditions where the temperature may exceed 55 °C, it may require temperature control.

7.1.5.3.4 The “control temperature” is the maximum temperature at which the substance can be safely transported. It is assumed that during transport the temperature of the immediate surroundings of the package does not exceed 55 °C and attains this value for a relatively short time only during each period of 24 hours. In the event of loss of temperature control, it may be necessary to implement emergency procedures. The “emergency temperature” is the temperature at which such procedures shall be implemented.

7.1.5.3.5 Derivation of control and emergency temperatures

Type of receptacle	**SADT[a]/SAPT[a]**	**Control temperature**	**Emergency temperature**
Single packagings and IBCs	20 °C or less over 20 °C to 35 °C over 35 °C	20°C below SADT/SAPT 15 °C below SADT/SAPT 10 °C below SADT/SAPT	10 °C below 10 °C below SADT/SAPT 5 °C below SADT/SAPT
Portable tanks	< 45 °C	10 °C below SADT/SAPT	5 °C below SADT/SAPT

Table note:

[a] i.e. the SADT/SAPT of the substance as packed for transport.

7.1.5.3.6 The control and emergency temperatures are derived using the table in 7.1.5.3.5 from the SADT or from the SAPT which are defined as the lowest temperatures at which self-accelerating decomposition or self-accelerating polymerization may occur with a substance in the packaging, IBC or portable tank as used in transport. An SADT or SAPT shall be determined in order to decide if a substance shall be subjected to temperature control during transport. Provisions for the determination of the SADT and SAPT are given in 2.4.2.3.4, 2.5.3.4.2 and 2.4.2.5.2 for self-reactive substances, organic peroxides and polymerizing substances and mixtures, respectively.

7.1.5.3.7 Control and emergency temperatures, where appropriate, are provided for currently assigned self-reactive substances in 2.4.2.3.2.3 and for currently assigned organic peroxide formulations in 2.5.3.2.4.

7.1.5.3.8 The actual transport temperature may be lower than the control temperature but shall be selected so as to avoid dangerous separation of phases

7.1.5.4 Transport under temperature control

NOTE: *Since the circumstances to be taken into account differ for the various modes of transport, only general guidance is provided.*

7.1.5.4.1 Maintenance of the prescribed temperature is an essential feature of the safe transport of substances stabilized by temperature control. In general, there shall be:

(a) Thorough inspection of the cargo transport unit prior to loading;
(b) Instructions to the carrier about the operation of the refrigeration system;
(c) Procedures to be followed in the event of loss of control;
(d) Regular monitoring of operating temperatures; and
(e) Provision of a back-up refrigeration system or spare parts.

7.1.5.4.2 Any control and temperature sensing devices in the refrigeration system shall be readily accessible and all electrical connections weather-proof. The temperature of air space within the cargo transport unit shall be measured by two independent sensors and the output shall be recorded so that temperature changes are readily detectable. The temperature shall be checked every four to six hours and logged. When substances having a control temperature of less than +25 °C are carried, the cargo transport unit shall be equipped with visible and audible alarms, powered independently of the refrigeration system, set to operate at or below the control temperature.

7.1.5.4.3 If during transport the control temperature is exceeded, an alert procedure shall be initiated involving any necessary repairs to the refrigeration equipment or an increase in the cooling capacity (e.g. by adding liquid or solid refrigerants). The temperature shall also be checked frequently and preparations made for implementation of the emergency procedures. If the emergency temperature is reached, the emergency procedures shall be initiated.

7.1.5.4.4 The suitability of a particular means of temperature control for transport depends on a number of factors. Factors to be considered include:

(a) The control temperature(s) of the substance(s) to be transported;
(b) The difference between the control temperature and the anticipated ambient temperature conditions;
(c) The effectiveness of the thermal insulation;
(d) The duration of transport; and
(e) Allowance of a safety margin for delays.

7.1.5.4.5 Suitable methods for preventing the control temperature being exceeded are, in order of increasing control capability:

(a) Thermal insulation; provided that the initial temperature of the substance(s) to be transported is sufficiently below the control temperature;

(b) Thermal insulation with coolant system; provided that:
  (i) An adequate quantity of coolant (e.g. liquid nitrogen or solid carbon dioxide), allowing a reasonable margin for delay, is carried;
  (ii) Liquid oxygen or air is not used as coolant;
  (iii) There is a uniform cooling effect even when most of the coolant has been consumed; and
  (iv) The need to ventilate the unit before entering is clearly indicated by a warning on the door(s) of the unit;

(c) Single mechanical refrigeration; provided that for substance(s) to be transported with a flash point lower than the sum of the emergency temperature plus 5 °C explosionproof electrical fittings are used within the cooling compartment to prevent ignition of flammable vapours;

(d) Combined mechanical refrigeration system with coolant system; provided that:
  (i) The two systems are independent of one another;
  (ii) The provisions in (b) and (c) are complied with;

(e) Dual mechanical refrigeration system; provided that:
  (i) Apart from the integral power supply unit, the two systems are independent of one another;
  (ii) Each system alone is capable of maintaining adequate temperature control; and
  (iii) For substance(s) to be transported with a flash point lower than the sum of the emergency temperature plus 5 °C explosion-proof electrical fittings are used within the cooling compartment to prevent ignition of flammable vapours.

7.1.6 <RESERVED>

7.1.7 SPECIAL PROVISIONS APPLICABLE TO THE TRANSPORT OF DIVISION 6.1 (TOXIC) AND DIVISION 6.2 (INFECTIOUS) SUBSTANCES [1]

7.1.7.1 Division 6.1 (toxic) substances

7.1.7.1.1 <Reserved> [2]

7.1.7.1.2 Decontamination of cargo transport units

A rail wagon, road vehicle, freight container or other cargo transport unit which has been used to carry substances marked as or known to be toxic (packing groups I, II and III) must, after unloading and before removal of placards, be inspected for contamination. Until such contamination has been removed, a cargo transport unit which has been contaminated must not be returned to service and placards and other markings indicating the presence of the dangerous goods must not be removed.

7.1.7.2 Division 6.2 (infectious) substances

[1] *Separation from foodstuffs is addressed in Part 9 of this Code.*
[2] *Carrier responsibilities are assigned by the Regulations.*

7.1.7.2.1 *<Reserved>*[1]

7.1.7.2.2 *Action to be taken in the event of damage or leakage*

Any person responsible for the carriage of packages containing infectious substances who becomes aware of damage to or leakage from such packages must:

(a) avoid handling the package or keep handling to a minimum; and

(b) ensure that adjacent packages are inspected in a safe manner for contamination and any that may have been contaminated are put aside; and

(c) inform emergency services, the appropriate public health authority or veterinary authority, and provide information on any other jurisdictions of transit where persons may have been exposed to danger; and

(d) notify the consignor and/or the consignee.

7.1.7.2.3 *<Reserved>* [2]

7.1.8 <RESERVED> [3]

7.1.9 <RESERVED> [4]

7.1.10 <RESERVED> [5]

7.1.11 SPECIAL PROVISIONS APPLICABLE TO THE TRANSPORT OF DIVISION 4.3 [6]

Dangerous goods of Division 4.3, or with a Subsidiary Hazard of 4.3 must be kept dry during transport.

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[1] Decontamination of the transport unit is addressed by other legislation.
[2] Decontamination of the transport unit is addressed by other legislation.
[3] Section 7.1.8 of UN20 contains special provisions applicable to the transport of radioactive material. Refer to the Code of Practice for the Safe Transport of Radioactive Substances.
[4] Section 7.1.9 of UN20 contains reporting requirements for accidents and incidents. These are dealt with in Part 14 of the Regulations.
[5] Section 7.1.10 of UN20 imposes obligations for the retention and reproduction of documentation and associated information which are regulatory issues, outside the remit of this Code.
[6] Refer to Safety Data Sheets for detailed safety information about particular dangerous goods.

CHAPTER 7.2 - TRANSPORT OF NOMINALLY EMPTY STORAGE VESSELS [1]

7.2.1 APPLICATION

The provisions of this Chapter apply only to road and rail transport in Australia.

7.2.2 <RESERVED> [2]

7.2.3 <RESERVED> [3]

7.2.4 <RESERVED> [4]

7.2.5 <DELETED>

7.2.6 <DELETED>

7.2.7 TRANSPORT OF NOMINALLY EMPTY STORAGE VESSELS

NOTE: *This section does not apply to packagings, cylinders, pressure drums, IBCs, demountable tanks, portable tanks, bulk containers or MEGCs that are transported in accordance with this Code.*

7.2.7.1 This Section applies to the transport of nominally empty tanks or hoppers that have been used in fixed underground or above ground installations for the storage of LP Gas, or any other dangerous goods except:

(a) Classes 1 and 7; and
(b) Division 2.1 (other than LP Gas), Divisions 2.3, 5.2, and 6.2; and
(c) Self-reactive substances or desensitised explosives of Division 4.1; and
(d) Desensitised explosives of Class 3; and
(e) Packing group I of any Class or Division; and
(f) Goods too dangerous to be transported.

NOTE: *Storage tanks and hoppers that have been cleaned so as to be free from dangerous goods are not subject to this Code.*

7.2.7.2 Prior to transport, tanks and hoppers described in 7.2.7.1 must:

(a) be deemed structurally sound for that purpose; and
(b) have any holes repaired in such a way as will prevent any leakage of solid, liquid or vapour during transport; and
(c) be drained as far as is practicable to minimise residual dangerous goods; and

[1] Chapter 7.2 of UN20 is headed "Modal Provisions".
[2] The content of Section 7.2.2 which, in UN20 is headed "Special Provisions applicable to the Transport of Portable Tanks on Vehicles", has been relocated to Section 8.2.2 in Chapter 8.2 of this Code, along with other transport unit restraint requirements.
[3] Section 7.2.3 of UN20 applies to the transport of radioactive material by road and rail. See the Code of Practice for the Safe Transport of Radioactive Substances.
[4] Section 7.2.4 of UN20 relates to security measures which are addressed in Australia by other legislation.

(d) except as required for pressure equalisation and safety valves on pressure vessels, have all pipework capped; and

(e) if gas tanks, be free from leaks.

7.2.7.3 Nominally empty storage vessels transported according to this Section must be secured to the vehicle in accordance with the Load Restraint Guide.

7.2.7.4 Vehicles transporting nominally empty storage vessels must be placarded as required by Chapter 5.3 of this Code for a vehicle transporting the particular dangerous goods in a portable tank.

7.2.7.5 Transport documentation complying with Chapter 11.1 and emergency information complying with Chapter 11.2 must be carried in the cabin of the vehicle transporting the nominally empty vessel.

7.2.7.6 Nominally empty storage vessels must be segregated from other dangerous goods in accordance with Chapter 9.2.

7.2.7.7 Vehicles transporting nominally empty storage vessels in accordance with this Section must carry safety equipment specified for the dangerous goods in Part 12.

7.2.7.8 An exemption or determination must be obtained from the Competent Authority before transporting, other than in accordance with this Section, tanks and other previously fixed receptacles or containers that have been used for the storage of dangerous goods and are not free from dangerous goods.

CHAPTER 7.3 - RESERVED

PART 8: STOWAGE AND RESTRAINT

CHAPTER 8.1 - STOWAGE AND RESTRAINT ON OR IN CARGO TRANSPORT UNITS

8.1.1 APPLICATION

8.1.1.1 This chapter applies to the stowage into cargo transport units, and the restraint of packages, overpacks, large packagings, IBCs, cylinders, MEGCs and flexible bulk containers containing dangerous goods and unpackaged dangerous articles that together constitute a placard load.

8.1.1.2 Where requirements are assigned in this chapter to 'packages', they apply to packagings containing dangerous goods. They must equally be applied to overpacks, large packagings, segregation devices, IBCs, cylinders and MEGCs containing dangerous goods, and to unpackaged dangerous articles.

NOTE 1: *Special provisions relating to the packing, stowage and restraint of particular dangerous goods may be found in Part 7, or in detailed packing instructions in Chapter 4.1, as referenced in Columns (8) and (9) of the Dangerous Goods List in Chapter 3.2.*

NOTE 2: *Additional guidance on the packing of cargo transport units can be found in the Load Restraint Guide and in the IMO/ILO/UNECE Guidelines for Packing Cargo Transport Units (CTUs) contained in the supplement to the IMDG Code.*

NOTE 3: *Requirements for restraining portable cargo transport units are in Chapter 8.2.*

8.1.2 GENERAL REQUIREMENTS FOR STOWAGE AND RESTRAINT

8.1.2.1 *[UN 7.1.1.5]* Packages must only be loaded in cargo transport units which are strong enough to withstand the shocks and loadings normally encountered during transport, having regard to the conditions to be expected during the anticipated journey. The cargo transport unit should be constructed in such a way as to prevent the loss of contents. Where appropriate the cargo transport unit should be fitted with devices to facilitate securing and handling of the dangerous goods.

8.1.2.2 *[UN 7.1.1.6]* The interior and exterior of a cargo transport unit must be inspected prior to loading to ensure that there is no damage that could affect its integrity or that of the packages to be loaded in it.

8.1.2.3 Packages must be stowed and restrained in the cargo transport unit in accordance with the Load Restraint Guide, or in a manner which provides at least the equivalent levels of safety and security.

8.1.2.4 *[UN 7.1.1.7]* Cargo transport units must be loaded so that incompatible dangerous or other goods are segregated in accordance with Chapter 9.2. Specific loading instructions such as orientation arrows, not to be double stacked, keep dry or temperature control requirements must be met. Liquid dangerous goods should be loaded below dry dangerous goods whenever possible.

8.1.2.5 *[UN 7.1.1.8* part] Packages must be restrained by suitable means (such as fastening straps, sliding slatboards, adjustable brackets) in the cargo transport unit in a manner that will prevent any movement during transport which would change the orientation of the packages or cause them to be damaged. Movement of packages may also be prevented by filling any voids by the use of dunnage or by blocking and bracing. Where restraints such as banding or straps are used, these must not be over-tightened to cause damage or deformation of the package.

8.1.2.6 *[UN 7.1.1.8* part] When dangerous goods are transported with other goods, all goods must be restrained in the cargo transport units so as to prevent the release of dangerous goods. Packages must be stowed and restrained so as to prevent damage to other goods and equipment. Any other goods and equipment must be stowed and restrained in the cargo transport unit so as to prevent damage to the dangerous goods.

8.1.2.7 Packagings and IBCs that are fitted with a vented closure must be stowed and restrained with the closure uppermost.

8.1.2.8 If the dangerous goods are of a kind that may lead to the formation of flammable, toxic or other harmful atmospheres, they must be stowed so that no harmful atmosphere will accumulate in the vehicle cabin in event of leakage.

8.1.2.9 *[UN 7.1.1.10]* During loading and unloading, packages containing dangerous goods must be protected from being damaged. Particular attention must be paid to the handling of packages during their preparation for transport, to the type of cargo transport unit on which they are to be carried and to the method of loading or unloading, so that accidental damage is not caused through dragging or mishandling of the packages. Packages that appear to be leaking or damaged so that the contents may escape must not be accepted for transport. If a package is found to be damaged so that the contents leak, the damaged package must not be transported but moved to a safe place

8.1.2.10 If packages containing dangerous goods are stowed on a pallet, the pallet must be of sound construction and free of projections.

8.1.2.11 Any thing used to restrain another thing for the purposes of this Chapter ("the device") must be in good condition, and must be free from any defect that might lessen the ability of the device to achieve its function.

8.1.3 OPEN AND NON-RIGID SIDED VEHICLES AND CONTAINERS

8.1.3.1 This Section applies to the transport of dangerous goods on vehicles and freight containers that are not closed cargo transport units (e.g. stowed on an open tray or platform or in a curtain sided cargo transport unit).

NOTE: *Vehicles and freight containers with curtain sides are not closed cargo transport units and are therefore subject to this Section.*

8.1.3.2 Except where 8.1.3.4 or 8.1.3.5 applies, if unpackaged dangerous articles or dangerous goods in packages are transported on a vehicle or container described in 8.1.3.1:

(a) they must be stowed and restrained within rigid sides or gates; and

(b) no dangerous article or package containing dangerous goods may protrude above the sides or gates by more than 30% of the height of the article or package; and

(c) no parts of an article or package may protrude horizontally beyond the sides or gates.

8.1.3.3 Despite 8.1.3.2, gates to the rear of the dangerous goods on a road vehicle may be omitted if:

(a) the dangerous goods are loaded towards the front of the vehicle; and

(b) other goods are stowed and restrained at the rear of the dangerous goods in accordance with the Load Restraint Guide in such a manner that the dangerous goods will be prevented from falling from the vehicle during transport; and

(c) those other goods remain in place throughout the journey.

8.1.3.4 If dangerous goods of Class 2 that are secured in gas industry cylinder pallets (stillages), are transported on a vehicle or container described in 8.1.3.1:

(a) the cylinders must be secured within the frame of the stillage, by a lashing system to meet the Load Restraint Guide; and

(b) not more than 45% of the height of the cylinder may protrude above the stillage rail; and

(c) the stillages must be stowed and restrained on the vehicle or open freight container in accordance with the Load Restraint Guide.

NOTE: *For orientation of cylinders of liquefied gas, see also 7.1.4.3.*

8.1.3.5 Dangerous goods in IBCs, large packagings, segregation devices, pressure drums, MEGCs or bundles of cylinders are not subject to 8.1.3.2 if they are restrained in accordance with the Load Restraint Guide.

CHAPTER 8.2 - RESTRAINT OF CARGO TRANSPORT UNITS ON VEHICLES

8.2.1 RESTRAINING FREIGHT CONTAINERS

A freight container containing dangerous goods which is transported on a vehicle must be restrained on the vehicle:

(a) for road transport, in accordance with the performance standards specified in Load Restraint Guide[1] ; and

(b) for rail transport, as required under the relevant legislation or agreements concerning Rail Safety.

NOTE: These requirements will normally be met by the use of four engaged twist locks.

8.2.2 RESTRAINING PORTABLE TANKS

8.2.2.1 *[UN 7.2.2]* Portable tanks may only be transported on vehicles whose fastenings are capable, in conditions of maximum permissible loading of the portable tanks, of absorbing the forces specified in 6.7.2.2.12, 6.7.3.2.9 or 6.7.4.2.12, as appropriate.

NOTE: Usage of portable tanks is subject to Chapter 4.2 of this Code. For liquids, particular attention is drawn to 4.2.1.9.6.

8.2.2.2 A portable tank which is transported on a vehicle must be securely fastened to the vehicle using either:

(a) four engaged twist locks; or

(b) another equally effective method for securing the portable tank, in accordance with the Load Restraint Guide.

8.2.2.3 Except when the tank is nominally empty, dangerous goods in the liquid state must not be transported on a road vehicle in a portable tank having a capacity of more than 7,500 litres, unless:

(a) the height of the centroid of the tank cross section at tank half length falls within an isosceles triangle having:

  (i) a base length at ground level equal to the overall width between the outside walls of the outside tyres of the main load bearing axle groups, and

  (ii) base angles not exceeding 64 degrees; or

(b) the distance between the ground and the load bearing surface of the bottom corner casting of the loaded tank does not exceed 1100mm.

8.2.2.4 If a portable tank is marked with notations indicating how it should be handled in the transport of dangerous goods, it must be handled in accordance with those notations.

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[1] Load Restraint Guide, 3rd Edition 2018, National Transport Commission, ISBN: 978-0-6480157-5-8 or Load Restraint guide for Light Vehicles 2018, National Transport Commission, ISBN: 978-0-6480157-6-5.

8.2.3 RESTRAINING BULK CONTAINERS

8.2.3.1 A bulk container in the form of a freight container must be restrained on the vehicle in accordance with 8.2.1.

8.2.3.2 A BK1 or BK2 bulk container that is not an integral part of the vehicle and is not in the form of a freight container must be restrained on the vehicle in accordance with the Load Restraint Guide.

8.2.3.3 A flexible (BK3) bulk container must be restrained in a cargo transport unit in accordance with section 8.2.4.

8.2.3.4 If a bulk container is marked with notations indicating how it should be handled in the transport of dangerous goods, it must be handled in accordance with the notations.

8.2.4 STOWING AND RESTRAINING FLEXIBLE BULK CONTAINERS

8.2.4.1 *[UN 7.1.1.11]* Flexible bulk containers must be transported within a conveyance with rigid sides and ends that extend at least two-thirds of the height of the flexible bulk container.

NOTE: *When loading flexible bulk containers in a freight container particular attention is to be paid to the IMO/ILO/UNECE Guidelines for Packing Cargo Transport Units (CTUs) contained in the supplement to the International Maritime Dangerous Goods Code.*

8.2.4.2 *[UN 7.1.1.11.1]* Flexible bulk containers must be secured by suitable means capable of restraining the container in the conveyance in a manner that will prevent any movement during transport which would change the orientation of the container or cause the container to be damaged. Movement of the containers may also be prevented by filling any voids by the use of dunnage or by blocking and bracing. Where restraints such as banding or straps are used, these must not be over-tightened to cause damage or deformation to the flexible bulk containers.

8.2.4.3 *[UN 7.1.1.11.2]* Flexible bulk containers must not be stacked for road or rail transport.

PART 9: SEGREGATION

CHAPTER 9.1 - INCOMPATIBLE GOODS

9.1.1 INTERPRETATION

Class, Division and Subsidiary Hazard. For the purpose of this Part, a reference to a class of dangerous goods (for example, Class 4) is a reference to that class, to every hazard division into which that class is sub-divided (for example, Divisions 4.1, 4.2 and 4.3) and to every subsidiary hazard corresponding to that class or division (for example, Subsidiary Hazards 4.1, 4.2 and 4.3). A reference to a hazard division into which a class is sub-divided (for example Division 4.1) is a reference only to that division, and to the subsidiary hazard (if any) corresponding to that hazard division (for example, Subsidiary Hazards 4.1).

9.1.2 INCOMPATIBILITY BASED ON CLASSIFICATION

9.1.2.1 Table 9.1 gives an indication of dangerous goods compatibility for land transport purposes, based on Classes, Divisions, Subsidiary Hazards and some specific types of goods.

NOTE 1: *Where it is indicated in Table 9.1 that goods of particular classification combinations are incompatible, then all goods of those combinations should be considered incompatible unless there is substantial documented evidence that particular goods are in fact compatible. This evidence could include a statement on the Safety Data Sheet*[1] *of both substances or articles that they are compatible.*

NOTE 2: *Compatibility assessment based on Table 9.1 has no validity under the IMDG Code, ICAO Rules or IATA Regulations for sea and air transport.*

NOTE 3*:* *Depending on other risk factors, compatibility assessment based on Table 9.1 may not be relevant to storage situations, particularly where large volumes of dangerous goods are stored and handled. Reference should be made to the Safety Data Sheets for each substance or article and risks assessed accordingly.*

9.1.2.2 Explosives

9.1.2.2.1 Except where otherwise specially provided for in this Code and the Australian Explosives Code, goods of Class 1 are incompatible with dangerous goods of other classes.

9.1.2.2.2 For the purposes of this Code, dangerous goods of Division 1.4, compatibility group S are considered compatible with other dangerous goods provided the aggregate quantity of all dangerous goods in the cargo transport unit is less than a placard load.

NOTE: *The Australian Explosives Code does not restrict the transport of Division 1.4S with other dangerous goods.*

[1] Safety Data Sheets [SDS] are also known as Material Safety Data Sheets [MSDS].

9.1.2.3 Food and food packagings

Despite an entry in Table 9.1 that food and food packagings are incompatible with dangerous goods of Class 8, food ingredients that are Class 8 dangerous goods are not considered to be incompatible with other food ingredients if the intended use of those ingredients is for the manufacture of food, or food ingredients, containing those ingredients (or like ingredients), with or without other ingredients.

Table 9.1: Incompatibility based on Classification

Goods are considered incompatible if, in this table, any of the following conditions are met:
a) the primary hazard of one is incompatible with the primary hazard of the other; or
b) the primary hazard of one is incompatible with a subsidiary hazard of the other; or
c) a subsidiary hazard of one is incompatible with a subsidiary hazard of the other.

CLASS or DIVISION	1	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6	7(7)	8	9	Food or Food empties	Fire-risk substances or Combustible liquids
1 Explosives	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
2.1 Flammable gas	(1)	0	0(3)	0	0(2)	N	N	N	N	N	0	N	0	0	0	0
2.2 Non-flammable non-toxic gas	(1)	0(3)	0	0(4)	0	0	N	0	0	N	0	0	0	0	0	0
2.3 Toxic gas	(1)	0	0(4)	0	N	0	N	0	N	N	0	0	0	0	N(8)	0
3 Flammable liquids	(1)	0(2)	0	N	0	0	N	0	N	N	0(6)	N	0	0	0	0
4.1 Flammable solids	(1)	N	0	0	0	0	N	0	N	N	0	N	0	0	0	0
4.2 Spontaneously combustible	(1)	N	N	N	N	N	0	0	N	N	0	N	0	0	0	0
4.3 Dangerous when wet	(1)	N	0	0	0	0	0	0	N	N	0	N	N	0	0	0
5.1 Oxidising substances	(1)	N	0	N	N	N	N	N	0(6)	N	0(5)	N	N	0(5)	0	N
5.2 Organic peroxides	(1)	N	N	N	N	N	N	N	N	0	0(5)	N	N	0(5)	0	N
6 Toxic or Infectious substances	(1)	0	0	0	0(6)	0	0	0	0(5)	0(5)	0	0	0(6)	0	N(8)	0
7 Radioactive material (7)	(1)	N	0	0	N	N	N	N	N	N	0	0	N	0	N(8)	0
8 Corrosive substances	(1)	0	0	0	0	0	0	N	N	N	0(6)	N	0(6)	0	N(8)	0
9 Miscellaneous dangerous goods / environmentally hazardous substances	(1)	0	0	0	0	0	0	0	0(5)	0(5)	0	0	0	0	0	0

In this table:

0 means compatible unless a numbered exception applies.

N means incompatible unless a numbered exception applies.

Exceptions (see Table 9.1):

(1) Explosives are incompatible in transport with all other dangerous goods in all quantities except as provided in the Australian Explosives Code or, for Division 1.4S, where 9.1.2.2.2 applies.

(2) Division 2.1 and Class 3 are incompatible in transport if both are in tanks or other receptacles with a capacity individually exceeding 500 L.

(3) Division 2.1 is incompatible in transport with gases of Division 2.2 that have a subsidiary hazard 5.1 except when all are packed in cylinders or pressure drums not exceeding 500 L capacity.

(4) Division 2.3 is incompatible in transport with gases of Division 2.2 that have a subsidiary hazard 5.1 except when all are packed in cylinders or pressure drums not exceeding 500 L capacity.

(5) Class 5 is incompatible with those Class 6 or Class 9 materials that are fire-risk substances.

(6) Some specific examples of these Classes or Divisions are incompatible — see Table 9.2.

(7) See the Code of Practice for the Safe Transport of Radioactive Substances regarding the compatibility of Class 7 with undeveloped photographic film, personnel and mail.

(8) Food and food packagings are incompatible with these classes in all quantities, except where 9.1.2.3 applies.

9.1.3 SPECIFIC EXAMPLES OF INCOMPATIBLE GOODS

Table 9.2 lists some examples of particular dangerous goods which are incompatible. The dangerous goods specified in an item in column 1 of Table 9.2 are incompatible with the dangerous goods specified in that item in column 2 of the Table.

Table 9.2: Examples of Particular Incompatible Dangerous Goods not identified in

Column 1 **Dangerous Goods or Group of Dangerous Goods**	**Column 2** **Goods Incompatible with Column 1 Group**
- Ammonium nitrate	- Tetranitromethane - Dichloroisocyanuric acid - Trichloroisocyanuric acid - any: o bromate o chlorate o chlorite o hypochlorite o chloroisocyanurate o inorganic nitrite
- Calcium hypochlorite (Dry or Hydrated) and its mixtures	- Ammonium nitrate - Dichloroisocyanuric acid - Trichloroisocyanuric acid - any chloroisocyanurate
- Class 6	- Nitromethane
- Concentrated strong acids	- Concentrated strong alkalis
- Cyanide compounds	- Acids

Note: Although both acids and bases (alkalis) are both Class 8 dangerous goods they can be incompatible as a transport load. In particular, what is described as strong acids and strong bases have long been considered incompatible due to the potential for violent reaction. The exact strength of the acid or base that will result in a violent reaction (explosion or fire) or evolve gases (flammable or toxic) depends heavily on the actual acids or bases being transported. Incompatibilities should be determined from the SDS in the first instance. Advice can also be obtained from a suitable industrial chemist, dangerous goods transport professional or State or Territory regulatory authority.

CHAPTER 9.2 - SEGREGATION

9.2.1 APPLICATION AND PRINCIPLES

NOTE: *Goods segregated in accordance with this Chapter will not necessarily comply with the IMDG Code, ICAO Rules or IATA Regulations for sea and air transport.*

9.2.1.1 The segregation requirements of this chapter apply only to placard loads of dangerous goods, except:

(a) where, in the explanatory text at the foot of Table 9.1, it is indicated that particular goods are incompatible in all quantities; and

(b) 9.2.1.4 which applies to all quantities of dangerous goods; and

(c) dangerous goods carried on passenger trains when 9.2.4.7 applies.

9.2.1.2 This chapter does not apply to dangerous goods transported on trains or rail wagons that are being shunted at not more than 15 kilometres per hour.

9.2.1.3 Dangerous goods must not be transported on the same road vehicle or train with incompatible goods unless the dangerous goods and the incompatible goods:

(a) are segregated in accordance with this chapter; or

(b) are otherwise allowed under this Code to be transported together.

9.2.1.4 An overpack, a large packaging or a segregation device must not contain dangerous goods which are incompatible with one another, except where all the dangerous goods are packed as limited quantities in accordance with Chapter 3.4, in which case 3.4.5 applies.

9.2.1.5 A cargo transport unit must not contain dangerous goods which are incompatible with each other unless segregated in accordance with Section 9.2.2.

9.2.1.6 *[UN 7.1.2.3]* When interpreting the requirements of this chapter, the following principles from UN20 must be applied:

(a) Incompatible dangerous goods must be segregated from one another so as to effectively minimise risk in the event of accidental leakage or spillage or any other accident.

(b) Whenever dangerous goods are stowed together, the most stringent segregation provisions for any of the goods must be applied.

(c) Dangerous goods packages required to bear a subsidiary hazard label, the segregation appropriate to the subsidiary hazard must be applied when it is more stringent than that required by the primary hazard.

9.2.2 SEGREGATION METHODS

9.2.2.1 Separate road vehicles

Except where otherwise specified in Section 9.2.3, dangerous goods are segregated from incompatible goods in accordance with this Code if the dangerous goods are carried on one vehicle and the incompatible goods are carried on another vehicle forming part of the same combination road vehicle.

9.2.2.2 Separate rail wagons or load platforms

Except where otherwise specified in Section 9.2.3 or 9.2.4, dangerous goods are segregated on a train from incompatible goods in accordance with this Code if the dangerous goods and the incompatible goods are carried on separate rail wagons or load platforms.

9.2.2.3 Separate freight containers

Except where otherwise specified in Section 9.2.3 or 9.2.4, dangerous goods are segregated from incompatible goods in accordance with this Code if:

(a) either the dangerous goods or the incompatible goods are contained in a closed freight container with rigid sides and ends; or

(b) when transported by rail in other demountable cargo transport units such as open or curtain-sided freight containers on the same load platform of a rail wagon, there is a distance (which may be occupied by other loading) of at least 6 m, measured horizontally, between the unit loaded with the dangerous goods and the unit loaded with the incompatible goods.

9.2.2.4 Packagings for segregation

9.2.2.4.1 Dangerous goods are segregated from incompatible goods if the dangerous goods are packed in a Packaging for Segregation that:

(a) has been approved for that purpose by a Competent Authority; and

(b) has three levels of containment, comprising:

  (i) an inner packaging; and

  (ii) a leakproof intermediate packaging; and

  (iii) an outer packaging; and

(c) has been tested in accordance with Section 6.1.5 of this Code to the standard required for dangerous goods of packing group I; and

(d) is marked with the words “Approved Packaging for Segregation”; and

(e) if the dangerous goods are of packing group I, also complies with 9.2.2.4.2.

9.2.2.4.2 When a packaging for segregation is used for dangerous goods of packing group I:

(a) the intermediate packaging required by 9.2.2.4.1(b)(ii) must be of metal or rigid plastics construction; and

(b) if inert absorbent material is required, that material must be contained inside the intermediate packaging; and

(c) the marking required by 9.2.2.4.1(d) must be supplemented with the expression “PGI”, so that it reads “Approved Packaging for Segregation, PGI”.

9.2.2.5 Large packagings

Dangerous goods are segregated from incompatible goods if the dangerous goods are packed in a large packaging in accordance with a Packing Instruction in Chapter 4.1 that is:

(a) authorised for those goods by an entry in Column 8 of the Dangerous Goods List in Chapter 3.2; and

(b) prefixed ‘LP’ (e.g. ‘LP01’ for many liquid dangerous goods of packing group III).

The large packaging must not contain goods that are incompatible with each other.

NOTE: *9.2.2.5 provides segregation only for the dangerous goods that are in the large packaging. If the incompatible goods are also dangerous goods, these must also be in a large packaging (where authorised), a packaging for segregation, a segregation device, or be otherwise segregated from the first dangerous goods in accordance with this Chapter.*

9.2.2.6 Segregation devices

Dangerous goods of packing group II or III are segregated from incompatible goods in accordance with this Code if either the dangerous goods or the incompatible goods are packed in accordance with Section 4.4.5, in a segregation device which meets the requirements of Chapter 6.11.

9.2.3 SPECIAL SEGREGATION PROVISIONS

Despite 9.2.2.1, 9.2.2.2 and 9.2.2.3, some goods which react dangerously must not be transported on the same road vehicle or combination road vehicle or, when transported by rail, must be separated by intervening wagons or load platforms, in accordance with Table 9.3.

Table 9.3: Restricted Loads on Certain Vehicles

Row No.	Goods A	Receptacle Size	Goods B	Receptacle Size	Restriction	
					Road	**Rail**
1.	Any dangerous goods of Class 5 or Subsidiary Hazard 5.1	> 500 kg(L)	Any dangerous goods of Class or Subsidiary Hazard 3, or Combustible Liquid	> 500 L	**a**	**b**
2.	Any dangerous goods of Division or Subsidiary Hazard 2.1	> 500 L	Any dangerous goods of Class or Subsidiary Hazard 3, 4 or 5	> 500 kg(L)	**a**	**b**
3.	Ammonium Nitrate of any Division in any form (including UN 0222, 1942, 2067, 2071, 2426 or 3375)	> 500 L	Any sensitising or initiating agent #	Any	**a**	**b**
4.	UN 3414 Sodium Cyanide Solution of Division 6.1	> 500 L	UN 2014, 2015 or 2984 Hydrogen Peroxide of Division 5.1 #	Any	**a**	**b**
5.	Any Cyanide of Division 6.1	Any	Any Acid of Class 8 #	Any	**c**	**d**
6.	Any Cyanide of Division 6.1	> 500 kg(L)	Any Acid of Class 8	> 500 L	**c**	**e**
7.	Any placard load of Explosives	Any	Any other placard load	Any	**f**	**g**

NOTE: *A reference in this table to Goods A or Goods B: means those goods only while they are in receptacles of the sizes indicated, but does not include residues of those goods in those receptacles when they are nominally empty and this is clearly evident from the transport documentation in accordance with 11.1.3.1.*

Restrictions (see Table 9.3)

a. (Road) Dangerous goods mentioned in the column headed Goods A must not be transported on any road vehicle at the same time as goods described as Goods B in the same numbered row of this table, even if the Goods A and Goods B are in different freight containers, bulk containers, portable tanks or different vehicles making up a combination vehicle.

b. (Rail) A freight container or wagon transporting a placard load that includes dangerous goods described as Goods A must be separated on a train from a freight container or wagon transporting a placard load that includes Goods B in the same row of this table by at least one intervening load platform that may, subject to the other segregation provisions of this Chapter, be loaded with other dangerous goods.

c. (Road) A placard load on a road vehicle, including a combination vehicle, must not include at the same time, Cyanides of Division 6.1 and Acids of Class 8, in any quantity, even if they are in separate cargo transport units or on different vehicles making up a combination vehicle, unless Packagings for Segregation are used in accordance with 9.2.2.4.

d. (Rail) Except where e. applies, a freight container or wagon transporting a placard load that includes Cyanides of Division 6.1 must be separated on a train by at least two intervening load platforms from a freight container, portable tank or wagon transporting a placard load that includes Acids of Class 8.

e. (Rail) A freight container or wagon transporting Cyanide of Division 6.1 in a receptacle > 500 kg(L) must be separated on a train from a freight container or wagon transporting any Acid of Class 8 in a receptacle > 500 L by at least 15 intervening load platforms that may, subject to the other segregation provisions of this Chapter, be loaded with other dangerous goods. However, if all of the receptacles in or on a freight container or wagon transporting such Cyanide, or such Acid, or both, are nominally empty, it is only necessary that the container or wagon be separated by at least 2 such intervening load platforms.

f. (Road) See Australian Explosives Code.

g. (Rail) A rail wagon transporting a Category 2 or 3 explosives load (see Australian Explosives Code) must be separated on a train by at least two intervening load platforms from a freight container or wagon transporting a placard load of other dangerous goods. See Australian Explosives Code for separation between placard loads of explosives.

Except where this substance is transported in a Packaging for Segregation in accordance with 9.2.2.4.

9.2.4 ADDITIONAL RAIL PROVISIONS

9.2.4.1 Except for transport in a rail tank wagon or where 9.2.4.7 applies, dangerous goods must not be transported in the nearest cargo transport unit to either end of the train.

9.2.4.2 Except as provided in 9.2.4.7, a placard load of dangerous goods must not be transported in the nearest cargo transport unit to rolling stock carrying people (including a locomotive or van carrying train crew).

9.2.4.3 A rail tank wagon transporting dangerous goods of Division 2.1 must not:

(a) despite 9.2.4.1, be the first or last wagon of a train; or
(b) be marshalled immediately coupled to another such tank wagon unless exempted by the Competent Authority.

9.2.4.4 **<Reserved>**

9.2.4.5 Dangerous goods must be separated by at least two intervening load platforms from other containers or wagons on the train which are transporting loads which could pose a significant piercing hazard, such as logs, rails, beams and pipes which are not effectively protected by bulkheads.

9.2.4.6 Dangerous goods must not be transported by rail in a bi-modal (road/rail) tank wagon unless approved by the Competent Authority and agreed by the rail track owner.

9.2.4.7 **Passenger trains**

9.2.4.7.1 Dangerous goods must not be taken on board a passenger train or transported in a passenger compartment or in an area designated on a passenger train for the carriage of passenger luggage, except:

(a) medical gases that may be required for use by a passenger during the journey; and
(b) other dangerous goods that are:
    (i) in quantities not exceeding those specified as limited quantities for the particular substance or article in Column (7) of the Dangerous Goods List in Chapter 3.2; and
    (ii) the personal property of a passenger on the train.

9.2.4.7.2 A rail wagon that is attached to the rear of a passenger train may transport not more than 5 tonnes of dangerous goods, other than:

(a) Class 1 or 7; or
(b) Division 2.1 or 2.3; or
(c) Packing group I of any Class or Division.

9.2.4.7.3 The dangerous goods transported in the rail wagon described in 9.2.4.7.2 must be:

(a) segregated in accordance with Section 9.2.2; and
(b) described on transport documentation in accordance with Chapter 11.1.

9.2.4.7.4 The rail wagon described in 9.2.4.7.2 must be placarded when the dangerous goods in the wagon is a placard load.

9.2.4.8 Double stacking of freight containers

9.2.4.8.1 Where double stacking of freight containers is permitted by the rail track owner, the following may be loaded in a vertical stack:

(a) freight containers of dangerous goods of the same UN Number; or
(b) dangerous goods of Class 3, 6 and 9 (mixed or in separate containers); or
(c) a freight container of dangerous goods and a freight container of non-dangerous goods; or
(d) freight containers that contain less than a placard load of dangerous goods.

9.2.4.8.2 The following loads of dangerous goods in freight containers may not be transported in a vertical stack:

(a) liquid or gaseous dangerous goods in portable tanks or multiple element gas containers; or
(b) dangerous goods of Class 1; or
(c) freight containers known to contain food or food packaging with freight or bulk containers or portable tanks placarded with label model Nos. 2.3, 6.1, 6.2, 7(A–E), 8 or 10 (mixed class); or
(d) dangerous goods in open or curtain-sided containers; or
(e) all other combinations not permitted under subclause 9.2.4.8.1.

NOTE 1: *The segregation requirements of this chapter still apply.*

NOTE 2: *Placards, including labels and Emergency Information Panels when required must be visible from both sides of the rail wagon. In well wagons this may require relocating or additional placarding (see 5.3.7.2.4).*

PART 10: BULK TRANSFER OF DANGEROUS GOODS

CHAPTER 10.1 - TRANSFER EQUIPMENT

10.1.1 APPLICATION AND DEFINITIONS

10.1.1.1 Application

This Part applies to the transfer by gravity, pump or pressure differential of liquid, solid or gaseous dangerous goods into or out of a tank vehicle, or into or out of a portable tank, demountable tank, bulk container, pressure drum, tube, MEGC or IBC that is on a vehicle, utilising pipework and/or hose assembly.

10.1.1.2 Definitions

For the purposes of this Part:

Maximum delivery pressure means the maximum pressure that can occur in a system regardless of whether or not it is under pump pressure or at zero flow, including the effects of dead heading and system back pressure;

Maximum design pressure means the maximum pressure for which hose assembly has been designed and tested;

Transfer out of a vehicle includes transfer out of the tank of a tank vehicle or from a portable tank, demountable tank, bulk container, pressure drum, tube, MEGC or IBC that is on a vehicle;

Transfer into a vehicle includes transfer into the tank of a tank vehicle or into a portable tank, demountable tank, bulk container, pressure drum, tube, MEGC or IBC that is on a vehicle.

10.1.2 TRANSFER EQUIPMENT AND HOSE ASSEMBLIES

10.1.2.1 General

Transfer equipment and hose assemblies used for transfer of dangerous goods must be fit for purpose.

10.1.2.2 Hose assemblies for Class 2 (other than LP Gas or anhydrous ammonia)

A hose assembly used to transfer dangerous goods of Class 2, other than LP Gas or anhydrous ammonia (UN 1005), must have a maximum design pressure of not less than 1.5 times the maximum delivery pressure of the transfer system in which the hose is used.

10.1.2.3 Hose assemblies for LP Gas

A hose assembly used to transfer LP Gas must:

(a) comply with AS/NZS 1869 or UL 21;

(b) be tested in accordance with AS/NZS 1869; and

(c) be retested in accordance with AS/NZS 1596.

10.1.2.4 Hose assemblies for anhydrous ammonia (UN 1005)

A hose assembly used to transfer anhydrous ammonia (UN 1005) must:

(a) comply with AS/NZS 2022; and

(b) be tested in accordance with AS/NZS 2022.

10.1.2.5 Hose assemblies for Class 3 petroleum products

10.1.2.5.1 A hose assembly used to transfer dangerous goods of Class 3 petroleum products must:

(a) comply with AS 2683; and

(b) be tested in accordance with AS 2683.

10.1.2.5.2 <Reserved>

10.1.2.6 Hose assemblies for liquid dangerous goods other than Class 2 or Class 3 petroleum products

A hose assembly used to transfer dangerous goods in liquid form other than Class 2 or Class 3 petroleum products must:

(a) comply with AS 2594;

(b) be tested in accordance with AS 2594; and

(c) have a rated maximum design pressure of not less than 1.5 times the maximum delivery pressure of the transfer system in which the hose is used.

10.1.3 HOSE TESTING

10.1.3.1 Periodic inspection

A hose assembly must be inspected for damage over its entire length at intervals of not more than one month.

10.1.3.2 Electrical continuity testing

10.1.3.2.1 This clause applies to a hose assembly used to transfer:

(a) dangerous goods of Class 3 or 4; or

(b) dangerous goods (other than Class 2) with a Subsidiary Hazard of 3 or 4.

10.1.3.2.2 The hose assembly must be tested in accordance with AS 1180.13B for electrical continuity before it is first used to transfer dangerous goods. The resistance of the hose assembly must comply with the resistance values specified for electrical properties in AS 2683 for the kind of hose assembly being tested.

10.1.3.2.3 The hose assembly must be retested in accordance with AS 1180.13B, and, where applicable to the kind of hose assembly being tested, for electrical continuity in accordance with AS 1180.13C at intervals of no more than 6 months. The resistance of the hose assembly must comply with the resistance values specified for electrical properties in AS 2683 for the kind of hose assembly being tested.

10.1.3.2.4 If a hose assembly consists of two or more Kind 1 hose assemblies[1] coupled together, it must be constructed, assembled and maintained, so that the resistance between the end couplings does not exceed 10 ohms.

10.1.3.2.5 If a hose assembly consists of two or more hose assemblies which are not of Kind 1, it must be constructed, assembled and maintained so that the resistance between the couplings does not exceed the resistance

[1] Kind 1 hose as described in AS 2683.

values for electrical properties in AS 2683 for the relevant kind of hose assembly.

10.1.3.3 Hydrostatic pressure testing

Unless otherwise specified in this Code or a relevant Standard, a hose assembly used to transfer dangerous goods must be hydrostatically tested at the pressure required by this Code, which must be not less than the rated maximum working pressure:

(a) not more than 12 months before its initial use; and

(b) thereafter at the intervals required by the relevant standard, or, otherwise, on or before each anniversary of its first use.

10.1.3.4 Keeping records

10.1.3.4.1 Each hose assembly must be marked with a distinctive identifying number.

10.1.3.4.2 An accurate record must be kept for the life of each hose assembly of:

(a) the date on which each test required to be carried out by this Chapter is carried out;

(b) the nature of the test carried out;

(c) the date on which maintenance work is carried out on the hose assembly; and

(d) the nature of the maintenance work.

CHAPTER 10.2 - TRANSFER REQUIREMENTS

10.2.1 WHERE TO TRANSFER DANGEROUS GOODS

10.2.1.1 Position of vehicle during transfer of Division 2.1 or Class 3

10.2.1.1.1 Dangerous goods of Division 2.1, Class 3, or with a Subsidiary Hazard 2.1 or 3, must not be transferred into or out of a road vehicle unless the vehicle is positioned:

(a) so that it can be driven away in a forward direction; or

(b) if it is not reasonably practicable to drive the vehicle in a forward direction owing to the layout of the site so that it can be driven away with minimal manoeuvring.

10.2.1.1.2 The area through which the vehicle needs to move or manoeuvre in order to leave the premises on which the transfer takes place must, as far as practicable, be kept clear while the vehicle is on the premises.

10.2.1.2 Transfer in a public area

10.2.1.2.1 This sub-section applies at any place that is:

(a) in a built up area with public access; or

(b) within 15 metres of any building or any other place where there is likely to be a concentration of people, other than a building on the premises where the transfer takes place.

10.2.1.2.2 Dangerous goods of packing group I or Division 2.3 [other than ammonia, anhydrous (UN 1005) or ammonia solution (UN 3318)] must not be transferred out of a road vehicle in a place described in 10.2.1.2.1.

10.2.1.2.3 Dangerous goods must not be transferred out of one vehicle into another vehicle in a place described in 10.2.1.2.1.

10.2.1.3 Transfer operation within a designated transfer area

If dangerous goods are to be transferred into or out of a vehicle, and the occupier of premises has marked or otherwise designated an area on the premises in which a transfer operation is to take place, the vehicle must be parked within the designated area during the transfer operation.

10.2.1.4 Transfer in enclosed space

Dangerous goods must not be transferred into or out of a vehicle that is in an enclosed space if the transfer is likely to give rise to dangerous concentrations of dusts, mists or vapours.

10.2.1.5 Positioning of hose assembly during transfer

If dangerous goods are to be transferred into or out of a vehicle in an area which is accessible to other vehicles, all reasonably practicable measures must be taken to prevent any vehicle from driving over the hose assembly or striking its connections.

10.2.2 PREVENTING FIRE DURING A TRANSFER OPERATION

10.2.2.1 Distance from ignition sources

During a transfer operation into or out of a vehicle, there must be no source of ignition: within any hazardous area determined in accordance with AS/NZS 60079.10.1[1] .

10.2.2.2 Engine precautions

10.2.2.2.1 During transfer of dangerous goods of Class, Division or Subsidiary Hazard 2.1, 3 or 4 out of a road vehicle, the engine of the vehicle must remain stopped unless the transfer involves the use of a pump or compressor driven by the vehicle’s engine. This does not prevent the minimal necessary use of the engine to clear the contents of hoses back into the tank following the transfer.

10.2.2.2.1A During transfer of dangerous goods of Class, Division or Subsidiary Hazard 2.1, 3 or 4 into a road vehicle, the engine of the vehicle must remain stopped unless the vehicle is a vacuum tank vehicle.

10.2.2.2.2 The engine of the vehicle, and any internal combustion auxiliary engine on the vehicle, must be stopped while hose connections for the transfer of dangerous goods of Division or Subsidiary Hazard 2.1 are coupled to or uncoupled from the vehicle or tank on the vehicle.

10.2.2.3 Electrical bonding

10.2.2.3.1 Before LP Gas is transferred into or out of a vehicle, the supplying receptacle must be electrically bonded to the receiving receptacle in accordance with AS/NZS 1596.

10.2.2.3.2 Where dangerous goods of Division 2.1 (other than LP Gas) are transferred into or out of a vehicle and the receiving receptacle is not an underground tank, the supplying receptacle must be electrically bonded to the receiving receptacle before the transfer commences. The bonding must remain in place until all hose assemblies have been uncoupled and all closures have been closed.

10.2.2.3.3 Before dangerous goods of Class 3 are transferred into or out of a vehicle, the supplying receptacle must be electrically bonded to the receiving receptacle in accordance with AS 1940.

10.2.2.4 Loading spear for Class 3

If a tank is filled from the top with dangerous goods of Class or Subsidiary Hazard 3, and is not filled through a tight fill connection and fill pipe in accordance with AS 1692, the loading spear must be in contact with the bottom of the tank while the goods are being transferred.

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[1] *AS/NZS 60079.10.1 is an internationally based Standard that has now replaced the AS/NZS 2430 series of Standards. These Standards are recognised nationally as defining hazardous areas. They prescribe distances both in text and pictorially. These distances vary with the type of dangerous goods and, in the case of tanker loading, are different for installations with or without vapour recovery.*

10.2.2.5 Heater restrictions

Except where permitted by 13.1.3.5, if a road tank vehicle is equipped with a burner or other means to heat the cargo, the heater must not be operated during a transfer operation.

10.2.3 TRANSFER OF DANGEROUS GOODS - GENERAL REQUIREMENTS

10.2.3.1 Dangerous goods must not be transferred into or out of a vehicle, unless the vehicle is secured against movement.

10.2.3.2 If dangerous goods are transferred into or out of a vehicle, a person must:

(a) remain in proximity with the vehicle during the transfer operation; and

(b) be in a position to observe all relevant valves, fittings, gauges and hose connections that are used or may be used during the transfer operation; and

(c) have access to all equipment necessary to stop the transfer operation in the event of an escape, leak or spill.

10.2.3.3 Dangerous goods must not be transferred into or out of a road vehicle, while the cabin of the vehicle is occupied.

10.2.3.4 The level of light at all valves, fittings, gauges and hose connections that are used or may be used during a transfer operation must be adequate to allow the transfer operation to be conducted safely.

10.2.3.5 If dangerous goods are transferred under gas pressure into or out of a vehicle:

(a) the design pressure of the supplying receptacle must not be exceeded; and

(b) the gas used in the transfer operation must be chemically inert to the dangerous goods being transferred; and

(c) air must not be used to transfer dangerous goods of Class 3 or 4 or with a Subsidiary Hazard of 3 or 4.

10.2.3.6 A hose used in connection with a transfer operation should be handled so as to avoid excessive curvature, stress, abrasion or kinking that may damage the hose or its connections.

10.2.3.7 Despite 10.2.3.1 and 10.2.3.3, if a bitumen tank vehicle is coupled with road making plant, bitumen may be transferred between the vehicles by a connecting hose while the vehicles are in motion and while the cabins are occupied. However the tank vehicle drive away protection system required by AS2809 may only be overridden by the road making plant coupled to the bitumen tank vehicle to allow the coupled units to be moved.

10.2.4 TRANSFER OF GAS

10.2.4.1 LP Gas must be transferred into or out of a vehicle in accordance with AS/NZS 1596.

10.2.4.2 Liquefied gas must not be transferred into a storage tank or other receptacle housed within a building unless:

(a) the building is designed and used solely for the purpose of storing dangerous goods of Class 2; or

(b) the building may be used for that purpose under a law of the State of Territory in which the building is located that relates to the storage and handling of dangerous goods.

10.2.4.3 Subject to 10.2.4.1, when dangerous goods of Division 2.1 or Division 2.3 are transferred out of a vehicle into a storage receptacle and if:

(a) the line of sight between the vehicle, portable tank or MEGC and the filling point of the storage container is obstructed so that one cannot be seen from the other; or

(b) the transfer is at a place described in 10.2.1.2.1:

a person capable of using the transfer equipment must remain at the vehicle and another person capable of using the transfer equipment must remain at the storage container.

10.2.4.4 A person must not transfer liquefied oxygen into or out of a road vehicle unless, during the transfer operation, all surfaces within a distance of 1 metre of the transfer hose are made of concrete or other non-combustible material.

10.2.5 TRANSFER OF DANGEROUS GOODS OF CLASS 3

10.2.5.1 Dangerous goods of Class or Subsidiary Hazard 3 must be transferred out of a vehicle into a storage receptacle, in accordance with AS 1940. Direct transfer of these goods out of the vehicle into drums or smaller packagings is not permitted except at facilities designed or designated for the purpose, taking into account the requirements of AS 1940 and AS/NZS 60079.10.

10.2.5.2 If a pump is fitted to or carried on the vehicle to or from which dangerous goods of Class or Subsidiary Hazard of 3 are transferred:

(a) the propulsion engine of the vehicle must not be used to power the pump unless:

  (i) the engine is a compression-ignition engine; and

  (ii) the pump and all associated pipework are shielded from the engine of the vehicle by the provision of a fire shield or by equally effective means; and

  (iii) the pump driving engine requirements of AS 2809.2 are complied with; and

(b) a spark ignition engine must not be used to power an auxiliary or portable pumping unit; and

(c) an auxiliary or portable pumping unit powered by a compression-ignition engine must not be used unless the unit is approved by a Competent Authority for that purpose and is operated in accordance with the approval; and

(d) an electric motor must not be used to power the pump unless the motor and all associated electrical fittings and equipment are suitable for use in a Zone 1 hazardous area as defined in AS/NZS 60079.10.

10.2.5.3 All valves and closures that were removed or opened to enable the transfer to take place must be reinstated or closed after the transfer is completed.

10.2.5.4 Manner of filling

10.2.5.4.1 Except where 10.2.5.4.2 applies, when dangerous goods of Class or Subsidiary Hazard 3 are transferred into or out of a vehicle, the receptacle on the vehicle and the receiving tank or storage receptacle must be connected by pipeline and hose connection.

10.2.5.4.2 A hand-held nozzle may be used for the transfer of dangerous goods of Class or Subsidiary Hazard 3 into or out of a vehicle if:

(a) the transfer:

(i) takes place on premises which are a farm or mine site; or

(ii) is into or out of a tank described in AS 1940 as a minor storage tank; and

(b) the receiving tank or storage container is fitted with a fill pipe at the tank or container opening.

CHAPTER 10.3 - ULLAGE AND MAXIMUM PERMITTED FILLING RATIO

NOTE: *This Chapter applies only to the filling of tank vehicles.*

Portable tanks and MEGCs must be filled only in accordance with the provisions for use in Chapter 4.2, as referenced:

(a) for portable tanks, –from the portable tank instructions and special provisions for the particular dangerous goods in Columns (10) and (11) of the Dangerous Goods List in Chapter 3.2; or

(b) for MEGCs, –from packing instruction P200 in Chapter 4.1.

Bulk containers must be filled in accordance with the provisions for use in Chapter 4.3., as referenced from Column (10) of the Dangerous Goods List.

IBCs must be filled in accordance with the provisions of 4.1.1, 4.1.2 and the relevant IBC packing instructions and special packing provisions in 4.1.4.2, as referenced from Columns (8) and (9) of the Dangerous Goods List.

10.3.1 ULLAGE

10.3.1.1 Liquid dangerous goods (other than Class 2)

Unless elsewhere specified in this Code or a relevant code or standard referenced in this Code, the ullage in a tank vehicle containing liquid dangerous goods (other than dangerous goods of Class 2) must not be less than:

(a) 2% - for dangerous goods having a coefficient of expansion of not more than 90×10^{-5} per degree Celsius;

(b) 3% - for dangerous goods having a coefficient of expansion of more than 90×10^{-5} but not more than 135×10^{-5} per degree Celsius;

(c) 4% - for dangerous goods having a coefficient of expansion of more than 135×10^{-5} but not more than 180×10^{-5} per degree Celsius; or

(d) 5% - for dangerous goods having a coefficient of expansion of more than 180×10^{-5} per degree Celsius.

10.3.1.2 Ullage of large tank or compartment

10.3.1.2.1 This clause applies to liquids having a viscosity less than 2,680 mm^2/s at 20°C, or the maximum temperature of the substance during transport in the case of the heated substance, that are either:

(a) dangerous goods; or

(b) liquids other than dangerous goods that are transported in the same tank, or in another tank on the same vehicle or combination vehicle, as dangerous goods.

10.3.1.2.2 Any liquid described in 10.3.1.2.1, must not be transported in a large compartment tank as defined in AS 2809.1, if the ullage in the large compartment is more than 20% but less than 85%.

NOTE 1: *10.3.1.2.2 applies only to those tanks or compartments of a road tank vehicle that individually exceed 8,600 L. It does not apply to portable tanks, or to smaller tanks or compartments on the same vehicle.*

NOTE 2: *This ullage requirement corresponds to a restriction on the transport of a large compartment tank having a degree of filling of more than 15% but less than 80%.*

NOTE 3: *Different limits apply to the compartment sizes and degree of filling of portable tanks in 4.2.1.9.6.*

10.3.1.2.3 10.3.1.2.2 does not apply to liquefied gases, or to TARS, LIQUID (UN 1999), or to elevated temperature liquids (UN 3256 and 3257), or to waste dangerous goods transported in vacuum tank vehicles.

10.3.1.3 Ullage—Class 2 refrigerated liquid

If dangerous goods of Class 2 in the form of a refrigerated liquid are transferred into a tank vehicle, the tank must not be filled with liquid to the extent that, when the liquid is uniformly at the temperature which corresponds to the start-to-discharge pressure of:

(a) the safety relief valve of the tank; or

(b) where the tank is fitted with a pressure control valve in addition to a safety relief valve— the pressure control valve;

the ullage below the inlet to the valve is less than 2% when the tank is level.

NOTE: *Consideration should also be given to Portable Tank Instruction T75 and any Portable Tank Special Provisions specified for the substance in Column (11) of the Dangerous Goods List in Chapter 3.2.*

10.3.2 MAXIMUM PERMITTED FILLING RATIO - CLASS 2 LIQUID

10.3.2.1 The maximum permitted filling ratio for a tank vehicle containing dangerous goods of Class 2 in a liquefied form (other than refrigerated liquid) is:

(a) for goods covered under AS/NZS 1596, as specified in the filling instructions set out in that Standard;

(b) for tank vehicles with a capacity of 5000L or more transporting propane, 0.45, as determined in accordance with Table 2.1 of AS 2809.3;

(c) in all other circumstances, the relevant ratio specified in Portable Tank Instruction T50 in Chapter 4.2;

(d) if paragraph (c) applies but no ratio is specified in Portable Tank Instruction T50 – the ratio determined by a Competent Authority in relation to goods of that type when transferred into a tank of that type.

PART 11: DOCUMENTATION

Note: *The numbering and structure of Chapter 11 was revised in 2020 to align with that of the UN Model Regulations. This was necessary to facilitate future updates to the Code.*

CHAPTER 11.1 - TRANSPORT DOCUMENTATION

Introductory Notes

NOTE 1: *Documentation prepared in accordance with this Part may not be acceptable for sea or air transport. See the relevant modal code or Chapter 5.4 of the UN Model Regulations for details of documentation required for intermodal transport by sea or air.*

NOTE 2*:* *The IATA "Shipper's Declaration for Dangerous Goods" will also be acceptable under this Code as a transport document if all the required information is inserted.*

NOTE 3*:* *Division 11.1 of the Regulations specifies who must provide and carry dangerous goods transport documentation.*

11.1.1 DANGEROUS GOODS TRANSPORT INFORMATION

11.1.1.1 General

11.1.1.1.1 Except as otherwise provided, the consignor who offers dangerous goods for transport shall give to the prime contractor the information applicable to those dangerous goods, including any additional information and documentation as specified in this Code. This information may be provided on a dangerous goods transport document or, with the agreement of the carrier, by EDP or EDI techniques.

11.1.1.1.2 When dangerous goods transport information is given to the prime contractor by EDP or EDI techniques, documentation must be carried in the vehicle in hard copy form.

11.1.1.1.3 When the dangerous goods transport information is given to the prime contractor by EDP or EDI techniques, the consignor shall be able to produce the information without delay as a paper document, with the information in the sequence required by this Chapter.

11.1.1.2 FORM OF THE TRANSPORT DOCUMENT

11.1.1.2.1 A dangerous goods transport document may be in any form, provided it contains all of the information required by this Code.

11.1.1.2.2 If both dangerous and non-dangerous goods are listed in one document, the dangerous goods must be listed first.

11.1.1.2.3 A dangerous goods transport document may consist of more than one page, provided pages are consecutively numbered.

11.1.1.2.4 The information on a dangerous goods transport document must be in English, easy to identify, legible and durable.

11.1.1.2.5 The form shown in Figure B1 in Appendix B is an example of the intermodal dangerous goods transport document included in UN20, the IMDG Code and ADR, that may be suitable for sea or land transport. It may be used for transport in accordance with this Code if all information required by this Chapter is inserted in the spaces provided. This does not preclude the use of other formats that meet the requirements of this Chapter.

11.1.1.3 CONSIGNOR, CONSIGNEE AND DATE

11.1.1.3.1 The name and address of the consignor and the consignee of the dangerous goods must be included on the dangerous goods transport document, including the consignor's contact telephone number which:

(i) for dangerous goods transported in bulk containers, portable tanks, tank vehicles, or receptacles with a capacity of more than 500 kg(L), should be the number of the 'telephone advisory service' provided under Regulation 14.2.1; or
(ii) whenever practicable, should be a number at which the consignor, or a person acting on behalf of the consignor, is accessible to answer questions relating to the goods consigned, whenever the goods are being transported; and

11.1.1.3.2 The date the dangerous goods transport document or an electronic copy of it was prepared or given to the initial carrier must be included.

11.1.1.4 INFORMATION REQUIRED ON THE DANGEROUS GOODS TRANSPORT DOCUMENT

11.1.1.4.1 Dangerous Goods Description

The dangerous goods transport document must contain the following information for each type of dangerous good or article offered for transport:

(a) the UN Number of the goods;
(b) the proper shipping name of the goods or the name of the goods that appears on the packaging, article or other receptacle in which the goods are contained[1] ;
(c) the Class or Division of the goods;
(d) each Subsidiary Hazard (if any) of the goods;
(e) the packing group (if any) for the goods;
(f) a description of each type of package or other receptacle to be transported, for example:
  (i) "drum" or "DRM"; and
  (ii) "intermediate bulk container" or "IBC";
(g) the number of packages or receptacles of each type to be transported; and
(h) except for empty uncleaned packagings, the aggregate quantity of dangerous goods covered by the description of each item of dangerous goods bearing a different proper shipping name, UN number or packing group. For dangerous goods transported in

[1] When entered as part of a character string (e.g. on the intermodal dangerous goods form), the proper shipping name, supplemented where necessary by the technical name, must be used.

salvage packagings, an estimate of the quantity of dangerous goods must be given.

NOTE 1: *The number, type and capacity of each inner packaging within the outer packaging of a combination packaging is not required to be indicated.*

NOTE 2: *The aggregate quantity of a type of dangerous goods required by 11.1.1.4.1(h) may be described by stating:*

(a) if the goods are a gas:
- *(i) the total capacity in litres of all gas receptacles in which those goods will be transported; or*
- *(ii) if more convenient, the number of each type of receptacle in which the goods will be transported [as required by 11.1.1.4.1(g)] together with the capacity of each of those receptacles; or*

(b) if the goods are a liquid or a solid:
- *(i) the total amount, expressed in litres or kilograms, of dangerous goods of that type to be transported; or*
- *(ii) if more convenient, the number of each type of package or other receptacle in which the goods will be transported [as required by 11.1.1.4.1(g)] together with the amount of dangerous goods each contains.*

11.1.1.4.2 Placement and Sequence of the Dangerous Goods Description

11.1.1.4.2.1 When describing a type of dangerous goods, the UN Number, name, Class or Division, Subsidiary Hazard and the packing group for the goods must appear before the other elements of the description.

11.1.1.4.2.2 Where the transport document is in the form of the Multimodal Dangerous Goods Form shown at Figure B1[1] in Appendix B, or any other format where the dangerous goods description is entered as a character string, the first five elements of the dangerous goods description specified in 11.1.1.4.1 must be shown in the order listed above (i.e. (a), (b), (c), (d), (e) with no information interspersed, except as provided in this Code..

e.g: "**UN1098 ALLYL ALCOHOL 6.1 (3) I**"; or

"**UN1098, ALLYL ALCOHOL, Division 6.1, (Class 3), PG I**".

NOTE 1: *Knowledge of the actual location of dangerous goods within the cargo transport unit can be invaluable in an emergency. The inclusion of a sketch or other representation is encouraged where practicable.*

NOTE 2: *In addition to the requirements of this Code, other elements of information may be required by the competent authority or for certain modes of transport (e.g. flash point for sea transport). Unless permitted or required by this Code,*

[1] This form may be printed from this Code using Appendix B as a proforma.

additional information must be placed after the dangerous goods description.

11.1.1.4.3 Information which supplements the proper shipping name in the dangerous goods description

The proper shipping name in the dangerous goods description must be supplemented as follows:

(a) Technical names for "n.o.s." and other generic descriptions: Proper shipping names that are assigned special provision 274 or 318 in Column 6 of the Dangerous Goods List must be supplemented with their technical or chemical group names as described in 3.1.2.8;

(b) Empty uncleaned packagings, bulk containers and tanks: Empty means of containment (including packagings, IBCs, bulk containers, portable tanks, tank-vehicles and tank-wagons) which contain the residue of dangerous goods of classes other than Class 7 must be described as such by, for example, placing the words "**EMPTY UNCLEANED**" or "**RESIDUE LAST CONTAINED**" before or after the dangerous goods description specified in 11.1.1.4.1 (a) to (e);

Empty, as yet unused dangerous goods prelabelled packagings should be clearly identified as such on documentation, outer packaging or vehicle to avoid inappropriate emergency response.

(c) Wastes: For waste dangerous goods (other than radioactive wastes) which are being transported for disposal, or for processing for disposal, the proper shipping name must be preceded by the word "**WASTE**", unless this is already a part of the proper shipping name;

(d) Elevated temperature substances: If the proper shipping name of a substance which is transported or offered for transport in a liquid state at a temperature equal to or exceeding 100 °C, or in a solid state at a temperature equal to or exceeding 240 °C, does not convey the elevated temperature condition (for example, by using the term "**MOLTEN**" or "**ELEVATED TEMPERATURE**" as part of the shipping name), the word "**HOT**" must immediately precede the proper shipping name.

11.1.1.5 INFORMATION REQUIRED IN ADDITION TO THE DANGEROUS GOODS DESCRIPTION

In addition to the dangerous goods description the following information must be included after the dangerous goods description on the dangerous goods transport document.

11.1.1.5.1 <Reserved>

11.1.1.5.2 <Reserved>

11.1.1.5.3 Salvage packagings including large salvage packagings and salvage pressure receptacles

For dangerous goods transported in salvage packagings including large salvage packagings or salvage pressure receptacles, the words "SALVAGE PACKAGING" or "SALVAGE PRESSURE RECEPTACLE" must be included.

11.1.1.5.4 Substances stabilised by temperature control

If the word "STABILISED" is part of the proper shipping name (see also 3.1.2.6), when stabilisation is by means of temperature control, the control and emergency temperatures (see 7.1.5.3) must be indicated in the transport document, as follows:

"Control temperature: .... °C   Emergency temperature: .... °C"

11.1.1.5.5 Self-reactive substances, polymerizing substances and organic peroxides

For self-reactive substances, organic peroxides or polymerizing substances which require temperature control during transport, the control and emergency temperatures (see 7.1.5.3) must be indicated on the dangerous goods transport document, as follows:

"Control temperature: .... °C   Emergency temperature: .... °C"

11.1.1.5.5.1 When for certain self-reactive substances of Division 4.1 or organic peroxides of Division 5.2 the competent authority has permitted the "EXPLOSIVE" subsidiary hazard label (model No. 1) to be dispensed with for the specific package, a statement to this effect must be included.

11.1.1.5.5.2 When organic peroxides or self-reactive substances are transported under conditions where a determination is required (for organic peroxides, see 2.5.3.2.5, 4.1.7.2.2, 4.2.1.13.1 and 4.2.1.13.3; for self-reactive substances, see 2.4.2.3.2.4 and 4.1.7.2.2), a statement to this effect must be included in the dangerous goods transport document. A copy of the classification determination and conditions of transport for non-listed organic peroxides and self-reactive substances must be attached to the dangerous goods transport document.

11.1.1.5.5.3 When a sample of an organic peroxide (see 2.5.3.2.5.1) or a self-reactive substance (see 2.4.2.3.2.4(b)) is transported, a statement to this effect must be included in the dangerous goods transport document.

11.1.1.5.6 Infectious substances

When substances of division 6.2 are transported, the full address of the consignee must be shown on the document, together with the name and telephone number of a responsible person.

11.1.1.5.7 <Reserved>

11.1.1.5.8 <Reserved>

11.1.1.5.9 Transport of IBCs or portable tanks after the date of expiry of the last periodic test or inspection

For transport in accordance with 4.1.2.2 (b), 6.7.2.19.6 (b), 6.7.3.15.6 (b) or 6.7.4.14.6 (b), a statement to this effect must be included in the transport document, as follows:

- "Transport in accordance with 4.1.2.2(b)";

- "Transport in accordance with 6.7.2.19.6(b)";

- "Transport in accordance with 6.7.3.15.6(b)" or

- "Transport in accordance with 6.7.4.14.6(b)" as appropriate.

11.1.1.5.10 *<Reserved>*

11.1.1.5.11 *Classification where new data is available (see 2.0.0.2)*

For transport in accordance with 2.0.0.2, a statement to this effect shall be included in the transport document, as follows “Classified in accordance with 2.0.0.2”.

11.1.1.5.12 *Transport of UN Nos. 3528, 3529 and 3530*

For transport of UN Nos. 3528, 3529 and 3530, the transport document, when required according to special provision 363, shall contain the following additional statement “Transport in accordance with special provision 363”.

11.1.1.5.13 *Actual holding time*

In the case of portable tanks carrying refrigerated liquefied gases the consignor shall enter in the transport document the date at which the actual holding time ends, in the following format:

“END OF HOLDING TIME: ………….. (DD/MM/YYYY)”.

11.1.1.6 **<RESERVED>**

11.1.2 SPECIAL DOCUMENTATION PROVISIONS

11.1.2.1 Combination road vehicles

When dangerous goods are transported in a placard load on a combination road vehicle, the transport documentation must indicate which dangerous goods are stowed in each vehicle forming part of the combination.

11.1.2.2 Amending documentation after unloading

When part of a load of dangerous goods is unloaded from a vehicle, or transferred out of a tank, bulk container or freight container on the vehicle, the transport documentation must where practicable be amended to reflect the types and quantities of dangerous goods remaining on the vehicle.

NOTE: *11.1.2.2 cannot be applied to tanks containing dangerous goods of Class 2 where the aggregate quantity in the tank is* *determined by the capacity of the tank and is not dependent on the degree of filling.*

11.1.2.3 <DELETED>

11.1.2.4 Goods Not Subject to this Code

11.1.2.4.1 This sub-section applies to goods which are mentioned in the Dangerous Goods List in Chapter 3.2 that are not subject to this Code because of a Special Provision referenced from Column (6) or because they have been determined by the Competent Authority not to be dangerous goods.

11.1.2.4.2 Goods described in 11.1.2.4.1 that are legitimately marked or labelled as dangerous goods under the IMDG, ICAO or IATA Code for transport by sea or air, may be described on transport documentation in accordance with the relevant Code.

11.1.2.4.3 When goods described in 11.1.2.4.1 are transported in a cargo transport unit that is placarded indicating the presence of dangerous goods and there is no documentation in accordance with 11.1.2.4.2, the transport documentation should indicate, in lieu of the dangerous goods description required by 11.1.1.1.4, that the goods are not subject to the ADG Code.

11.1.3 ROAD TRANSPORT DOCUMENTATION

11.1.3.1 Transport documentation must be carried in the cabin of each road vehicle transporting dangerous goods.

11.1.3.2 Every road vehicle transporting a placard load of dangerous goods must be fitted with an emergency information holder in accordance with Chapter 11.2 and the transport documentation must be carried with the emergency information in that holder.

11.1.3.3 Every road vehicle transporting less than a placard load of dangerous goods must carry the documentation:

(a) in any emergency information holder fitted in the cabin of the vehicle; or

(b) where no emergency information holder is fitted, elsewhere in the cabin in a prominent location.

11.1.3.4 Despite 11.1.1.2, the documentation must be of a size, and be in a form, that is suitable for carrying in the emergency information holder.

11.1.3.5 The documentation must not be in a sealed envelope or be otherwise kept in a way that would prevent it from being able to be read by the driver, while it is in the vehicle.

11.1.4 RAIL TRANSPORT DOCUMENTATION

For the rail journey, a train manifest may be used instead of transport documentation required by this Chapter provided:

(a) the train manifest contains, for each type of dangerous goods to be transported, the proper shipping name, the Class or Division and any Subsidiary Hazard, the UN Number, the packing group (if any), the aggregate quantity, the wagon number and the location on the train where the goods are loaded;

(b) provision is made for the train manifest to be updated when the attachment or detachment of vehicles loaded with dangerous goods occurs; and

(c) while ever the train is transporting dangerous goods, all of the information required by this Chapter to be included on the documentation is available from a central location provided by the rail operator for which contact details are provided on or with the manifest.

CHAPTER 11.2 - EMERGENCY INFORMATION [1]

11.2.1 DEFINITIONS

In this Chapter:

Emergency information, in relation to dangerous goods transported on a vehicle, means:

(a) the Dangerous Goods – Initial Emergency Response Guide[2] ; or

(b) an emergency procedure guide for the dangerous goods transported on the vehicle and the emergency procedure guide in relation to vehicle fire; or

(c) for use on trains transporting dangerous goods, the rail operator’s Dangerous Goods Emergency Instructions for train crews which provides contact numbers for dangerous goods emergencies or

(d) a relevant international or foreign standard, legible and in English, that is equivalent to the information provided by Standards Australia publication HB76[3]. Any use of an international or foreign standard must be approved by the Competent Authority.

Note 1: *An example of a relevant international or foreign standard is the 2012 Emergency Response Guidebook (ERG2016) developed jointly by Transport Canada (TC), the U.S. Department of Transportation (DOT), the Secretariat of Transport and Communications of Mexico (SCT) and with the collaboration of CIQUIME (Centro de Informaciòn Quìmica para Emergencias) of Argentina.*

[1] Division 11.2 of the Regulations requires emergency information to be carried on each road vehicle or train transporting dangerous goods in a placard load.
[2] Standards Australia publication HB 76 ‘Dangerous Goods – Initial Emergency Response Guide’.
[3] Standards Australia publication HB 76 ‘Dangerous Goods – Initial Emergency Response Guide’.

Note 2: *Such international or foreign standards that are acceptable must be supplemented by correct Australian emergency contact information.*

Emergency procedure guide, in relation to particular dangerous goods, is a guide outlining procedures to be taken in the event of an emergency involving the goods which is either:

(a) in the form, or substantially in the form, of an emergency procedure guide for the goods published by Standards Australia; or

(b) in a form approved by a Competent Authority in relation to goods of that kind.

Emergency procedure guide, in relation to vehicle fire, means a guide outlining procedures to be taken in the event of a fire on a road vehicle which is either:

(a) in the form, or substantially in the form, of the emergency procedure guide for vehicle fire published by Standards Australia; or

(b) in a form approved by a Competent Authority.

Emergency information holder means a holder:

(a) of a size and shape suitable for carrying emergency information and transport documentation; and

(b) marked with the words "emergency procedure guides" or "emergency information" in red letters at least 10 millimetres high on a white background.

11.2.2 PLACEMENT OF EMERGENCY INFORMATION HOLDER

11.2.2.1 An emergency information holder must be securely placed on a road vehicle:

(a) on the inside of a door of the cabin; or

(b) immediately adjacent to a door of the cabin; or

(c) if the construction of the vehicle does not allow the holder to be attached to the inside of or adjacent to a cabin door - elsewhere in the cabin of the vehicle, provided that the position of the holder is identified on a notice affixed to the inside of the driver's door of the cabin.

11.2.2.2 Any emergency information holder that is located other than as specified in 11.2.2.1(a) must be visible and accessible.

PART 12: SAFETY EQUIPMENT FOR ROAD VEHICLES

CHAPTER 12.1 - SAFETY EQUIPMENT FOR ROAD VEHICLES

12.1.1 APPLICATION

Every road vehicle transporting a placard load of dangerous goods must be equipped with:

(a) fire extinguishers in accordance with 12.1.2; and

(b) at least three portable warning devices that comply with AS 3790 and are clean and in good condition; and

(c) personal protective equipment and safety equipment in accordance with 12.1.3.

12.1.2 FIRE EXTINGUISHERS

12.1.2.1 A road vehicle transporting a placard load of dangerous goods must be equipped with a fire extinguisher or fire extinguishers in good working order and in accordance with Table 12.1.

12.1.2.2 On a combination vehicle, each separate unit on which a placard load of dangerous goods is transported must be equipped with fire extinguishers in good working order and in accordance with Table 12.1.

12.1.2.3 A fire extinguisher required by this Section must comply with:

(a) AS/NZS 1841.1 and AS/NZS 1850 and AS1851; and

(b) AS/NZS 1841.4 or 5 as appropriate for the vehicle and load being carried.

12.1.2.4 Each fire extinguisher required by this Section must be mounted securely by means of a quick-release attachment.

12.1.2.5 Extinguisher Location

12.1.2.5.1 Each fire extinguisher required by this Section must be located so as to be readily accessible for use.

12.1.2.5.2 On road tank vehicles, fire extinguishers must be located and stowed in accordance with AS 2809.1.

12.1.2.5.3 Where two or more fire extinguishers are required for the load area of any vehicle, one should be located on the left (near) side towards the rear of the vehicle and, wherever practicable, another should be mounted on the right (off) side towards the front of the vehicle.

12.1.2.5.4 Except in the case of a combination vehicle, if only one fire extinguisher is required for any vehicle, wherever practicable it should be located:

(a) on the discharge side of a road tank vehicle; or

(b) in the cabin for all other vehicles.

12.1.2.5.5 If 12.1.2.5.4 or Table 12.1 requires that a fire extinguisher be located in the cabin, as an alternative to being located in the cabin the fire extinguisher may be located directly behind the cabin or may be mounted on the rear of the cabin.

Table 12.1: Minimum Fire Extinguisher Requirements for Road Vehicles Transporting a Placard Load of Dangerous Goods

Load: **All types of dangerous goods** packed in: • packages, drums, overpacks, segregation devices • intermediate bulk containers (IBCs) containing non-flammables – any quantity • IBCs containing flammables with up to (and including) 10,000 L total capacity or containing up to (and including) 10,000 kg in total
Required extinguishers: 1 x 30B dry powder that is to be placed in the cabin (see 12.1.2.5.5), or at the front of any trailer transporting a placard load

Load: **Non-flammable goods** packed in: pressure drums, tubes, multiple element gas containers (MEGCs), tanks, bulk containers (solids)
Required extinguishers: 1 x 60B dry powder, or 2 x 30B dry powder, in the load area 1 x 10B dry powder in the cabin (see 12.1.2.5.5)

Load: **Flammable goods** packed in: • pressure drums, tubes, MEGCs, tanks, bulk containers (solids) • IBCs > 10,000 L total capacity or containing >10,000 kg. in total
Required extinguishers: 2 × 60B dry powder, or 1x 80B dry powder and 1 x 20B foam, in the load area 1 x 10B dry powder in the cabin (see 12.1.2.5.5)

NOTE 1: *In this table "flammable goods" means dangerous goods of Division 2.1, Class 3 or Class 4, or having a subsidiary hazard of 2.1, 3 or 4.*

NOTE 2: *In cases of combination vehicles, these directions apply to every separate trailer transporting a placard load.*

NOTE 3: *If more than one dry powder fire extinguisher is required in the load area, one may be replaced with a foam or water fire extinguisher of at least 9L capacity. If a foam or water fire extinguisher is used it must be suitable for the types of fire scenarios likely to be encountered and selected with the aim of preventing the spread of fire to the load.*

NOTE 4: *A foam or water firefighting system using compressed air, electric pumps or other means, may be used in place of portable fire extinguishers in the load area. The firefighting system must be operational even when the engine of the vehicle is turned off and must be suitable for the types of fire scenarios likely to be encountered with the aim of preventing the spread of fire to the load.*

12.1.3 PERSONAL PROTECTIVE EQUIPMENT AND SAFETY EQUIPMENT

12.1.3.1 Table 12.2 specifies the minimum personal protective and safety equipment that must be provided, based on the classification of the dangerous goods being transported.

12.1.3.2 A road vehicle transporting a placard load of dangerous goods must carry the personal protective equipment and safety equipment specified in Table 12.2 for all the dangerous goods in the load, based on their primary hazards and any subsidiary hazard, subject to any conditions incorporated in the table and its explanatory notes.

12.1.3.3 All personal protective equipment and safety equipment provided in accordance with this section must be:

(a) clean; and

(b) suitable for purpose; and

(c) in sound operating condition, ready for use.

12.1.3.4 Personal protective equipment provided in accordance with this section must be in sufficient quantities for and suitable for use by:

(a) the driver of the vehicle; and

(b) where required for escape purposes, any other persons travelling in the vehicle.

12.1.3.5 Respiratory protection equipment required to be carried for escape purposes must be carried securely and in an accessible position in the cabin of the vehicle.

12.1.3.6 Other personal protective equipment and safety equipment provided for occupants of a road vehicle transporting dangerous goods must be carried securely and in a readily accessible position in the vehicle.

Table 12.2: Minimum Personal Protective and Safety Equipment on Road Vehicles transporting a Placard Load

Minimum Equipment Required	Class, Division or Subsidiary Hazard of Dangerous Goods in Load											
	2.1 [a]	**2.2**	**2.3**	**3**	**4**	**5.1 (solids)**	**5.1 (liquids)**	**5.2**	**6.1**	**6.2**	**8**	**9**
Respiratory protection equipment for escape purposes	No	No	**[b]**	No	No	No	No	No	**[b]**	No	**[b]**	No
Gas tight goggles or full face shield as appropriate	**[c]**	**[c]**	Yes	No	No	No	Yes	Yes	Yes	No	Yes	No
Eye-wash kit **[d]**	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Chemically resistant gloves or gauntlets	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Thermally insulated gloves or gauntlets	Yes	Yes	Yes	No	No	No	No	No	No	No	No	**[e]**
Chemically resistant suit or coveralls	No	No	No	No	No	No	Yes	Yes	Yes	No	Yes	No
Chemically resistant boots	No	No	No	No	No	No	Yes	Yes	Yes	No	Yes	No
Any electric torch	No	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Electric torch complying with AS/NZS 60079.11 or other recognised Standard	Yes	No	No	Yes	Yes	No	No	Yes	No	No	No	No

Table notes:

[a] *A vehicle transporting unodourised LP Gas, Butane or Propane must additionally be equipped with a gas detector suitable for detection of LP Gas, in accordance with AS 1596.*

[b] *The minimum requirement is air supplied short term breathing apparatus suitable for escape purposes, except when, even in an emergency, the dangerous goods will not give rise to harmful vapours, gases or dust. Note that where a driver attends to the loading or transfer of goods, SCBA with a duration of greater than 15 minutes may be required by other (e.g. health and safety) legislation.*
The minimum requirement is a compressed air or compressed oxygen self contained breathing apparatus, or chemical oxygen self-contained self-rescuer, certified to comply with AS/NZS 1716 and providing breathable air for not less than 15 minutes.
Respiratory protection equipment is not required where the dangerous goods will not give rise to harmful vapours, gases or dust, even in an emergency,

[c] *Yes – if the goods are in receptacles with a capacity > 500 L or the goods are cryogenic liquids.*

No – otherwise
“Gas tight goggles” means face hugging goggles with increased facial seal.

[d] *Where an eyewash kit is required, it must be of at least 250 mL capacity, filled and ready for use.*

[e] *Yes – if the goods are elevated temperature substances or dry ice.*

No – otherwise.

NOTE 1: *Where an item of Personal Protective or Safety Equipment is required based on the primary hazard or subsidiary hazard of any item of dangerous goods in the load, that item must be carried, except that where thermally insulated gloves or gauntlets are required and carried, any requirement for chemically resistant gloves or gauntlets may be ignored*

NOTE 2: *Under other legislation, it may be necessary to carry additional Personal Protective Equipment where it is specified for the purpose on the Safety Data Sheet.*

PART 13: PROCEDURES DURING ROAD TRANSPORT

CHAPTER 13.1 - PROCEDURES DURING TRANSPORT

13.1.1 APPLICATION

This Chapter applies only to road vehicles transporting a placard load of dangerous goods.

13.1.2 BREAKDOWNS

13.1.2.1 General Measures

If a road vehicle transporting dangerous goods is disabled on a road or street, or has stopped and constitutes a traffic hazard, other road users must be alerted by:

(a) if:

- (i) the battery has not been disconnected to prevent danger and there are flashing hazard lights on the vehicle—turning the hazard lights on and leaving them on while the vehicle is stopped; or
- (ii) the battery has not been disconnected to prevent danger and there are no flashing hazard lights on the vehicle—turning the parking lights on and leaving them on while the vehicle is stopped; and

(b) placing a portable warning device in a manner required by 13.1.2.2

13.1.2.2 Placement of portable warning triangles

The portable warning triangles must be placed as follows:

(a) if the speed limit for the road is 80 kilometres per hour or more:

- (i) 1 triangle at least 200 metres, but not over 250 metres, behind the vehicle; and
- (ii) if the vehicle is on a one-way or divided road, 1 triangle between the triangle required by paragraph (i) and the vehicle; and
- (iii) if the vehicle is not on a one-way road or divided road, 1 triangle at least 200 metres, but not over 250 metres, in front of the vehicle or fallen load; and
- (iv) 1 triangle at the side of the vehicle closer to traffic;

(b) if the speed limit for the road is less than 80 kilometres per hour:

- (i) 1 triangle at least 50 metres, but not over 150 metres, behind the vehicle; and
- (ii) if the vehicle is on a one-way or divided road, 1 triangle between the triangle required by paragraph (i) and the vehicle; and
- (iii) if the vehicle is not on a one-way road or divided road, 1 triangle at least 50 metres, but not over 150 metres, in front of the vehicle or fallen load; and
- (iv) 1 triangle at the side of the vehicle closer to traffic.

NOTE: *Regulation 13.1.1 of the Model subordinate instrument provides that a driver who complies with an Australian Road Rule requiring the placement of portable warning triangles does not need to comply with the requirements in Part 13 with respect to portable warning devices.*

13.1.3 GENERAL PRECAUTIONS DURING TRANSPORT

13.1.3.1 Passengers

No person apart from the following may ride in the cabin of a road vehicle transporting dangerous goods:

(a) an authorised officer, police officer or officer of an emergency service, or a person authorised to ride in the vehicle by such a person; or

(b) an employee of, or other person authorised to ride in the vehicle by, the owner of the vehicle or the prime contractor.

13.1.3.2 Parking requirements

13.1.3.2.1 On parking a road vehicle transporting dangerous goods:

(a) the parking brake must be fully applied; and

(b) if the vehicle is powered by a compression ignition engine, the vehicle must not be parked in gear unless:

- (i) the vehicle is fitted with a device to prevent the engine from starting if the vehicle moves; and
- (ii) the device is engaged.

13.1.3.2.2 Where a vehicle may be parked

13.1.3.2.2.1 A road vehicle transporting dangerous goods must not be parked or left standing:

(a) in a built-up area with public access; or

(b) within 15 metres of any building in which there is or is likely to be a concentration of people (other than a building on premises where the vehicle is loaded or unloaded); or

(c) at any other place in which there is or is likely to be a concentration of people; or

(d) within 8 metres of another vehicle which is transporting placarded dangerous goods.

13.1.3.2.2.2 Despite 13.1.3.2.2.1, a vehicle may be parked or left standing in circumstances mentioned in 13.1.3.2.2.1 if:

(a) it is reasonably necessary to do so:

- (i) for the purpose of loading or unloading dangerous goods onto or from the vehicle; or
- (ii) because the vehicle has broken down; or
- (iii) because of a dangerous situation involving the vehicle; or
- (iv) to comply with the requirement of any law; or
- (v) for a brief rest or refreshment break; or
- (vi) for the normal operation of the vehicle, such as a bitumen spray vehicle; and

the vehicle is not parked or left standing for any longer than is necessary and the dangerous goods are kept secure; or

(b) the Competent Authority or other local, State or Territory authority responsible for regulating the use or parking of vehicles has approved the place as a place in which vehicles transporting dangerous goods may be parked or left standing.

13.1.3.2.2.3 A vehicle transporting dangerous goods of Division 2.1 or Class 3, 4 or 5 or with a Subsidiary Hazardof 2.1, 3, 4 or 5 must not be parked or left standing within 15 metres of a naked flame.

13.1.3.2.2.4 13.1.3.2.2.1(d) does not apply to a road vehicle transporting dangerous goods that is parked or left standing in an area to which there is no public access.

13.1.3.2.2.5 Despite 13.1.3.2.2.1, a vehicle carrying BATTERIES, WET, FILLED WITH ACID, electric storage (UN 2794) of Packing Group III that each have a gross mass of 65kg or less, and that together have a gross mass of 5000 kg or less, may:

(a) park in a public place if:
  (i) in the case of an enclosed vehicle, the load area is locked; or
  (ii) in the case of a tray-sided vehicle, the load is covered, or the vehicle is supervised; and

(b) be garaged in a residential area if:
  (i) in the case of an enclosed vehicle, the load area is locked; or
  (ii) in the case of a tray-sided vehicle, the garage is locked.

13.1.3.2.2.6 However, 13.1.3.2.2.5 only applies if the transport documentation for the load states the number of batteries in the load, and if that number is adjusted after each delivery so that it accurately states the number of batteries in the load at all times.

13.1.3.3 Unloading the vehicle[1]

Other than for transfer to another vehicle or to another mode of transport, dangerous goods must not be unloaded from a road vehicle unless:

(a) the consignee, or a person acting on the consignee’s behalf, is present and receives the goods; or

(b) if the driver, prime contractor or consignor has agreed with the consignee for the goods to be unloaded into a secure place, the goods are unloaded into that place.

13.1.3.4 Detaching a trailer from a prime mover or combination road vehicle

A trailer containing dangerous goods must not be detached from a prime mover or a combination road vehicle other than:

(a) at a vehicle marshalling area, designated by a local, State or Territory authority, where the loading and unloading of goods is permitted; or

(b) at a transport depot designed for the loading and unloading of goods; or

[1] *The Regulations may allow for unloading in emergency situations.*

(c) for the purposes of immediate exchange of trailers between prime movers or combination road vehicles, provided this is carried out off road and security is maintained; or

(d) in an emergency requiring the trailer to be detached in the interests of safety; or

(e) in the event of the vehicle becoming disabled on a road or street.

13.1.3.5 Operation of burners

13.1.3.5.1 Except as provided in 13.1.3.5.2. where a road tank vehicle is equipped with a burner to heat the load, the burner must not be operated when the vehicle is moving.

13.1.3.5.2 Burners may be operated on moving bitumen tankers if done in accordance with AS 2809.5, however the burner on a spray vehicle must not be operated when the vehicle is spraying bitumen.

13.1.4 ROUTES

13.1.4.1 Routes for road vehicles transporting dangerous goods must be pre-planned whenever possible to the extent practicable, taking into account the factors in this Section[1] .

13.1.4.2 Routes should be selected to minimise the risk of personal injury or harm to the environment or property during the journey.

13.1.4.3 Routes should wherever practicable avoid heavily populated or environmentally sensitive areas, congested crossings, tunnels, narrow streets, alleys, or sites where there may be, a concentration of people.

13.1.4.4 A road vehicle transporting dangerous goods must observe any requirements or restrictions on the selection of routes or times of travel which have been determined by the Competent Authority.

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[1] While it is not always practicable to pre-plan in detail the route of a courier or local pick-up or delivery vehicle, the driver should nonetheless be made aware of any areas to avoid in localities where travel is anticipated.

APPENDICES

APPENDIX A: GOODS TOO DANGEROUS TO BE TRANSPORTED

A 1 Appendix A lists a number of substances and articles which are considered to be **goods too dangerous to be transported**.

A 2 If an entry in this Appendix includes the expression '**N.E.S**.', it refers to goods not **elsewhere specified**. In those cases, the goods named in this entry are also named in one or more entries in the Dangerous Goods Lists in Chapter 3.2. An entry in the Dangerous Goods Lists describes goods of that name that may be transported. For example, it may be possible to transport a substance in compliance with this Code after mixing it with diluents, stabilisers, inhibitors, desensitisers, phlegmatisers, solvents, wetting agents or adulterants, as specified in the Dangerous Goods List, to overcome the instability inherent in the goods. The entry in this Appendix refers to goods that do not meet the description specified in the Dangerous Goods Lists and any associated Special Provisions in Chapter 3.3.

A 3 The list in this Appendix is not an exhaustive listing of goods too dangerous to be transported (see 3.1.1.3).

A 4 Under Regulation 1.5.1(2)(a), the Competent Authority may determine that other goods are to be classified as goods too dangerous to be transported, or that goods listed in this Appendix are not too dangerous to be transported.

A 5 Some State and Territory legislation, that embodies the principles of the NOHSC National Standard on the Storage and Handling of Dangerous Goods, makes reference to this list and assigns a label or placard to these goods, for use when they are kept or handled on premises. The use of that label/placard is not authorised by this Code for transport purposes.

Table A1: List of some goods too dangerous to be transported

Acetyl acetone peroxide, N.E.S.
Acetyl benzoyl peroxide, N.E.S.
Acetyl cyclohexane sulfonyl peroxide, N.E.S.
Acetylene (liquefied)
Acetylene silver nitrate
Acetyl hydroperoxide, N.E.S. (Alt: Peracetic acid)
Acetyl peroxide, N.E.S.
Acraldehyde, N.E.S. (Alt: Acrolein)
Acroleic acid, N.E.S. (Alt: Acrylic acid)
Acrolein dimer, N.E.S.
Acrolein, N.E.S.
Acrylaldehyde, N.E.S. (Alt: Acrolein)
Acryldehyde, N.E.S.
Acrylic acid , N.E.S.
Acrylic acid isobutyl ester, N.E.S. (Alt: Isobutyl acrylate)
Acrylic aldehyde, N.E.S. (Alt: Acrolein)
Acrylonitrile, N.E.S.
Allyl aldehyde, N.E.S. (Alt: Acrolein)
Aluminium dross, wet or hot
Ammonium azide
Ammonium bromate
Ammonium chlorate
Ammonium fulminate
Ammonium nitrate, N.E.S.
Ammonium nitrite
Ammonium permanganate
Ammonium picrate, N.E.S.
Ammonium salt and a chlorate, mixtures of
Ammonium salt and a nitrite, mixtures of
tert-Amyl hydroperoxide, N.E.S.
tert-Amyl perdecanoate, N.E.S.
tert-Amyl peroxyacetate, N.E.S.
tert-Amyl peroxybenzoate, N.E.S.
tert-Amyl peroxyneodecanoate, N.E.S.
tert-Amyl peroxypivalate, N.E.S.
Antimony sulfide and chlorate, mixtures of
Arsenic sulfide and chlorate, mixtures of
Ascaridole
Azaurolic acid (salts of), N.E.S.
Azidodithiocarbonic acid
Azidoethyl nitrate
Azido guanidine picrate, N.E.S.
5-Azido-1-hydroxy tetrazole
Azido hydroxy tetrazole (mercury and silver salts)
3-Azido-1,2-propylene glycol dinitrate
Aziridine, N.E.S. (Alt: Ethyleneimine)
Azotetrazole, N.E.S.
Barium azide, N.E.S.
Benzene diazonium chloride, N.E.S.
Benzene diazonium nitrate, N.E.S.
Benzene-1,3-disulfohydrazide, N.E.S.
Benzene triozonide
Benzoxidiazoles, N.E.S.
Benzoyl azide
Biphenyl triozonide
2,2-Bis-(*tert*-butylperoxy) butane, N.E.S.
1,1-Bis-(*tert*-butylperoxy) cyclohexane, N.E.S.
2,2-Bis-(4,4-di-*tert*-butylperoxy cyclohexyl) propane, N.E.S.
Bis-(2-methylbenzoyl) peroxide, N.E.S.
Bis-(3,5,5-trimethyl-1,2-dioxolanyl-3)peroxide, N.E.S.
Bromine azide
4-Bromo-1,2-dinitrobenzene
Bromosilane
Butadienes, N.E.S.
1,2,4-Butanetriol trinitrate
2-Butenal, N.E.S. (Alt: Crotonaldehyde)
Butene oxide, N.E.S. (Alt: 1,2-Butylene oxide)
tert-Butoxycarbonyl azide
n-Butoxyethylene, N.E.S. (Alt: Butyl vinyl ether)
Butyl acrylate, N.E.S.
1,2-Butylene oxide, N.E.S.
tert-Butyl hydroperoxide, N.E.S.
tert-Butyl peracetate, N.E.S.
tert-Butyl perdiethylacetate and *tert*-Butyl perbenzoate mixtures, N.E.S.
tert-Butyl perisobutyrate, N.E.S.
tert-Butyl peroxyacetate, N.E.S.
tert-Butyl peroxybutyl fumarate, N.E.S.
tert-Butyl peroxycrotonate, N.E.S. (Alt: *tert*-Butyl percrotonate)
n-Butyl peroxydicarbonate, N.E.S. (Alt: *n*-Butyl perdicarbonate, and Di-*n*-butylperoxydicarbonate)
tert-Butyl peroxyisobutyrate, N.E.S. (Alt: *tert*-Butyl perisobutyrate)
tert-Butyl peroxyisopropylcarbonate, N.E.S.
1-(2-*tert*-Butylperoxy isopropyl)-3-isopropenylbenzene, N.E.S.
tert-Butyl peroxyneoheptanoate, N.E.S.

tert-Butyl peroxypivalate, N.E.S. (Alt: *tert*-Butyl perpivalate)
Butyl vinyl ether, N.E.S.
Calcium azide, N.E.S.
Carbazide
Charcoal screenings, wet
Charcoal, wet
Chloral, anhydrous, N.E.S.
Chloric acid, N.E.S.
Chlorine azide
Chlorine cyanide, N.E.S. (Alt: Cyanogen chloride)
Chlorine dioxide
Chloroacetone, N.E.S.
p-Chlorobenzoyl peroxide, N.E.S.
2-Chlorobutadiene-1,3, N.E.S. (Alt: Chloroprene)
3-Chloroperoxybenzoic acid, N.E.S.
Chloroprene, N.E.S.
Chlorotrifluoroethylene, N.E.S. (Alt: Trifluorochloroethylene)
Cinnamene, N.E.S. (Alt: Styrene monomer)
Cinnamol, N.E.S. (Alt: Styrene monomer)
Coal briquettes, hot
Coke, hot
Copper acetylide
Copper amine azide
Copper tetramine nitrate
Crotonaldehyde, N.E.S.
Cumyl hydroperoxide, N.E.S.
Cumyl peroxyneodecanoate, N.E.S.
Cumyl peroxyneoheptanoate, N.E.S.
Cumyl peroxypivalate, N.E.S.
Cyanogen chloride, N.E.S.
Cyanuric triazide
Cyclohexanone peroxide, N.E.S.
Cyclotetramethylene tetranitramine, N.E.S. (Alt: HMX)
Cyclotrimethylene trinitramine, N.E.S. (Alt: RDX or Cyclonite)
Diacetone alcohol peroxides, N.E.S.
Diacetyl peroxide, N.E.S. (Alt: Acetyl peroxide)
1,1-Di-(*tert*-amylperoxy)cyclohexane, N.E.S.
p-Diazidobenzene
1,1-Diazidoethane
1,1’-Diazidoethane
1,2’-Diazidoethane
1,1’-Diazoaminonaphthalene
Diazoaminotetrazole, N.E.S.
Diazodinitrophenol, N.E.S.
Diazodiphenylmethane
Diazonium nitrates, N.E.S.
Diazonium perchlorates, N.E.S.
1,3-Diazopropane
Dibenzyl perdicarbonate, N.E.S.
Dibenzyl peroxydicarbonate, N.E.S.
Dibromoacetylene
Di-*tert*-butyl peroxyazelate, N.E.S.
2,2-Di-(*tert*-butylperoxy) butane, N.E.S. (Alt: 2,2-Bis-(*tert*-butylperoxy) butane)
1,1-Di-(4-*tert*-butylperoxy)cyclohexane, N.E.S. (Alt: 1,1-Bis-(4-*tert*-butylperoxy) cyclohexane)
Di-*n*-butylperoxydicarbonate, N.E.S.
Di-(*tert*-butylperoxy) phthalate, N.E.S.
2,2-Di-(*tert*-butylperoxy)propane, N.E.S.
Dichloroacetylene, N.E.S.
N,N’-Dichloroazodicarbonamidine (salts of), N.E.S.
Di-4-chlorobenzoyl peroxide, N.E.S. (Alt: *p*-Chlorobenzoyl peroxide)
Dichloroethyl sulfide
2,2-Di-(4,4-di(*tert*-butylperoxy)cyclohexyl) propane, N.E.S.
Di-2,4-dichlorobenzoyl peroxide, N.E.S.
Diethanol nitrosamine dinitrate, N.E.S.
Diethylene glycol dinitrate
Diethylgold bromide
Diethyl perdicarbonate, N.E.S.
Diethyl peroxydicarbonate, N.E.S. (Alt: Diethyl pericarbonate)
2,2-Dihydroperoxy propane, N.E.S.
1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone (Chrysamminic acid)
Di-(1-hydroxytetrazole), N.E.S.
Diiodacetylene
Diisobutyryl peroxide, N.E.S. (Alt: Isobutyryl peroxide)
Diisopropylbenzene hydroperoxide, N.E.S.
Di-(2-methylbenzoyl) peroxide, N.E.S.
2,5-Dimethyl-2,5-di-(*tert*-butylperoxy)hexyne-3, N.E.S.
2,5-Dimethyl-2,5-dihydroperoxyhexane, N.E.S.
3,5-Dimethyl-3,5-dihydroxydioxolane-1,2, N.E.S.
2,5-Dimethyl-2,5-di-(3,5,5-trimethylhexanoylperoxy)hexane, N.E.S.

Dimethyleneimine, N.E.S. (Alt: Ethyleneimine)
2,5-Dimethylhexane-2,5-dihydroperoxide, N.E.S. (Alt: 2,5-Dimethyl-2,5-dihydroperoxy hexane)
1,1-Dimethyl-3-hydroxybutyl peroxyneoheptanoate, N.E.S.
Di-(1-naphthoyl) peroxide
Di-(2-neodecanoylepoxyisopropyl) benzene, N.E.S.
Dinitro-7,8-dimethylglycoluril, N.E.S.
1,3-Dinitro-5,5-dimethyl hydantoin
1,3-Dinitro-4,5-dinitrosobenzene
1,1-Dinitroethane, N.E.S.
1,2-Dinitroethane
Dinitroglycoluril
Dinitromethane
Dinitropropylene glycol
2,4-Dinitroresorcinol (heavy metal salts of), N.E.S.
4,6-Dinitroresorcinol (heavy metal salts of), N.E.S.
Dinitroresorcinols, N.E.S.
3,5-Dinitrosalicylic acid (lead salt), N.E.S.
Dinitrosobenzylamidine and salts of, N.E.S.
N,N-Dinitroso-*N,N'*-dimethylterephthalimide, N.E.S.
N,N'-Dinitrosopentamethylenetetramine, N.E.S.
2,2-Dinitrostilbene
1,4-Dinitro-1,1,4,4-tetramethylolbutanetetranitrate, N.E.S.
2,4-Dinitro-1,3,5-trimethylbenzene
Di-(β -nitroxyethyl) ammonium nitrate
α,α'-Di-(nitroxy) methylether
1,9-Dinitroxy pentamethylene-2,4,6,8-tetramine, N.E.S.
Diperoxy azelaic acid, N.E.S.
Diperoxy dodecane diacid, N.E.S.
Dipropionyl peroxide, N.E.S. (Alt: Propionyl peroxide)
Distearyl perdicarbonate, N.E.S.
Distearyl peroxydicarbonate, N.E.S. (Alt: Distearyl perdicarbonate)
Di-(3,5,5-trimethyl-1,2-dioxolanyl-3) peroxide, N.E.S.
Di-(3,5,5-trimethylhexanoyl) peroxide, N.E.S.
Divinyl, N.E.S. (Alt: Butadienes)
Divinyl ether, N.E.S.
Divinyl oxide, N.E.S. (Alt: Divinyl ether)
2,6-Epoxy-5-hexenal, N.E.S. (Alt: Acrolein dimer)
Ethanolamine dinitrate
Ethyl acrylate, N.E.S.
Ethyl 3,3-di-(*tert*-amylperoxy)butyrate, N.E.S.
Ethylene diamine diperchlorate
Ethylene glycol dinitrate
Ethyleneimine, N.E.S.
Ethyl hydroperoxide
Ethyl methacrylate, N.E.S.
Ethyl methyl ketone peroxide(s), N.E.S.
Ethyl nitrate
Ethyl nitrite
Ethyl perchlorate
Ethyl propenoate, N.E.S. (Alt: Ethyl acrylate)
Flammable mixture of dangerous goods of Division 2.1 or sub-hazard 2.1 with oxygen, nitrous oxide or air
Formaldehyde, gaseous
2-Formyl-3,4-dihydro-2*H*-pyran, N.E.S. (Alt: Acrolein dimer)
Fulminate of mercury, N.E.S.
Fulminating gold
Fulminating platinum
Fulminating silver
Fulminic acid
Galactan trinitrate
Galactsan trinitrate
Glycerol-1,3-dinitrate
Glycerol monogluconate trinitrate
Glycerol monolactate trinitrate
Guanyl nitrosaminoguanylidene hydrazine, N.E.S.
Guanyl nitrosaminoguanyl tetrazine
Hafnium metal powder, N.E.S., having a particle size less than 3 micrometres if mechanically produced or 10 micrometres if chemically produced
Hexamethylene triperoxide diamine, N.E.S.
Hexamethylol benzene hexanitrate
Hexanitroazoxy benzene
2,2',4,4',6,6'-Hexanitro-3,3'-dihydroxyazobenzene, N.E.S.
2,2',3',4,4',6-Hexanitrodiphenylamine, N.E.S.
2,3'4,4',6,6'p-Hexanitrodiphenylether
N,N'-(Hexanitrodiphenyl) ethylene dinitramine, N.E.S.
Hexanitrodiphenyl urea
Hexanitroethane

Hexanitrooxanilide
HMX, N.E.S.
Hydrazine azide
Hydrazine chlorate
Hydrazine dicarbonic acid diazide
Hydrazine perchlorate
Hydrazine selenate
Hydrocyanic acid, anhydrous, N.E.S.
Hydrogen cyanide, anhydrous, N.E.S.
Hydrogen peroxide, concentrations greater than 60% hydrogen peroxide, N.E.S.
Hydroxylamine iodide
Hyponitrous acid
Ignition element for lighter, containing pyrophoric liquid
Initiating explosives, N.E.S.
Inositol hexanitrate, N.E.S.
Inulin trinitrate, N.E.S.
Iodine azide, N.E.S.
Iodoxy compounds, N.E.S.
Iridium nitratopentamine iridium nitrate
Isobutyl acrylate, N.E.S.
Isobutyl methacrylate, N.E.S.
Isobutyl methyl ketone peroxide, N.E.S.
Isobutyryl peroxide, N.E.S.
Isoprene, N.E.S.
Isopropyl *sec*-butyl peroxydicarbonate + Di-*sec*-butyl peroxydicarbonate + Di-isopropyl peroxydicarbonate, N.E.S.
Isopropylcumyl hydroperoxide, N.E.S. (Alt: Diisopropylbenzene hydroperoxide)
Isothiocyanic acid
Lead azide, N.E.S.
Lead mononitroresorcinate, N.E.S.
Lead picrate, N.E.S.
Lead styphnate, N.E.S.
Lead 2,4,6-trinitroresorcinate, N.E.S.
Lighters (cigarettes) containing pyrophoric liquid
Magnesium dross, wet or hot
Mannitan tetranitrate
Mercurous azide
Mercury acetylide
Mercury iodide aquabasic ammonobasic (Iodide of Millon's base)
Mercury nitride
Mercury oxycyanide, N.E.S.
Methacrylic acid, N.E.S.
Methazoic acid
Methyl acetylene/propadiene, mixtures, N.E.S.
β-Methyl acrolein, N.E.S. (Alt: Crotonaldehyde)
Methyl acrylate, N.E.S.
Methylamine dinitramine and dry salts thereof
Methylamine nitroform
Methylamine perchlorate, N.E.S.
Methyl-1,3-butadiene, N.E.S. (Alt: Isoprene)
Methylcyclohexanone peroxide(s), N.E.S.
Methyldichloroarsine
Methylene glycol dinitrate
Methyl ethyl ketone peroxide(s), N.E.S.
α-Methylglucoside tetranitrate
α-Methylglycerol trinitrate
Methyl isobutyl ketone peroxide(s), N.E.S.
Methyl methacrylate monomer, N.E.S.
Methyl nitramine, metal salts of
Methyl nitrate
Methyl nitrite
Methyl picric acid, heavy metal salts of
Methylpropyl acrylate, N.E.S. (Alt: Isobutyl acrylate)
Methylstyrenes, *ortho-, meta-, para-*, N.E.S.
Methyl trimethylol methane trinitrate
Methylvinylbenzenes, N.E.S. (Alt: Vinyl toluenes)
Monochloroacetone, N.E.S.
Naphthalene diozonide
Naphthylamine perchlorate
Nickel picrate
Nitrated paper (unstable)
Nitrates of diazonium compounds
N-Nitroaniline
m-Nitrobenzene diazonium perchlorate
Nitrocellulose, N.E.S.
Nitrocotton, N.E.S.
6-Nitro-4-diazotoluene-3-sulfonic acid, N.E.S.
Nitroethyl nitrate
Nitroethylene polymer
Nitrogen trichloride
Nitrogen triiodide
Nitrogen triiodide monoamine
Nitroglycerin, liquid, N.E.S.
Nitroguanidine, N.E.S.
Nitroguanidine nitrate
1-Nitro hydantoin
Nitroisobutanetriol trinitrate

Nitromannite, N.E.S.
N-Nitro-*N*-methylglycolamide nitrate
2-Nitro-2-methylpropanol nitrate
m-Nitrophenyldinitro methane
Nitrostarch, N.E.S.
Nitrosugars, N.E.S.
Octogen, N.E.S.
1,7-Octadiene-3,5-diyne-1,8-dimethoxy-9-octadecynoic acid
Organic peroxide type A, liquid
Organic peroxide type A, solid
Pentaerythrite tetranitrate, N.E.S.
Pentaerythritol tetranitrate, N.E.S.
Pentanitroaniline, N.E.S.
Peracetic acid, N.E.S.
Perchloric acid, N.E.S.
Peroxyacetic acid, N.E.S.
PETN, N.E.S.
m-Phenylene diaminediperchlorate, N.E.S.
Phenylethylene, N.E.S. (Alt: Styrene monomer)
Phosphorus (white or red) and a chlorate, mixtures of
Picric acid, N.E.S.
Potassium carbonyl
2-Propenal, N.E.S. (Alt: Acrolein)
Propenenitrile, N.E.S. (Alt: Acrylonitrile)
Propenoic acid, N.E.S. (Alt: Acrylic acid)
Propionyl peroxide, N.E.S.
Propylene aldehyde, N.E.S. (Alt: Crotonaldehyde)
Propyleneimine, N.E.S.
Pyridine perchlorate
Quebrachitol pentanitrate
Selenium nitride
Self-reactive liquid type A
Self-reactive solid type A
Shaped charges (commercial) containing more than 220g of explosives
Silver acetylide, N.E.S.
Silver azide, N.E.S.
Silver chlorate, N.E.S.
Silver chlorite, N.E.S.
Silver fulminate, N.E.S.
Silver oxalate, N.E.S.
Silver perchlorate
Silver picrate, N.E.S.
Sodium dinitro-*o*-cresolate, N.E.S.
Sodium picramate, N.E.S.
Sodium picryl peroxide
Sodium tetranitride
Styrene, monomer, N.E.S.
Sucrose octanitrate, N.E.S.
Sulfur and chlorate, loose mixtures of
Sulfur trioxide, N.E.S.
Sulfuric anhydride, N.E.S. (Alt: Sulfur trioxide)
Tetraazido benzene quinone
Tetrachloromethyl perchlorate
Tetraethylammonium perchlorate, N.E.S.
Tetrafluorohydrazine
Tetrahydrofuran, N.E.S.
Tetramethylene diperoxide dicarbamide
Tetranitrodiglycerin
2,3,4,6-Tetranitrophenol
2,3,4,6-Tetranitrophenyl methyl nitramine
2,3,4,6-Tetranitrophenylnitramine
Tetranitroresorcinol, N.E.S.
2,3,5,6-Tetranitroso-1,4-dinitrobenzene
2,3,5,6-Tetranitroso nitrobenzene, N.E.S.
Tetrazine, N.E.S.
Tetrazolylazide, N.E.S.
Titanium dichloride
Tolyethylenes, mixed isomers, N.E.S. (Alt: Vinyl toluenes)
Trichloroacetaldehyde, anhydrous, N.E.S. (Alt: Chloral)
Trichloroacetic aldehyde, anhydrous, N.E.S. (Alt: Chloral)
Trichloromethyl perchlorate
Trifluorochloroethylene, N.E.S.
Trifluoromonochloroethylene, N.E.S.
Triformoxime trinitrate
Trimethylene glycol diperchlorate
Trimethylol nitromethane trinitrate
2,2,4-Trimethylpentyl-2-peroxyphenoxy acetate, N.E.S.
2,4,4-Trimethylpentyl-2-peroxyneodecanoate, N.E.S.
1,3,5-Trimethyl-2,4,6-trinitrobenzene
Trinitroacetic acid, N.E.S.
Trinitroacetonitrile
Trinitroamine cobalt
Trinitrobenzene, N.E.S.
Trinitrobenzoic acid, N.E.S.
2,4,6-Trinitro-1,3-diazobenzene
Trinitroethanol
Trinitroethylnitrate
Trinitromethane
1,3,5-Trinitronaphthalene
Trinitrophenol, N.E.S. (Alt: Picric acid)
2,4,6-Trinitrophenyl guanidine, N.E.S.
2,4,6-Trinitrophenyl nitramine

2,4,6-Trinitrophenyl trimethylol methyl nitramine trinitrate, N.E.S.
2,4,6-Trinitroso-3-methyl nitraminoanisole
Trinitrotetramine cobalt nitrate
2,4,6-Trinitro-1,3,5-triazido benzene, N.E.S.
Tri-(β -nitroxyethyl) ammonium nitrate
Tris-bis-bifluoroamino diethoxy propane (TVOPA)
Urea nitrate, N.E.S.
Vinyl acetate, N.E.S.
Vinyl benzene, N.E.S. (Alt: Styrene, monomer)
Vinyl bromide, N.E.S.
Vinyl-*n*-butylether, N.E.S. (Alt: Vinyl butylether)
Vinyl butyrate, N.E.S.
Vinyl chloride, N.E.S.
Vinyl cyanide, N.E.S. (Alt: Acrylonitrile)
Vinyl ether, N.E.S. (Alt: Divinyl ether)
Vinyl ethyl ether, N.E.S.
Vinyl fluoride, N.E.S.
Vinylidene, N.E.S.
Vinyl isobutylether, N.E.S.
Vinyl methyl ether, N.E.S.
Vinyl nitrate polymer
Vinyl pyridines, N.E.S.
Vinyl toluenes, mixed isomers, N.E.S.
Vinyl trichlorosilane, N.E.S.
p-Xylyl diazide
Zirconium picramate, N.E.S.

APPENDIX B: FORMS

NOTE 1: *Appendix B of UN20 is a Glossary of Terms relating to Explosives. That Glossary is repeated in the Australian Explosives Code. Where the symbol '†' is included in Column 2 of the Dangerous Goods List in Section 3.2.5 of this Code, this is an indication that reference should be made to Appendix B of UN20 or to Appendix 5 of the Australian Explosives Code.*

NOTE 2: *This appendix includes forms that are referenced in the text of this Code that may be useful when consigning or transporting dangerous goods, or in responding to emergencies. The use of these forms is not mandated by this Code or the Regulations. These forms may be printed from this publication by printing only the page number(s) of the required form.*

B 1 Multimodal Dangerous Goods Form

Figure B1 is a copy of the Multimodal Dangerous Goods Form, reproduced from Chapter 5.4 of UN20. Use of such a form is mandatory under the IMDG Code for sea transport of dangerous goods.

For road and rail transport in Australia, the actual format of the dangerous goods transport document is not mandated. Flexibility of transport documentation design is permitted within the constraints of Chapter 11.1, to allow for computer generated documentation and preprinted forms.

The Multimodal Dangerous Goods Form is, however, an acceptable form of documentation under this Code and may be useful for small consignments where details are entered by hand. Particular attention is drawn to the need to enter the dangerous goods details at Item 14 as a character string in a particular sequence (see 11.1.1.2.3).

If using this form as a transport document solely for transport of dangerous goods by road or rail within Australia, it is not necessary to complete those fields that are required by the international Codes but are not mandated in Part 11 of this Code.

B 2 <DELETED>

B 3 Revised Hazchem Emergency Action Code Pocket Card

Figure B3 is a double sided card that provides interpretation of the revised Hazchem Codes as incorporated in Appendix C.

When used in conjunction with Hazchem Codes on emergency information panels prepared in accordance with the previous edition of this Code, any characters in reverse print should be read as the corresponding letter in normal print. The advice provided by following this card will still be valid.

Figure B1: Multimodal Dangerous Goods Form

1. Shipper / Consignor /Sender	2. Transport document number	
	3. Page 1 of ……… pages	4. Shipper's reference
		5. Freight Forwarder's reference
6. Consignee	7. Carrier (to be completed by the carrier)	
	SHIPPER'S DECLARATION I hereby declare that the contents of this consignment are fully and accurately described below by the proper shipping name, and are classified, packaged, marked and labelled / placarded and are in all respects in proper condition for transport according to the applicable international and national governmental regulations.	

8. This shipment is within the limitations prescribed for: (Delete non-applicable) **PASSENGER AND CARGO AIRCRAFT** **CARGO AIRCRAFT ONLY**		9. Additional handling information
10. Vessel / flight No. and date	11. Port / place of loading	
12. Port / place of discharge	13. Destination	

14. Shipping marks	* Number and kind of packages; description of goods	Gross mass (kg)	Net mass Cube (m^3)

15. Container identification No./ vehicle registration No.	16. Seal number(s)	17. Container/vehicle size & type	18. Tare (kg)	19. Total gross mass (including tare) (kg)

CONTAINER/VEHICLE PACKING CERTIFICATE I hereby declare that the goods described above have been packed/loaded into the container/vehicle identified above in accordance with the applicable provisions ** MUST BE COMPLETED AND SIGNED FOR ALL CONTAINER / VEHICLE LOADS BY PERSON RESPONSIBLE FOR PACKING / LOADING	21. RECEIVING ORGANISATION RECEIPT Received the above number of packages/containers/trailers in apparent good order and condition unless stated hereon: RECEIVING ORGANISATION REMARKS:	
20. Name of company	Haulier's name	22. Name of company (OF SHIPPER PREPARING THIS NOTE)
Name / Status of declarant	Vehicle reg. no.	Name / Status of declarant
Place and date	Signature and date	Place and date
Signature of declarant	DRIVER'S SIGNATURE	Signature of declarant

* FOR DANGEROUS GOODS you must specify: UN No., proper shipping name, hazard class, packing group (where assigned) and any other element of information required under applicable national and international regulations

** See 5.4.2.1 of the UN Model Regulations.

* FOR DANGEROUS GOODS you must specify: proper shipping name, hazard class, UN No., packing group (where assigned) and any other element of information required under applicable national a nd international regulations

MULTIMODAL DANGEROUS GOODS FORM

1. Shipper / Consignor /Sender	2. Transport document number	
	3. Page .... of .... pages	4. Shipper's reference
		5. Freight Forwarder's reference

14. Shipping marks	* Number and kind of packages; description of goods	Gross mass (kg)	Net mass Cube (m^3)

Figure B3: Revised Hazchem Pocket Card

Front

HAZCHEM Emergency Action Code

Substance
UN No.
HAZCHEM
Class Label
Contacts

FOR FIRE OR SPILLAGE

1	**COARSE SPRAY**
2	**FINE SPRAY**
3	**FOAM**
4	**DRY AGENT**
•	**ALCOHOL RESISTANT FOAM**

P	V	LTS	DILUTE
R			
S	V	BA & FIRE KIT	
T			
W	V	LTS	CONTAIN
X			
Y	V	BA & FIRE KIT	
Z			

E	PUBLIC SAFETY HAZARD

Back

Additional Information

DRY AGENT

Water **must not** be allowed to come into contact with the substance at risk.

ALCOHOL RESISTANT FOAM •2 or •3

Alcohol resistant foam is the preferred medium.

If not available:

– If **•2** – use Fine Spray or Water Fog

– If **•3** – use Normal Protein Foam

V

Substance can be violently or even explosively reactive, including combustion.

LTS

Liquid-Tight Chemical Protective Suit with BA.

Full **FIRE KIT** should also be worn for thermal protection if the substance is:

Liquid Oxygen

or Liquefied Toxic Gas (Division 2.3)

or Toxic Gas with sub-hazard 2.1 or 5.1

or Class or sub-hazard 3

or Division 5.1 PGI with sub-hazard 6.1 or 8

or carried at temperature > 100°C

DILUTE

May be washed to drain with large quantities of water.

CONTAIN

Prevent, by any means available, spillage from entering drains or water course.

E

People should be warned to stay indoors with all doors and windows closed, –but evacuation may need to be considered. Consult Control, Police and product expert.

APPENDIX C: HAZCHEM CODES

Introductory Notes

C1 Scope and Application

C1.1 This Appendix provides additional information that may be useful in event of an emergency for most dangerous goods listed in the Dangerous Goods List in Chapter 3.2. For the UN Numbers with information, two codes are listed in C3, as follows:

(a) the HAZCHEM Code, as listed in the Dangerous Goods Emergency Action Code List 2013, published by HM Fire Service Inspectorate of the United Kingdom. This is the primary code used in Australia; and

(b) the Hazard Identification Number (HIN) assigned in the ADR and RID, which is provided for information purposes only.

NOTE *The list of Emergency Action Codes (EACs) is current at the time of publishing the ADGC. Later editions of the Dangerous Goods Emergency Action Code List may need to be checked for amendments to the Hazchem Codes.*

C1.2 When dangerous goods are transported in portable tanks, demountable tanks, multiple element gas containers, bulk containers or tank vehicles, it is a requirement of Chapter 5.3 of this Code that the Hazchem Code be displayed on the emergency information panel. This Hazchem Code should be determined from the list in C3.

C1.3 The codes allocated and shown in the list in C3 apply to transport of the single substance by road or rail. These codes will not necessarily apply for non-transport incidents although they may be used to provide some indication of the action that may be necessary.

C2 Hazchem Codes

NOTE: *The Hazchem Code is fully titled “Hazchem Emergency Action Code”. In European publications, it is now frequently referred to simply as “Emergency Action Code” or “EAC”. In Australia it is still commonly known as the Hazchem Code.*

C2.1 General

C2.1.1 A Hazchem Code offers guidance on appropriate initial emergency response in a potentially dangerous situation such as leakage, spillage or fire involving the dangerous goods to which it relates.

C2.1.2 The Hazchem Code is composed of a number, followed by one or more letters as detailed in C2.2–C2.65.

C2.1.3 Hazchem Codes are allocated to most dangerous goods in Column 2 of the table at C3.

C2.1.4 In some cases, there is more than one Hazchem Codeshown in C3 for a single UN number. In each such instance, a notation which is explained at the end of the table indicates how to determine which of the multiple entries applies e.g. for UN 1224 Ketones where two Hazchem Codes are listed – the notation (3) next to the entry 3YE indicates that this Hazchem Code applies only to ketones of packing groups I and II –3Y therefore applies to packing group III.

C2.1.5 Substances in Class 7, i.e. radioactive material, have not been allocated Hazchem Codes.

C2.2 Extinguishing Media

C2.2.1 The firefighting extinguishing media is determined by reference to the first character of the Hazchem Code as follows:

1 denotes coarse water spray

2 denotes fine water spray

3 denotes **normal foam** i.e. protein based foam that is not alcohol resistant

4 denotes **dry agent** —water <u>**MUST NOT**</u> be allowed to come into contact with substance

NOTE: *Any higher number than the one shown can be used but a lower number must not be used.*

C2.2.2 A bullet '•' sometimes precedes the number 2 or 3 in the list in C3.

•2 and •3, have the following meanings:

•2 denotes that **alcohol resistant foam** is the preferred firefighting medium but, if it is not available, fine water spray can be used.

•3 denotes that **alcohol resistant foam** is the preferred firefighting medium but, if it is not available, normal foam can be used.

For example, the Hazchem Code assigned to UN 1193 Ethyl Methyl Ketone in C3 is •2YE. The '•' here indicates to the emergency services that alcohol resistant foam is the preferred firefighting medium. However, if such foam is not available, fine water spray, as the next most effective medium, should be used.

Table C2.2: Meaning of Second Character of Hazchem Code

<table>
<tr><th>Letter</th><th>Risk of Violent Reaction or Explosion</th><th>Recommended Personal Protective Equipment</th><th>Appropriate Measures</th></tr>
<tr><td>P</td><td>Yes</td><td rowspan="2">Liquid-tight chemical protective clothing and breathing apparatus</td><td rowspan="4">Dilute</td></tr>
<tr><td>R</td><td>No</td></tr>
<tr><td>S</td><td>Yes</td><td rowspan="2">Full fire kit and breathing apparatus</td></tr>
<tr><td>T</td><td>No</td></tr>
<tr><td>W</td><td>Yes</td><td rowspan="2">Liquid-tight chemical protective clothing and breathing apparatus</td><td rowspan="4">Contain</td></tr>
<tr><td>X</td><td>No</td></tr>
<tr><td>Y</td><td>Yes</td><td rowspan="2">Full fire kit and breathing apparatus</td></tr>
<tr><td>Z</td><td>No</td></tr>
</table>

NOTE: *See C 2.3 to C2.5 for further details.*

C2.3 Personal protection

C2.3.1 Where the second character of the Hazchem Code is S, T, Y or Z, normal firefighting clothing is appropriate, i.e. self-contained open circuit positive pressure compressed air breathing apparatus, worn in combination with fire kit, firefighters' gloves and firefighters' boots.

NOTE 1: *Leather boots may not provide adequate chemical resistance and therefore caution should be exercised in their use.*

NOTE 2: *Letters S, T, Y and Z, which In previous editions of this Code were shown in reverse printing or square brackets for some dangerous goods, are now always shown in normal print, indicating that breathing apparatus should be used for all significant incidents.*

NOTE 3: *LP Gas, which in previous Codes was assigned a Hazchem Code of 2WE, is now assigned to 2YE in recognition that the most important personal protection from this substance is thermal protection that is best provided by full fire kit, including breathing apparatus.*

C2.3.2 Where the second character of the Hazchem Code is P, R, W or X, liquid-tight chemical protective clothing in combination with breathing apparatus specified in C2.3.1, should be used.

C2.3.3 For some substances for which liquid-tight chemical protective clothing is indicated, full fire kit should also be worn for thermal protection. This applies to incidents involving the following substances when they are assigned to P, R, W, or X:

(a) UN 1073 Oxygen, Refrigerated Liquid;

(b) All Division 2.3 Toxic Gases when transported in the liquefied state;

(c) Any Division 2.3 Gas with a Subsidiary Hazard of 2.1 or 5.1;

(d) Class or Subsidiary Hazard 3 liquids;

(e) Division 5.1 substances of packing group I, having a Subsidiary Hazard of 6.1 or 8;

(f) Substances transported at elevated temperature > 100 °C.

However, an incident controller may determine, through a risk based assessment, that full fire kit need not be worn.

C2.4 Violent Reaction

C2.4.1 Where the second character of the Hazchem Code is a P, S, W or Y there is a danger that the substance can be violently or explosively reactive. This danger may be present due to one of the following:

- Violent or explosive decomposition of the material involved, including ignition or friction.

- The ignition of a flammable gas or vapour cloud (this danger exists for all flammable gases and flammable liquids with a flash point below 60 °C)
- The rapid acceleration of combustion due to the involvement of an oxidiser.
- A reaction with water which is itself violent, and may also evolve flammable gases.

C2.4.2 The actual dangers present can be determined from the placards on vehicles or containers, or by reference to the classes, divisions and subsidiary hazards shown on the transport document.

C2.5 Contain/dilute

Where the second character of an Hazchem Code is W, X, Y or Z spillages and decontamination run-off should be prevented from entering drains and watercourses. Where the second character of the code is P, R, S or T spillages and decontamination run-off may be washed to drains with large quantities of water. Due care must however still be exercised to avoid unnecessary pollution of watercourses.

NOTE 1: Ideally most contamination and decontamination run-off should be contained. However, this will not always be practical for normal emergency services operations, as life-saving operational procedures must take precedence over other considerations at the scene of an incident. Nevertheless, all steps that are reasonably practicable should be taken to contain contaminants and the emergency service should always inform the environmental authority as soon as possible so that appropriate advice can be given.

NOTE 2: Potentially polluting substances, even apparently harmless substances such as food and beverages, can cause serious problems if discharged into a watercourse e.g. 250 litres of a soft drink, milk or beer would constitute a pollutant as it can lead to deoxygenation of the water. Firefighting foams are also a potential source of pollution and their entry into watercourses and drainage systems should be prevented whenever possible.

C2.6 E "Public Safety Hazard"

An 'E' following the first two characters of a Hazchem Code indicates that there may be a public safety hazard outside the immediate area of the incident, and that the following actions should be considered:

C2.6.1 People should be warned to stay indoors with all doors and windows closed, preferably in rooms upstairs and facing away from the incident. Ignition sources should be eliminated and any ventilation stopped.

C2.6.2 Effects may spread beyond the immediate vicinity. All non-essential personnel should be instructed to move at least 250 metres away from the incident.

C2.6.3 Police and Fire Brigade incident commanders should consult each other and with a product expert, or with a source of product expertise.

C2.6.4 The possible need for subsequent evacuation should be considered, **but it should be remembered that in most cases it will be safer to remain in a building than to evacuate**. Some situations where evacuation may be necessary are listed in Table C2.

Table C2.6: Situations where evacuation may be necessary

	EXAMPLES	ASSESSMENT
1.(i) (ii)	Smoke from product fire which is allowed to burn out. (Often the safest and least environmentally damaging option.) Small/low concentration long lasting toxic emission.	Nuisance effects will last several hours. Smoke or gas concentrations in open air are unpleasant but short-term exposure is not likely to be dangerous.
2.	A larger long lasting toxic gas emission which will be carried towards an inhabited area after a predicted wind change not due for at least two hours.	Area considered for evacuation will not be exposed to significant danger for at least an hour, preferably longer.
3.	Evacuation of people from an isolated house in the country may be feasible, possibly using additional BA sets.	Downwind area is very sparsely populated and resources are available to protect people during their evacuation.
4.(i) (ii)	Righting a loaded road tanker or rail tank wagon, especially one carrying a liquefied gas. Recovering or clearing petrol from drains.	Area considered for evacuation could be exposed to danger as a result of actions necessary to restore normality at a time determined by the recovery team.

C2.7 Assigning Hazchem Codes to multi-loads

The following procedure must be used to assign a Hazchem Code to a vehicle or cargo transport unit transporting more than one type of dangerous goods to which different Hazchem Codes are assigned by C3.

C2.7.1 1st character of the code

The number forming the first character of the code for a multi-load is the highest of the numbers occurring in the Hazchem Codes for the individual dangerous goods.

- If the 1st character of the calculated multi-load Hazchem Code is 2 or 3 and if one or more of the individual Hazchem Codes has an alcohol resistant bullet **include** an alcohol resistant bullet in the multi-load Hazchem Code

- If the 1st character of the calculated multi-load Hazchem Code is 4 **do not include** a bullet, even if one or more of the individual Hazchem Codes includes an alcohol resistant bullet (on the basis that 4 indicates that a dry agent must be used).

C2.7.2 2nd Character of the code

C2.7.2.1 The letter forming the second character of the code should be determined from the first letter of the Hazchem Code for each of the dangerous goods from the chart below.

Table C2.7: Hazchem Code chart for determination of Hazchem codes for multi-loads

	P	**R**	**S**	**T**	**W**	**X**	**Y**	**Z**
P	P	P	P	P	W	W	W	W
R	P	R	P	R	W	X	W	X
S	P	P	S	S	W	W	Y	Y
T	P	R	S	T	W	X	Y	Z
W	W	W	W	W	W	W	W	W
X	W	X	W	X	W	X	W	X
Y	W	W	Y	Y	W	W	Y	Y
Z	W	X	Y	Z	W	X	Y	Z

C2.7.2.2 If the letter forming the second character of the code for each of the dangerous goods is the same, then that letter will automatically form the second character of the Hazchem Code for the multi-load.

C2.7.2.3 If however the letter forming the second character of the code for each of the dangerous goods is different, then one of those letters should be selected along the top row of the chart and then a second letter should be selected down the far left-hand column i.e. the two bold sections. The letter in the square where the appropriate column and row meet is the 'resultant letter' for those two substances. If there are only two dangerous goods to be carried in the multi-load, then that resultant letter is the letter forming the second character of the Hazchem Code for that multi-load.

C2.7.2.4 If there are more than two dangerous goods to be carried in the multi-load, then use the 'resultant letter' obtained in paragraph C2.7.2.3 along the top row as above and select another letter down the far left-hand column as above. The letter in the square where the appropriate column and row meet is the new 'resultant letter'. If there are no more dangerous goods to be carried in the multi-load, then that 'resultant letter' is the letter forming the second character of the code. If there are any further dangerous goods to be carried then this procedure must be repeated until all the other letters have been used.

C2.7.3 Letter 'E'

The letter 'E' must be included as the third character in the multi-load Hazchem Code if it occurs in the Hazchem Code of any of the dangerous goods to be carried. If the letter 'E' does not occur in any of the Hazchem Codes of the dangerous goods to be carried, the Hazchem Code will be just a two character code determined from C2.7.2 above.

Example of how to calculate the Hazchem Code for a multi-load:

There are three substances to be carried as a multi-load, having Hazchem Codes of 3Y, •2S and 4WE.

1ST CHARACTER (NUMBER)

The first character of the Hazchem Code for each of the three substances is 2, 3 and 4. The highest number must be taken as the first character of the code for the multi-load and therefore the first character will be 4.

Alcohol resistant bullet

The bullet in •2S is not assigned to the mixed load because the first character is 4 (see 2.7.1).

If the example had only included 3Y and •2S the first character would be 3 and the alcohol resistant bullet would be required.

2ND CHARACTER (LETTER)

The second character for the Hazchem Code for each of the three substances is Y, S and W. Taking the Y along the top row of the chart and the S along the left hand column, the intersection is at Y and therefore the character for the first two substances would be Y. This resultant character (Y) is then taken along the top row and the character for the third substance (W) is taken along the left hand column. The intersection point is now W. The second character of the code for the three substances is therefore W.

LETTER ‘E’

The third substance has an ‘E’ as a third character and therefore the multi-load must also have an ‘E’.

The resultant Hazchem Code for the three substances carried as a multi-load will therefore be 4WE.

C3: List of Hazchem Codes

NOTE 1: *The HIN listing below and its explanation in C4 are provided for information purposes only.*

NOTE 2: *The use of the bullet '•' sometimes preceding '2' or '3' in the Hazchem Code is explained in C2.2.2.*

Table Notes:

(1) No HIN issued under RID and ADR

(2) No Hazchem Code issued to these articles

(3) This Hazchem Code applies to PG I & II

(4) This Hazchem Code applies only to PG I

(5) This Hazchem Code applies only to liquid material carried under this UN No.

(6) This Hazchem applies only when transported at > 100 ºC

(7) This Hazchem Code applies only when ethanol is being transported

Table C3 – List of Hazchem Code

UN	HAZCHEM	HIN
1001	2SE	239
1002	2T	20
1003	2P	225
1005	2XE	268
1006	2T	20
1008	2RE	268
1009	2TE	20
1010	2YE	239
1011	2YE	23
1012	2YE	23
1013	2T	20
1016	2SE	263
1017	2XE	265
1018	2TE	20
1020	2TE	20
1021	2TE	20
1022	2TE	20
1023	2SE	263
1026	2PE	263
1027	2YE	23
1028	2TE	20
1029	2TE	20
1030	2YE	23
1032	2PE	23
1033	2YE	23
1035	2YE	23
1036	2PE	23
1037	2YE	23
1038	2YE	223
1039	2SE	23
1040	2PE	263
1041	2SE	239
1043	2RE	(1)
1044	(2)	(1)
1045	2PE	(1)
1046	2T	20
1048	2RE	268
1049	2SE	23
1050	2RE	268
1051	2WE	(1)
1052	2XE	886
1053	2WE	263
1055	2YE	23
1056	2TE	20
1057	(2)	(1)
1058	2TE	20
1060	2YE	239
1061	2PE	23
1062	2X	26
1063	2YE	23
1064	2WE	263
1065	2T	20
1066	2T	20
1067	2PE	265
1069	2RE	(1)
1070	2P	25
1071	2SE	263
1072	2S	25
1073	2P	225
1075	2YE	23
1076	2XE	268
1077	2YE	23
1078	2TE	20
1079	2RE	268
1080	2TE	20
1081	2SE	239
1082	2WE	263
1083	2PE	23
1085	2YE	239
1086	2YE	239
1087	2YE	239
1088	•3YE	33
1089	•2YE	33
1090	•2YE	33
1091	•2YE	33
1092	•2WE	663
1093	•3WE	336
1098	•2WE	663
1099	2WE	336
1100	3YE	336
1104	•3Y	30
1105	•3YE(3)	33
1105	•3Y	30
1106	•2WE(3)	338
1106	•2W	38
1107	3YE	33

UN	HAZCHEM	HIN
1108	3YE	33
1109	3Y	30
1110	3Y	30
1111	3WE	33
1112	3Y	30
1113	3YE	33
1114	3WE	33
1120	•2YE(3)	33
1120	•2Y	30
1123	3YE(3)	33
1123	3Y	30
1125	•2WE	338
1126	2YE	33
1127	3YE	33
1128	•3YE	33
1129	•3YE	33
1130	3Y	30
1131	2WE	336
1133	•3YE(3)	33
1133	•3Y	30
1134	2Y	30
1135	•2W	663
1136	3WE(3)	33
1136	3W	30
1139	•3YE(3)	33
1139	•3Y	30
1143	•2WE	663
1144	3YE	339
1145	3YE	33
1146	3YE	33
1147	3Y	30
1148	•2YE(3)	33
1148	•2Y	30
1149	3Y	30
1150	2YE	33
1152	3Y	30
1153	•3YE(3)	33
1153	•3Y	30
1154	•2WE	338
1155	•3YE	33
1156	•3YE	33
1157	3Y	30
1158	•3WE	338
1159	3YE	33

UN	HAZCHEM	HIN
1160	•2WE	338
1161	3YE	33
1162	4WE	X338
1163	•2WE	663
1164	3YE	33
1165	•2YE	33
1166	•2YE	33
1167	3YE	339
1169	3YE(3)	33
1169	3Y	30
1170	•2YE(3)	33
1170	•2Y	30
1171	•2Y	30
1172	•2Y	30
1173	•3YE	33
1175	3YE	33
1176	•3YE	33
1177	3Y	30
1178	3YE	33
1179	3YE	33
1180	3Y	30
1181	2W	63
1182	•3WE	663
1183	4WE	X338
1184	2YE	336
1185	•2WE	663
1188	•2Y	30
1189	•2Y	30
1190	•2YE	33
1191	3Y	30
1192	•2Y	30
1193	•2YE	33
1194	•2WE	336
1195	•3YE	33
1196	4WE	X338
1197	3YE(3)	33
1197	3Y	30
1198	•2W	38
1199	•3Y	63
1201	•2YE(3)	33
1201	•2Y	30
1202	3Y	30
1203	3YE	33
1204	•2YE	(1)
1206	3YE	33

UN	HAZCHEM	HIN
1207	3Y	30
1208	3YE	33
1210	•3YE(3)	33
1210	•3Y	30
1212	•3Y	30
1213	3YE	33
1214	•2WE	338
1216	3YE	33
1218	3YE	339
1219	•2YE	33
1220	•3YE	33
1221	•2WE	338
1222	3YE	(1)
1223	3Y	30
1224	•3YE(3)	33
1224	•3Y	30
1228	3WE	336/36
1229	•3Y	30
1230	•2WE	336
1231	•2YE	33
1233	3Y	30
1234	•2YE	33
1235	•2WE	338
1237	•3YE	33
1238	2WE	663
1239	3WE	663
1242	4WE	X338
1243	•2YE	33
1244	•2WE	663
1245	•3YE	33
1246	3YE	339
1247	3YE	339
1248	3YE	33
1249	•3YE	33
1250	4WE	X338
1251	•2WE	639
1259	2WE	663
1261	•2Y	(1)
1262	3YE	33
1263	•3YE(3)	33
1263	•3Y	30
1264	•2Y	30
1265	3YE	33
1266	•3YE(3)	33
1266	•3Y	30

UN	HAZCHEM	HIN
1267	3WE(3)	33
1267	3W	30
1268	3YE(3)	33
1268	3Y	30
1270	3YE	33
1270	•3YE(7)	33
1272	3Y	30
1274	•2YE(3)	33
1274	•2Y	30
1275	•2YE	33
1276	•2YE	33
1277	•2WE	338
1278	3YE	33
1279	2YE	33
1280	•3YE	33
1281	•3YE	33
1282	•2WE	33
1286	3YE(3)	33
1286	3Y	30
1287	3YE(3)	33
1287	3Y	30
1288	3WE(3)	33
1288	3W	30
1289	•2WE(3)	338
1289	•2W	38
1292	3Y	30
1293	•2YE(3)	33
1293	•2Y	30
1294	3YE	33
1295	4WE	X338
1296	•2WE	338
1297	•2WE(3)	338
1297	•2W	38
1298	4WE	X338
1299	3Y	30
1300	3YE(3)	33
1300	3Y	30
1301	•3YE	339
1302	3YE	339
1303	2YE	339
1304	3YE	339
1305	4WE	X338
1306	•3YE(3)	33
1306	•3Y	30
1307	3YE(3)	33

UN	HAZCHEM	HIN
1307	3Y	30
1308	3YE(3)	33
1308	3Y	30
1309	4Y	40
1310	1W	(1)
1312	1Z	40
1313	1Z	40
1314	1Z	40
1318	1Z	40
1320	1W	(1)
1321	1W	(1)
1322	1W	(1)
1323	1Z	40
1324	1Z	(1)
1325	1Z	40
1326	1Z	40
1327	1Z	(1)
1328	1Z	40
1330	1Z	40
1331	1Z	(1)
1332	1Z	40
1333	IZ	(1)
1334	1Z	40
1336	1W	(1)
1337	1W	(1)
1338	1Z	40
1339	4Y	40
1340	4W	423
1341	4Y	40
1343	4Y	40
1344	1W	(1)
1345	1Z	40
1346	1Z	40
1347	1W	(1)
1348	1W	(1)
1349	1W	(1)
1350	1Z	40
1352	1Z	40
1353	1Z	(1)
1354	1W	(1)
1355	1W	(1)
1356	1W	(1)
1357	1W	(1)
1358	1Z	40
1360	4WE	(1)
1361	1Y	40

UN	HAZCHEM	HIN
1362	1Y	40
1363	1Y	40
1364	1Y	40
1365	1Y	40
1369	1Y	40
1372	1Y	(1)
1373	1Y	40
1374	1Y	40
1376	1Y	40
1378	1Y	40
1379	1Y	40
1380	4W	333
1381	1WE	46
1382	1W	40
1383	4Y	43
1384	1S	40
1385	1W	40
1386	1Y	40
1387	1Y	(1)
1389	4W	X323
1390	4W	423
1391	4W	X323
1392	4W	X323
1393	4W	423
1394	4W	423
1395	4W	462
1396	4W	423
1397	4WE	(1)
1398	4Y	423
1400	4W	423
1401	4W	423
1402	4W	X423/ 423
1403	4W	423
1404	4W	(1)
1405	4W	423
1407	4W	X423
1408	4W	462
1409	4W	423
1410	4W	(1)
1411	4WE	(1)
1413	4W	(1)
1414	4W	(1)
1415	4W	X423
1417	4W	423
1418	4W	423

UN	HAZCHEM	HIN
1419	4WE	(1)
1420	4W	X323
1421	4W	X323
1422	4W	X323
1423	4W	X423
1426	4W	(1)
1427	4W	(1)
1428	4W	X423
1431	1W	48
1432	4WE	(1)
1433	4WE	(1)
1435	4Y	423
1436	4W	423
1437	4Y	40
1438	1Z	50
1439	1Y	50
1442	1Y	50
1444	1Z	50
1445	1Y	56
1446	1Y	56
1447	1Y	56
1448	1Y	56
1449	1Y	56
1450	1Y	50
1451	1Z	50
1452	1Y	50
1453	1Y	50
1454	1Z	50
1455	1Y	50
1456	1Y	50
1457	1Y	50
1458	1Y	50
1459	1Y	50
1461	1Y	50
1462	1Y	50
1463	1W	568
1465	1Z	50
1466	1Z	50
1467	1Z	50
1469	1Y	56
1470	1Y	56
1471	1W	50
1472	1Y	50
1473	1Y	50
1474	1Z	50
1475	1Y	50

UN	HAZCHEM	HIN
1476	1Y	50
1477	1Y	50
1479	1Y	50
1481	1Y	50
1482	1Y	50
1483	1Y	50
1484	1Y	50
1485	1Y	50
1486	1Z	50
1487	1Y	50
1488	1Y	50
1489	1Y	50
1490	1Y	50
1491	1W	(1)
1492	1Z	50
1493	1Y	50
1494	1Y	50
1495	1Y	50
1496	1Y	50
1498	1Z	50
1499	1Z	50
1500	1Z	56
1502	1Y	50
1503	1Y	50
1504	1W	(1)
1505	1Z	50
1506	1Y	50
1507	1Z	50
1508	1Y	50
1509	1Y	50
1510	2W	665
1511	1X	58
1512	1Y	50
1513	1Y	50
1514	1Y	50
1515	1Y	50
1516	1Y	50
1517	1W	(1)
1541	•2X	669
1544	2X	66/60
1545	3WE	639
1546	2Z	60
1547	•3X	60
1548	2X	60
1549	2Z	60
1550	2Z	60

UN	HAZCHEM	HIN
1551	2Z	60
1553	2X	66
1554	2Z	60
1555	2Z	60
1556	2X	66/60
1557	2X	66/60
1558	2Z	60
1559	2Z	60
1560	2X	66
1561	2X	60
1562	2Z	60
1564	2Z	60
1565	2X	66
1566	2Z	60
1567	2Z	64
1569	2W	63
1570	2X	66
1571	1W	(1)
1572	2Z	60
1573	2Z	60
1574	2Z	60
1575	2X	66
1577	2X	60
1578	2X	60
1579	2X	60
1580	2XE	66
1581	2XE	26
1582	2XE	26
1583	2XE(3)	66
1583	2X	60
1585	2Z	60
1586	2Z	60
1587	2X	60
1588	2X	66/60
1589	2XE	(1)
1590	2X	60
1591	2Z	60
1593	2Z	60
1594	2X	60
1595	•3XE	668
1596	2X	60
1597	2X	60
1598	2X	60
1599	2X	60
1600	2W	60
1601	2X	66/60

UN	HAZCHEM	HIN
1602	2X(4)	66
1602	2X	60
1603	2W	63
1604	•2W	83
1605	2X	66
1606	2X	60
1607	2X	60
1608	2X	60
1611	2X	60
1612	2RE	26
1613	•2WE	663
1614	2WE	(1)
1616	2Z	60
1617	2Z	60
1618	2Z	60
1620	2Z	60
1621	2X	60
1622	2Z	60
1623	2X	60
1624	2X	60
1625	2X	60
1626	2X	66
1627	2X	60
1629	2X	60
1630	2X	60
1631	2X	60
1634	2X	60
1636	2X	60
1637	2X	60
1638	2X	60
1639	2X	60
1640	2X	60
1641	2X	60
1642	2X	60
1643	2X	60
1644	2X	60
1645	2X	60
1646	2X	60
1647	2X	66
1648	•2YE	33
1649	2WE	66
1650	2Z	60
1651	2Z	60
1652	2X	60
1653	2X	60
1654	2X	60

UN	HAZCHEM	HIN
1655	2X	66/60
1656	2X	60
1657	2X	60
1658	2X	60
1659	2X	60
1660	2PE	(1)
1661	2X	60
1662	2X	60
1663	2X	60
1664	2X	60
1665	2X	60
1669	2Z	60
1670	2XE	66
1671	2X	60
1672	2XE	66
1673	2X	60
1674	2X	60
1677	2X	60
1678	2X	60
1679	2X	60
1680	2X	66
1683	2Z	60
1684	2X	60
1685	2X	60
1686	2X	60
1687	2XE	(1)
1688	2X	60
1689	2X	66
1690	2Z	60
1691	2Z	60
1692	2X	66
1693	2XE	66/60
1694	2XE	66
1695	•2WE	663
1697	2Z	60
1698	2XE	66
1699	2XE	66
1700	2X	(1)
1701	2XE	60
1702	2X	60
1704	2X	60
1707	2Z	60
1708	•3X	60
1709	2X	60
1710	2Z	60
1711	2X	60

UN	HAZCHEM	HIN
1712	2Z	60
1713	2X	66
1714	4WE	(1)
1715	•3W	83
1716	4W	80
1717	4WE	X338
1718	2X	80
1719	2R	80
1722	•3WE	668
1723	2WE	338
1724	4W	X839
1725	4W	80
1726	4W	80
1727	2X	80
1728	4W	X80
1729	4W	80
1730	4WE	X80
1731	4WE	80
1732	4W	86
1733	4W	80
1736	4W	80
1737	2X	68
1738	2X	68
1739	2X	88
1740	2X	80
1741	2WE	268
1742	2X	80
1743	2X	80
1744	2XE	886
1745	4WE	568
1746	4WE	568
1747	4W	X83
1748	1W	50
1749	2WE	265
1750	2X	68
1751	2X	68
1752	2XE	668
1753	4W	X80
1754	4WE	X88
1755	2X	80
1756	2X	80
1757	2X	80
1758	4WE	X88
1759	2X	88/80
1760	2X	88/80
1761	2X	86

UN	HAZCHEM	HIN
1762	4W	X80
1763	4W	X80
1764	2X	80
1765	4W	X80
1766	4W	X80
1767	4W	X83
1768	2X	80
1769	4W	X80
1770	2X	80
1771	4W	X80
1773	2X	80
1774		(1)
1775	2X	80
1776	2X	80
1777	4WE	88
1778	2X	80
1779	•2W	83
1780	4W	80
1781	4W	X80
1782	2X	80
1783	2X	80
1784	4W	X80
1786	2W	886
1787	2R	80
1788	2R	80
1789	2R	80
1790	2W(4)	886
1790	2X	86
1791	2X	80
1792	4WE	80
1793	2X	80
1794	2X	80
1796	2P(4)	885
1796	2R	80
1798	2P	(1)
1799	4W	X80
1800	4W	X80
1801	4W	X80
1802	2P	85
1803	2X	80
1804	4W	X80
1805	2R	80
1806	4W	80
1807	2X	80
1808	4WE	X80
1809	4WE	668

UN	HAZCHEM	HIN
1810	4WE	X668
1811	2X	86
1812	2X	60
1813	2W	80
1814	2R	80
1815	•3WE	338
1816	4W	X83
1817	4WE	X80
1818	4WE	X80
1819	2R	80
1823	2W	80
1824	2R	80
1825	2W	80
1826	2W(4)	885
1826	2X	80
1827	4WE	X80
1828	4WE	X88
1829	4WE	X88
1830	2P	80
1831	4WE	X886
1832	2W	80
1833	2R	80
1834	4WE	X668
1835	2X	80
1836	4WE	X88
1837	4WE	X80
1838	4WE	X668
1839	2X	80
1840	2X	80
1841	2Z	90
1843	2X	60
1845	2T	(1)
1846	2Z	60
1847	2X	80
1848	•2W	80
1849	2X	80
1851	2X	60
1854	4Y	43
1855	4W	(1)
1856	1Y	(1)
1857	1Y	(1)
1858	2TE	20
1859	2PE	268
1860	2YE	239
1862	3YE	33
1863	3YE(3)	33

UN	HAZCHEM	HIN
1863	3Y	30
1865	3YE	(1)
1866	•3YE(3)	33
1866	•3Y	30
1868	1X	46
1869	1Z	40
1870	4W	(1)
1871	1Y	40
1872	1X	56
1873	2P	558
1884	2Z	60
1885	2Z	60
1886	2Z	60
1887	2X	60
1888	2Z	60
1889	2XE	668
1891	2W	60
1892	2XE	66
1894	2X	60
1895	2X	60
1897	2Z	60
1898	4W	80
1902	2X	80
1903	2X(4)	88/80
1905	2X	88
1906	2W	80
1907	2X	80
1908	2X	80
1910	2X	(1)
1911	2PE	(1)
1912	2YE	23
1913	2T	22
1914	3Y	30
1915	•3Y	30
1916	•3W	63
1917	•3WE	339
1918	3Y	30
1919	3WE	339
1920	3Y	30
1921	•2WE	336
1922	•2WE	338
1923	1S	40
1928	4WE	X323
1929	1S	40
1931	2Z	90
1932	1Y	40

UN	HAZCHEM	HIN
1935	2X(4)	66/60
1938	2X	80
1939	4W	80
1940	2X	80
1941	2Z	90
1942	1Y	50
1944	1Z	(1)
1945	1Z	(1)
1950	(2)	(1)
1951	2T	22
1952	2T	20
1953	2PE	263
1954	2SE	23
1955	2RE	26
1956	2TE	20
1957	2SE	23
1958	2TE	20
1959	2YE	239
1961	2YE	223
1962	2SE	23
1963	2T	22
1964	2SE	23
1965	2YE	23
1966	2YE	223
1967	2XE	26
1968	2TE	20
1969	2YE	23
1970	2TE	22
1971	2SE	23
1972	2YE	223
1973	2TE	20
1974	2TE	20
1975	2PE	(1)
1976	2TE	20
1977	2T	22
1978	2YE	23
1982	2TE	20
1983	2TE	20
1984	2T	20
1986	•3WE(3)	336
1986	•3W	36
1987	•3YE(3)	33
1987	•3Y	30
1988	•3WE(3)	336
1988	•3W	36
1989	•3YE(3)	33

UN	HAZCHEM	HIN
1989	•3Y	30
1990	3Z	90
1991	•3YE	336
1992	•3WE(3)	336
1992	•3W	36
1993	•3YE(3)	33
1993	•3Y	30
1994	2WE	663
1999	2WE(3)	33
1999	2W	30
2000	1Z	(1)
2001	1Z	40
2002	1Y	(1)
2004	1Y	40
2006	1Y	(1)
2008	4Y	43/40
2009	1Y	40
2010	4WE	(1)
2011	4WE	(1)
2012	4WE	(1)
2013	4WE	(1)
2014	2P	58
2015	2P	559
2016	2X	(1)
2017	2XE	(1)
2018	2X	60
2019	2X	60
2020	2X	60
2021	2X	60
2022	3X	68
2023	•3W	63
2024	2X	66/60
2025	2X	66/60
2026	2X	66/60
2027	2Z	60
2028	2X	(1)
2029	•2WE	(1)
2030	•2X	886/86
2031	2P(4)	885
2031	2R	85
2032	2PE	856
2033	2W	80
2034	2SE	23
2035	2YE	23
2036	2TE	20

UN	HAZCHEM	HIN
2037	(2)	(1)
2038	2X	60
2044	2YE	23
2045	•2YE	33
2046	3Y	30
2047	2YE(3)	33
2047	2Y	30
2048	3Y	30
2049	3Y	30
2050	3YE	33
2051	•2W	83
2052	3Y	30
2053	•3Y	30
2054	•2W	883
2055	3Y	39
2056	•2YE	33
2057	3YE(3)	33
2057	3Y	30
2058	3YE	33
2059	•2YE(3)	33
2059	•2Y	30
2067	1Y	50
2071	1Y	(1)
2073	2XE	20
2074	2X	60
2075	2X	69
2076	•2X	68
2077	2Z	60
2078	2Z	60
2079	2X	80
2186	2RE	(1)
2187	2T	22
2188	2PE	(1)
2189	2WE	263
2190	2PE	(1)
2191	2XE	26
2192	2PE	263
2193	2TE	20
2194	2RE	(1)
2195	2RE	(1)
2196	2WE	(1)
2197	2RE	268
2198	2RE	(1)
2199	2PE	(1)
2200	2YE	239
2201	2P	225

UN	HAZCHEM	HIN
2202	2WE	(1)
2203	2SE	23
2204	2PE	263
2205	•3X	60
2206	2X	60
2208	1X	50
2209	•2X	80
2210	1Y	40
2211	2Y	90
2212	2X	90
2213	1Z	40
2214	2X	80
2215	2X	80
2216	1Z	(1)
2217	1Y	40
2218	•2W	839
2219	•2Y	30
2222	3Y	30
2224	3Z	60
2225	2X	80
2226	2X	80
2227	3W	39
2232	•2XE	66
2233	2X	60
2234	2Y	30
2235	2Z	60
2236	2X	60
2237	2X	60
2238	3Y	30
2239	2X	60
2240	2W	88
2241	3YE	33
2242	3YE	33
2243	3Y	30
2244	3Y	30
2245	•3Y	30
2246	3YE	33
2247	3Y	30
2248	•3W	83
2249	•3WE	(1)
2250	2X	60
2251	3YE	339
2252	•2YE	33
2253	3Z	60
2254	1Z	(1)
2256	3YE	33

UN	HAZCHEM	HIN
2257	4W	X423
2258	•2W	83
2259	2X	80
2260	3W	38
2261	2X	60
2262	4W	80
2263	3YE	33
2264	•3W	83
2265	•2Y	30
2266	•2WE	338
2267	2X	68
2269	•2X	80
2270	•2PE	338
2271	3Y	30
2272	3Z	60
2273	3X	60
2274	2X	60
2275	3Y	30
2276	•2W	38
2277	3WE	339
2278	3YE	33
2279	2X	60
2280	2X	80
2281	2Z	60
2282	3Y	30
2283	3W	39
2284	•3WE	336
2285	•3W	63
2286	3Y	30
2287	3YE	33
2288	3YE	33
2289	2X	80
2290	2Z	60
2291	2Z	60
2293	3Y	30
2294	3X	60
2295	2W	663
2296	3YE	33
2297	•3Y	30
2298	3YE	33
2299	2X	60
2300	3Z	60
2301	3YE	33
2302	•3Y	30
2303	3Y	30

UN	HAZCHEM	HIN
2304	1Y	44
2305	2X	80
2306	2X	60
2307	2X	60
2308	2X	X80
2309	3YE	33
2310	•2Y	36
2311	2X	60
2312	•3X	60
2313	•2W	30
2315	2X	90
2316	2X	66
2317	2X	66
2318	1Y	40
2319	3Y	30
2320	2X	80
2321	2X	60
2322	2Z	60
2323	3Y	30
2324	3Y	30
2325	3Y	30
2326	2X	80
2327	2X	80
2328	2Z	60
2329	3Y	30
2330	3Y	30
2331	2X	80
2332	•2Y	30
2333	•3YE	336
2334	•2WE	663
2335	3WE	336
2336	3WE	336
2337	3WE	663
2338	2YE	33
2339	2YE	33
2340	•2YE	33
2341	2Y	30
2342	2YE	33
2343	2YE	33
2344	2YE(3)	33
2344	2Y	30
2345	2YE	33
2346	•2YE	33
2347	•3WE	33
2348	3W	39
2350	3YE	33

UN	HAZCHEM	HIN
2351	•3YE(3)	33
2351	•3Y	30
2352	•3YE	339
2353	•3WE	338
2354	•3WE	336
2356	3YE	33
2357	•2W	83
2358	3YE	33
2359	•2WE	338
2360	•3WE	336
2361	3WE	38
2362	2YE	33
2363	3WE	33
2364	3Y	30
2366	3Y	30
2367	3YE	33
2368	3Y	30
2370	3YE	33
2371	3YE	33
2372	•2YE	33
2373	•2YE	33
2374	•3YE	33
2375	3WE	33
2376	•2YE	33
2377	•2YE	33
2378	3WE	336
2379	3WE	338
2380	•2YE	33
2381	3WE	336
2382	•2WE	663
2383	•2WE	338
2384	3YE	33
2385	•3YE	33
2386	3WE	338
2387	3YE	33
2388	3YE	33
2389	3YE	33
2390	2YE	33
2391	2YE	33
2392	2Y	30
2393	•3YE	33
2394	3Y	30
2395	•3WE	338
2396	•2WE	336
2397	•3YE	33
2398	•3YE	33
2399	•2WE	338
2400	•3YE	33
2401	•2WE	883
2402	•3WE	33
2403	•3YE	33
2404	•2WE	336
2405	3Y	30
2406	3YE	33
2407	•3WE	(1)
2409	3YE	33
2410	•2WE	33
2411	•3WE	336
2412	3WE	33
2413	•2Y	30
2414	3WE	33
2416	•3YE	33
2417	2PE	268
2418	2PE	(1)
2419	2YE	23
2420	2WE	268
2421	2PE	(1)
2422	2TE	20
2424	2TE	20
2426	1Y	59
2427	2Y	50
2428	2Y	50
2429	2Y	50
2430	2X	88/80
2431	2Z	60
2432	•3X	60
2433	2X	60
2434	4W	X80
2435	4W	X80
2436	•2WE	33
2437	4W	X80
2438	•3WE	663
2439	2X	80
2440	2X	80
2441	4WE	(1)
2442	4W	X80
2443	4WE	80
2444	4WE	X88
2446	2X	60
2447	1WE	446
2448	1Y	44
2451	2S	25
2452	2YE	239
2453	2YE	23
2454	2YE	23
2455	2PE	(1)
2456	3YE	33
2457	3YE	33
2458	3YE	33
2459	3YE	33
2460	3YE	33
2461	3YE	33
2463	4WE	(1)
2464	1Y	56
2465	1W	50
2466	1W	(1)
2468	1W	50
2469	1Z	50
2470	2X	60
2471	2X	66
2473	2Z	60
2474	2X	66
2475	2X	80
2477	•3WE	663
2478	•3WE(3)	336
2478	•3W	36
2480	•3WE	663
2481	•3WE	663
2482	•3WE	663
2483	•3WE	663
2484	•3WE	663
2485	•3W	663
2486	•3WE	663
2487	•3W	663
2488	•3W	663
2490	2Z	60
2491	2X	80
2493	•2WE	338
2495	4WE	568
2496	•3X	80
2498	•3Y	30
2501	2X	60
2502	4W	83
2503	2X	80
2504	2Z	60

UN	HAZCHEM	HIN
2505	2X	60
2506	2X	80
2507	2X	80
2508	2X	80
2509	2X	80
2511	2X	80
2512	2X	60
2513	4W	X80
2514	2Y	30
2515	2X	60
2516	2Z	60
2517	2YE	23
2518	3Z	60
2520	3Y	30
2521	•3W	663
2522	•2W	69
2524	•3Y	30
2525	•3Z	60
2526	•2W	38
2527	3W	39
2528	3Y	30
2529	•2W	38
2531	3W	89
2533	2Z	60
2534	2WE	263
2535	•2WE	338
2536	•2YE	33
2538	1Z	40
2541	3Y	30
2542	3X	60
2545	1Y	40
2546	1Y	40
2547	1W	(1)
2548	2WE	(1)
2552	2X	60
2554	3WE	33
2555	1Z	(1)
2556	1Y	(1)
2557	1Z	(1)
2558	•2W	663
2560	•3Y	30
2561	3YE	33
2564	2X	80
2565	2X	80
2567	2X	60

UN	HAZCHEM	HIN
2570	2X	66/60
2571	2X	80
2572	•3X	60
2573	1Y	56
2574	2X	60
2576	1X	80
2577	4W	80
2578	2X	80
2579	2X	80
2580	2X	80
2581	2X	80
2582	2X	80
2583	2X	80
2584	2X	80
2585	2X	80
2586	2X	80
2587	2Z	60
2588	2X	66/60
2589	3W	63
2590	2X	90
2591	2TE	22
2599	2TE	20
2601	2YE	23
2602	2TE	20
2603	3WE	336
2604	4WE	883
2605	3WE	663
2606	3WE	663
2607	•2Y	39
2608	•3Y	30
2609	2X	60
2610	3W	38
2611	•2W	63
2612	•3YE	33
2614	•2Y	30
2615	•3YE	33
2616	•3YE(3)	33
2616	•3Y	30
2617	•3Y	30
2618	3Y	39
2619	3W	83
2620	•3Y	30
2621	•2Y	30
2622	•2WE	336
2623	1Z	(1)

UN	HAZCHEM	HIN
2624	4W	423
2626	2P	50
2627	1Y	50
2628	2X	66
2629	2X	66
2630	2X	66
2642	2X	66
2643	2X	60
2644	2X	66
2645	2X	60
2646	2X	66
2647	2X	60
2648	2X	60
2649	2X	60
2650	2X	60
2651	2Z	60
2653	2X	60
2655	2X	60
2656	2X	60
2657	2Z	60
2659	2Z	60
2660	2X	60
2661	2Z	60
2664	2Z	60
2667	3X	60
2668	2W	663
2669	2Z	60
2670	2X	80
2671	2X	60
2672	2X	80
2673	2X	60
2674	2X	60
2676	2PE	(1)
2677	2R	80
2678	2W	80
2679	2R	80
2680	2X	80
2681	2R	80
2682	2W	80
2683	•2W	86
2684	•2W	38
2685	•2W	83
2686	•2W	83
2687	1Z	40
2688	2X	60
2689	2X	60

UN	HAZCHEM	HIN
2690	2X	60
2691	4W	80
2692	4WE	X88
2693	2X	80
2698	2X	80
2699	2X	88
2705	2X	80
2707	•3YE(3)	33
2707	•3Y	30
2709	3Y	30
2710	3Y	30
2713	2X	60
2714	1Z	40
2715	1Z	40
2716	2X	60
2717	1Z	40
2719	1W	56
2720	1Z	50
2721	1Y	50
2722	1Z	50
2723	1Y	50
2724	1Z	50
2725	1Z	50
2726	1Z	50
2727	1Y	65
2728	1Z	50
2729	2Z	60
2730	2Z	60
2732	2X	60
2733	•2WE(3)	338
2733	•2W	38
2734	•2W	883/83
2735	2X	88/80
2738	2Z	60
2739	•3X	80
2740	•3WE	668
2741	1Y	56
2742	•3W	638
2743	•3W	638
2744	•3W	638
2745	2X	68
2746	2X	68
2747	2X	60
2748	2X	68
2749	3YE	33

UN	HAZCHEM	HIN
2750	2X	60
2751	4W	80
2752	3Y	30
2753	2X	60
2754	3X	60
2757	2X	66/60
2758	•3WE	336
2759	2X	66/60
2760	•3WE	336
2761	2X	66/60
2762	•3WE	336
2763	2X	66/60
2764	•3WE	336
2771	2X	66/60
2772	•3WE	336
2775	2X	66/60
2776	•3WE	336
2777	2X	66/60
2778	•3WE	336
2779	2X	66/60
2780	•3WE	336
2781	2X	66/60
2782	•3WE	336
2783	2X	66/60
2784	•3WE	336
2785	2X	60
2786	2X	66/60
2787	•3WE	336
2788	2X	66/60
2789	•2P	83
2790	2R	80
2793	1Y	40
2794	2R	80
2795	2R	80
2796	2R	80
2797	2R	80
2798	2X	80
2799	2W	80
2800	2R	80
2801	2X	88/80
2802	2X	80
2803	2Z	80
2805	4W	423
2806	4W	(1)
2807	2Z	(1)

UN	HAZCHEM	HIN
2809	2X	86
2810	2X	66/60
2811	2X	66/60
2812	2X	(1)
2813	4W	X423/ 423
2814	2XE	606
2815	•2X	86
2817	2X	86
2818	2X	86
2819	2X	80
2820	•2X	80
2821	2X	60
2822	2X	60
2823	2X	80
2826	2W	83
2829	2X	80
2830	4W	423
2831	2Z	60
2834	2X	80
2835	4W	423
2837	2R	80
2838	3YE	339
2839	•2X	60
2840	•3W	30
2841	•3W	36
2842	•3Y	30
2844	4Y	423
2845	•3W	333
2846	4Y	(1)
2849	•2X	60
2850	3Y	30
2851	4W	80
2852	1W	(1)
2853	2Z	60
2854	2Z	60
2855	2Z	60
2856	2Z	60
2857	2Z	(1)
2858	1Z	40
2859	2Z	60
2861	2X	60
2862	2X	60
2863	2X	60
2864	2X	60
2865	2X	80

UN	HAZCHEM	HIN
2869	4W	80
2870	4W	X333
2870	4W	(1)
2871	2X	60
2872	2X	60
2873	2Z	60
2874	•2X	60
2875	2X	60
2876	2Z	60
2878	4Y	40
2879	4WE	X886
2880	1W	50
2881	4Y	43/40
2900	2X	606
2901	2WE	265
2902	2X(4)	66
2902	2X	60
2903	•3W	663/63
2904	2X	80
2905	2X	80
2907	1Z	(1)
2920	•3W	883/83
2921	2X	884/84
2922	2X(4)	886
2922	2X	86
2923	2X	886/86
2924	•3WE(3)	338
2924	•3W	38
2925	1W	48
2926	1X	46
2927	2XE(3)	668
2927	2X	68
2928	2X	668/68
2929	•3W	663/63
2930	2X	664/64
2931	2Z	60
2933	•3Y	30
2934	3Y	30
2935	3Y	30
2936	•2X	60
2937	2Z	60
2940	1Y	40
2941	2X	60
2942	2X	60
2943	•2Y	30

UN	HAZCHEM	HIN
2945	•2WE	338
2946	2X	60
2947	3Y	30
2948	2X	60
2949	2X	80
2950	4Y	423
2956	1Y	(1)
2965	4WE	382
2966	2X	60
2967	2X	80
2968	4Y	423
2969	2Z	90
2983	•2WE	336
2984	2R	50
2985	4WE	X338
2986	4W	X83
2987	4W	X80
2988	4WE	X338
2989	1Z	40
2990	2Z	(1)
2991	•3W	663/63
2992	2X	66/60
2993	•3W	663/63
2994	2X	66/60
2995	•3W	663/63
2996	2X	66/60
2997	•3W	663/63
2998	2X	66/60
3005	•3W	663/63
3006	2X	66/60
3009	•3W	663/63
3010	2X	66/60
3011	•3W	663/63
3012	2X	66/60
3013	•3W	663/63
3014	2X	66/60
3015	•3W	663/63
3016	2X	66/60
3017	•3W	663/63
3018	2X	66/60
3019	•3W	663/63
3020	2X	66/60
3021	•3WE	336
3022	•2YE	339
3023	3WE	663

UN	HAZCHEM	HIN
3024	•3WE	336
3025	•3W	663/63
3026	2X	66/60
3027	2X	66/60
3028	2X	80
3048	4W	642
3054	3WE	30
3055	2X	80
3056	3Y	30
3057	2XE	268
3064	•2YE	(1)
3065	•2YE(3)	33
3065	•2Y	30
3066	2X	80
3070	2TE	20
3071	•3WE	63
3072	2Z	(1)
3073	•3W	638
3077	2Z	90
3078	4W	423
3079	•3WE	663
3080	•3W	63
3082	•3Z	90
3083	2WE	265
3084	2W	885/85
3085	1W	58
3086	2W	665/65
3087	1W	56
3088	1Y	40
3089	4Y	40
3090	4Y	(1)
3091	4Y	(1)
3092	•2Y	30
3093	2W	885/85
3094	4W	823
3095	2W	884/84
3096	4W	842
3097	1Y	(1)
3098	2W	(1)
3099	2W	(1)
3100	1W	(1)
3101	2WE	(1)
3102	1WE	(1)
3103	2WE	(1)
3104	1WE	(1)

UN	HAZCHEM	HIN
3105	2WE	(1)
3106	1WE	(1)
3107	2W	(1)
3108	1W	(1)
3109	2W	539
3110	1W	539
3111	2WE	(1)
3112	1WE	(1)
3113	2WE	(1)
3114	1WE	(1)
3115	2WE	(1)
3116	1WE	(1)
3117	2W	(1)
3118	1W	(1)
3119	2W	539
3120	1W	539
3121	4W	(1)
3122	2WE	665/65
3123	4W	623
3124	2W	664/64
3125	4W	642
3126	1W	48
3127	1W	(1)
3128	1W	46
3129	4W	X382/382
3130	4W	X362/362
3131	4W	X482/482
3132	4W	423
3133	4W	(1)
3134	4W	462
3135	4W	423
3136	2T	22
3137	1W	(1)
3138	2YE	223
3139	2Y	(1)
3140	2X	66/60
3141	2Z	60
3142	2X	66/60
3143	2X	66/60
3144	2X	66/60
3145	2X	88/80
3146	2X	66/60
3147	2X	88/80

UN	HAZCHEM	HIN
3148	4W	X323/323
3149	2P	58
3150	2YE	(1)
3151	2X	90
3152	2X	90
3153	2YE	23
3154	2YE	23
3155	2X	60
3156	2S	25
3157	2PE	25
3158	2TE	22
3159	2TE	20
3160	2WE	263
3161	2YE	23
3162	2XE	26
3163	2TE	20
3164	2T	(1)
3165	•2WE	(1)
3166	2YE	(1)
3167	2YE	(1)
3168	2WE	(1)
3169	2XE	(1)
3170	4W	423
3171	4W	(1)
3172	2X	66/60
3174	1Y	40
3175	1Z	40
3176	1Y	44
3178	1Z	40
3179	1X	46
3180	1X	48
3181	1Z	40
3182	1Z	40
3183	•3W	30
3184	•3W	36
3185	•3W	38
3186	•3W	30
3187	•3W	36
3188	•3W	38
3189	1Y	40
3190	1Y	40
3191	1W	46
3192	1W	48
3194	2W	333
3200	4W	43

UN	HAZCHEM	HIN
3205	1Y	40
3206	1W	48
3208	4W	423
3209	4W	423
3210	2Y	50
3211	2Y	50
3212	1W	50
3213	2Y	50
3214	2Y	50
3215	1Z	50
3216	2Z	50
3218	2Y	50
3219	2Y	50
3220	2TE	20
3221	2WE	(1)
3222	1WE	(1)
3223	2WE	(1)
3224	1WE	(1)
3225	2WE	(1)
3226	1WE	(1)
3227	2W	(1)
3228	1W	(1)
3229	2W	40
3230	1W	40
3231	2WE	(1)
3232	1WE	(1)
3233	2WE	(1)
3234	1WE	(1)
3235	2WE	(1)
3236	1WE	(1)
3237	2W	(1)
3238	1W	(1)
3239	2W	40
3240	1W	40
3241	1Y	(1)
3242	1Y	40
3243	2X	60
3244	2X	80
3245	2Z	(1)
3246	2XE	668
3247	1Y	50
3248	•3WE(3)	336
3248	•3W	36
3249	2X	60
3250	2W	68
3251	1Y	(1)

UN	HAZCHEM	HIN
3252	2YE	23
3253	2X	80
3254	3W	333
3255	2WE	(1)
3256	2Y	30
3257	2Y	99
3258	1Y	99
3259	2X	88/80
3260	2X	88/80
3261	2X	88/80
3262	2X	88/80
3263	2X	88/80
3264	2X	88/80
3265	2X	88/80
3266	2X	88/80
3267	2X	88/80
3268	2Z	(1)
3269	•2YE	(1)
3270	1Z	(1)
3271	3YE(3)	33
3271	3Y	30
3272	•3YE(3)	33
3272	•3Y	30
3273	3WE	336
3274	•3WE	338
3275	3W	663/63
3276	2X	66/60
3277	2X	68
3278	2X	66/60
3279	•3W	663/63
3280	2X	66/60
3281	2X	66/60
3282	2X	66/60
3283	2X	66/60
3284	2X	66/60
3285	2X	66/60
3286	•3WE	368
3287	2X	66/60
3288	2X	66/60
3289	2X	668/68
3290	2X	668/68
3291	2X	606
3292	4W	(1)
3293	•2X	60
3294	•2WE	663
3295	3YE(3)	33

UN	HAZCHEM	HIN
3295	3Y	30
3296	2T	20
3297	2TE	20
3298	2TE	20
3299	2TE	20
3300	2PE	263
3301	2W	884/84
3302	2X	60
3303	2PE	265
3304	2RE	268
3305	2PE	263
3306	2PE	265
3307	2WE	265
3308	2XE	268
3309	2WE	263
3310	2WE	265
3311	2PE	225
3312	2YE	223
3313	1Y	40
3314	2Y	90
3315	2X	(1)
3316	2Z	(1)
3317	1W	(1)
3318	2XE	268
3319	1Y	(1)
3320	2X	80
3334	2Z	(1)
3335	2Z	(1)
3336	3WE	33/30
3337	2TE	20
3338	2TE	20
3339	2TE	20
3340	2TE	20
3341	1Y	40
3342	1Y	40
3343	•2Y	(1)
3344	1Y	(1)
3345	2X	66/60
3346	•3WE	336
3347	•3W	663/63
3348	2X	66/60
3349	2X	66/60
3350	•3WE	336
3351	•3W	663/63
3352	2X	66/60
3354	2YE	23

UN	HAZCHEM	HIN
3355	2WE	263
3356	1Y	(1)
3357	•2Y	(1)
3358	2YE	(1)
3359	2Z	(1)
3360	1Z	(1)
3361	4W	68
3362	4WE	638
3363	1Z	(1)
3364	1W	(1)
3365	1W	(1)
3366	1W	(1)
3367	1W	(1)
3368	1W	(1)
3369	1W	(1)
3370	1W	(1)
3371	3YE	33
3373	2X	606
3374	2SE	(1)
3375	1Y	50
3376	1W	(1)
3377	1Z	50
3378	1Y	50
3379	•3YE	(1)
3380	1W	(1)
3381	2XE	66
3382	2XE	66
3383	•3WE	663
3384	•3WE	663
3385	4WE	623
3386	4WE	623
3387	2WE	665
3388	2WE	665
3389	2XE	668
3390	2XE	668
3391	4Y	43
3392	4Y	333
3393	4W	X432
3394	4W	X333
3395	4W	X423/423
3396	4W	X423/423
3397	4W	X423/423

UN	HAZCHEM	HIN
3398	4W	X323/323
3399	4W	X323/323
3400	2Y	40
3401	4W	X423
3402	4W	X423
3403	4W	X423
3404	4W	X423
3405	2Y	56
3406	2Y	56
3407	2Y	50
3408	2Y	56
3409	2X	60
3410	2X	60
3411	2Z	60
3412	2X	80
3413	2X	66/60
3414	2X	66/66
3415	2Z	60
3416	2Z	60
3417	2X	60
3418	2X	60
3419	2X	80
3420	2X	80
3421	2X	86
3422	2X	60
3423	2X	80
3424	2X	60
3425	2X	80
3426	2X	60
3427	2X	60
3428	2X	60
3429	2X	60
3430	2X	60
3431	2X	60
3432	2X	90
3434	2X	60
3436	2X	60
3437	2Z	60
3438	2Z	60
3439	2X	66/60
3440	2X	66/60
3441	2X	60
3442	2X	60
3443	2X	60

UN	HAZCHEM	HIN
3444	2X	60
3445	2X	60
3446	2X	60
3447	2X	60
3448	2X	66/60
3449	2X	66
3450	2X	66
3451	2X	60
3452	2X	60
3453	2X	80
3454	2X	60
3455	2X	68
3456	2X	X80
3457	2X	60
3458	2Z	60
3459	2X	60
3460	2X	60
3462	2X	66/60
3463	•2W	83
3464	2X	66/60
3465	2X	66/60
3466	2X	66/60
3467	2X	66/60
3468	2SE	(1)
3469	•3WE(3)	338
3469	•3W	38
3470	•3W	83
3471	2X	86
3472	•2X	80
3473	•2WE	(1)
3474	1W	(1)
3475	•3YE	33
3476	4W	(1)
3477	2X	(1)
3478	2Y	(1)
3479	2W	(1)
3480	2Y	(1)
3481	2Y	(1)
3482	4WE	X323
3483	•3WE	663
3484	•2X	886
3485	1W	58
3486	1W	58
3487	1W	58
3488	2WE	663
3489	2WE	663

UN	HAZCHEM	HIN
3490	4WE	623
3491	4WE	623
3492	2WE	668
3493	2WE	668
3494	•3WE(3)	336
3494	•3W	36
3495	2WE	86
3496	2Y	(1)
3497	1Y	40
3498	2X	80
3499	1Z	(1)
3500	2ZE	20
3501	2YE	23
3502	2XE	26
3503	2XE	28
3504	2WE	263
3505	2WE	238
3506	2X	(1)
3507	(2)	(1)
3508	1Z	(1)
3509	2Z	90
3510	2SE	(1)
3511	2TE	(1)
3512	2RE	(1)
3513	2S	(1)
3514	2PE	(1)
3515	2PE	(1)
3516	2RE	(1)
3517	2PE	(1)
3518	2PE	(1)
3519	2RE	(1)
3520	2XE	(1)
3521	2PE	(1)
3522	2PE	(1)
3523	2PE	(1)
3524	2RE	(1)
3525	2PE	(1)
3526	2WE	(1)
3527	1W	(1)
3528	2YE	(1)
3529	2YE	(1)
3530	2Y	(1)
3531	1W	40
3532	2W	40
3533	1W	40
3534	2W	40

UN	HAZCHEM	HIN
3535	2X(4)	664
3535	2X	64
3536	4Y	(1)
3537	2SE	(1)
3538	2T	(1)
3539	2RE	(1)
3540	3YE	(1)
3541	1Z	(1)
3542	1W	(1)
3543	4W	(1)
3544	2Y	(1)
3545	2WE	(1)
3546	2X	(1)
3547	2X	(1)
3548	1Z	(1)

C4 Hazard Identification Number (HIN)

NOTE: This Section C4 and the HIN listing in C3 are provided for information purposes only.

There is no requirement of this Code to apply a Hazard Identification Number (HIN) to any load of dangerous goods being transported in Australia.

The HIN is usually displayed on portable tanks, bulk containers and some freight containers loaded with dangerous goods sourced from Europe and some other countries. It is displayed in the upper half of the RID/ADR Plate that is placarded on the cargo transport unit, together with the Class label. The UN Number is displayed in the lower half.

Sample RID/ADR Plate for UN 1088 Acetal

The HIN is not strictly an emergency action code. Rather it is a numerical system of identifying the hazard of the dangerous goods in more detail than is provided by the dangerous goods classification alone.

C4.1 The HIN consists of two or three figures. In general, the figures indicate the following hazards:

2	Emissions of gas due to pressure or to chemical reaction
3	Flammability of liquids (vapours) and gases or self-heating liquids
4	Flammability of solids or self-heating solids
5	Oxidising (fire-intensifying) effect
6	Toxicity (or risk of infection)
7	Radioactivity
8	Corrosivity
9	Risk of spontaneous, violent reaction

NOTE 1: *The hazards assigned above to numbers '4' to '8' inclusive are similar to the hazards indicated by the same numbers in the United Nations dangerous goods classification system used in this Code*

NOTE 2: *Spontaneous violent reaction within the meaning of hazard '9' above includes the possibility of the risk of explosion, disintegration and polymerisation reaction with the release of considerable heat or flammable and/or toxic gases.*

C4.2 Doubling of a figure indicates an intensification of that particular hazard.

C4.3 Where the hazard associated with a substance can be adequately indicated by a single figure, this is followed by zero.

C4.4 The following combinations of figures have a special meaning: 22, 323, 333, 362, 382, 423, 44, 446, 462, 482, 539, 606, 623, 642, 823, 842 and 90, (see C4.6).

C4.5 If the letter 'X' prefixes a hazard identification number, this indicates that the substance will react dangerously with water. For these substances, water may only be used with the approval of experts.

C4.6 The hazard identification numbers have the following meanings:

20 Asphyxiant gas or gas with no subsidiary hazard

22 Refrigerated liquefied gas, Asphyxiant

223 Refrigerated liquefied gas, flammable

225 Refrigerated liquefied gas, oxidising (fire intensifying)

23 Flammable gas

239 Flammable gas, which can spontaneously lead to violent reaction

25 Oxidising (fire-intensifying) gas

26 Toxic gas

263 Toxic gas, flammable

265 Toxic gas, oxidising (fire-intensifying)

268 Toxic gas, corrosive

30 Flammable liquid (flash-point between 23°C and 61°C inclusive) or flammable liquid or solid in the molten state with a flash point above 61°C, heated to a temperature equal to or above its flash point, or self-heating liquid

323 Flammable liquid which reacts with water, emitting flammable gases

X323 Flammable liquid which reacts dangerously with water, emitting flammable gases*

33 Highly flammable liquid (flash-point below 23°C)

333 Pyrophoric liquid

X333 Pyrophoric liquid, which reacts dangerously with water*

336 Highly flammable liquid, toxic

338 Highly flammable liquid, corrosive

X338 Highly flammable liquid, corrosive, which reacts dangerously with water*

339 Highly flammable liquid which can spontaneously lead to violent reaction.

36 Flammable liquid (flash-point between 23°C and 61°C inclusive), slightly toxic or self-heating liquid toxic.

362 Flammable liquid, toxic, which reacts with water, emitting flammable gases

X362 Flammable liquid, toxic, which reacts dangerously with water, emitting flammable gases*

368 Flammable liquid, toxic, corrosive

38 Flammable liquid (flash-point between 23°C and 61°C inclusive), slightly corrosive or self-heating liquid, corrosive

382 Flammable liquid, corrosive, which reacts with water, emitting flammable gases

X382 Flammable liquid, corrosive, which reacts dangerously with water, emitting flammable gases*

39 Flammable liquid, which can spontaneously lead to violent reaction

40 Flammable solid, or self-reactive substance, or self heating substance

423 Solid which reacts with water, emitting flammable gases

X423 Flammable solid which reacts dangerously with water, emitting flammable gases*

43 Spontaneously flammable (Pyrophoric) solid

44 Flammable solid, in the molten state at an elevated temperature

446 Flammable solid, toxic, in the molten state, at an elevated temperature

46 Flammable or self-heating solid, toxic

462 Toxic solid which reacts with water, emitting flammable gases*

X462 Solid which reacts dangerously with water, emitting toxic gases

48 Flammable or self-heating solid, corrosive

482 Corrosive solid which reacts with water, emitting corrosive gases

X482 Solid which reacts dangerously with water, emitting corrosive gases*

50 Oxidising (fire-intensifying) substance

539 Flammable organic peroxide

55 Strongly oxidising (fire-intensifying) substance

556 Strongly oxidising (fire-intensifying) substance, toxic

558 Strongly oxidising (fire-intensifying) substance, corrosive

559 Strongly oxidising (fire-intensifying) substance, which can spontaneously lead to violent reaction

56 Oxidising substance (fire-intensifying), toxic

568 Oxidising substance (fire-intensifying), toxic, corrosive

58 Oxidising substance (fire-intensifying), corrosive

59 Oxidising substance (fire-intensifying) which can spontaneously lead to violent reaction

60 Toxic or slightly toxic substance

606 Infectious substance

623 Toxic liquid, which reacts with water, emitting flammable gases

63 Toxic substance, flammable (flash-point between 23°C and 61°C inclusive)

638 Toxic substance, flammable (flash-point between 23°C and 61°C inclusive), corrosive

639 Toxic substance, flammable (flash-point not above 61°C inclusive), which can spontaneously lead to violent reaction

64 Toxic solid, flammable or self-heating

642 Toxic solid, which reacts with water, emitting flammable gases

65 Toxic substance, oxidising (fire-intensifying)

66 Highly toxic substance

663 Highly toxic substance, flammable (flash-point not above 61°C inclusive)

664 Highly Toxic substance, flammable or self-heating

665 Highly toxic substance, oxidising (fire-intensifying)

668 Highly toxic substance, corrosive

669 Highly toxic substance which can spontaneously lead to a violent reaction

68 Toxic substance, corrosive

69 Toxic or slightly toxic substance, which can spontaneously lead to violent reaction

70 Radioactive material

72 Radioactive gas

723 Radioactive gas, flammable

73 Radioactive liquid, flammable (flash-point not above 61°C inclusive)

74 Radioactive solid, flammable

75 Radioactive material oxidising (fire-intensifying)

7**6** Radioactive material, toxic

78 Radioactive material, corrosive

80 Corrosive or slightly corrosive substance

X80 Corrosive or slightly corrosive substance, which reacts dangerously with water*

823 Corrosive liquid which reacts with water, emitting flammable gases

83 Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 61°C inclusive)

X83 Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 61°C inclusive), which reacts dangerously with water*

839 Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 61°C inclusive), which can spontaneously lead to violent reaction

X839 Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 61°C inclusive), which can spontaneously lead to violent reaction and which reacts dangerously with water*

84 Corrosive solid, flammable or self-heating

842 Corrosive solid which reacts with water, emitting flammable gases

85 Corrosive or slightly corrosive substance, oxidising (fire-intensifying)

856 Corrosive or slightly corrosive substance, oxidising (fire-intensifying) and toxic

86 Corrosive or slightly corrosive substance, toxic

88 Highly corrosive substance

X88 Highly corrosive substance, which reacts dangerously with water*

883 Highly corrosive substance, flammable (flash point between 23°C and 61°C inclusive)

884 Highly corrosive solid, flammable or self-heating

885 Highly corrosive substance, oxidising (fire-intensifying)

886 Highly corrosive substance, toxic

X886 Highly corrosive substance, toxic which reacts dangerously with water*

89 Corrosive or slightly corrosive substance, which can spontaneously lead to violent reaction

90 Environmentally hazardous substance; miscellaneous dangerous substances

99 Miscellaneous dangerous substance carried at an elevated temperature

***Water must not to be used except by approval of experts**

APPENDIX D: CODE OF PRACTICE FOR REPROCESSING STEEL DRUMS

NOTE 1: *This Appendix has the full title 'Code of Practice for the Reprocessing of Closed Head Steel Drums in the Nominal Capacity Range of 200-220 Litres'. Previous editions were published separately as Supplement 1 to earlier editions of this Code.*

NOTE 2: *Adherence to this Code of Practice is necessary in order to prevent those reprocessed drums which show unsatisfactory performance characteristics from being used in the transport of dangerous goods.*

D1 SCOPE

This mandatory Code of Practice has been prepared by the Advisory Committee on the Transport of Dangerous Goods. It is to be adhered to by those persons reprocessing non-removable head steel drums in the nominal capacity range of between 200 and 220 litres, for second and subsequent use of these drums in the transport of dangerous goods of packing groups II and III.

It recognises the long standing practice of the use of reprocessed drums for the transport of dangerous goods in Australia. The purpose of this Code of Practice is to afford a mechanism to control the quality of drums prior to subsequent use and to that end it sets out:

(a) selection criteria for drums intended for second or subsequent use in transporting dangerous goods; and

(b) reprocessing procedures to which such drums must be subjected.

Reprocessed drums must not be used for dangerous goods of packing group I.

Notwithstanding drums being reprocessed to the requirements of this Code of Practice, the responsibility for the selection and suitability of the drums for a particular purpose remains with the packer.

This Code of Practice is to be read in conjunction with this ADG Code.

D2 DEFINITIONS AND PROHIBITED PRACTICES

Drum for the purposes of this Code of Practice is a flat ended cylindrical receptacle made of metal with filling apertures in the body and/or in the top head, with or without rolling hoops or corrugations and with ends permanently fixed to the body by means such as seaming or welding and has a nominal capacity of 200 to 220 litres and commonly known as a closed or non-removable head steel drum.

In House describes the circumstances where a packer of dangerous goods reuses or launders drums on the packer's premises for the packer's own use but does not make such drums available to others as packagings for dangerous goods.

Launder means the action of washing the exterior and interior of drums and where necessary, repainting the exterior of the drums to obliterate all previous package markings (other than packaging approval markings), with or without chaining or de-scaling the interior prior to filling.

Packer means a person who fills, or causes to be filled, the drum.

Recondition means the actions of both mechanical repair and laundering of drums involving processes which require reformation to original shape of any component by mechanical means, and repairs of holes by welding, but excludes the process of remaking.

Remake means the action of replacing one or both ends of a drum.

Reuse means the action of in-house refilling of drums with goods of a type chemically similar to the goods initially packed. Reuse does not include laundering, but rinsing and painting, if needed, are permitted.

Reprocess means the actions of either laundering or reconditioning drums.

Rinsing means the action of washing a drum with fluids whose residues need not be removed, other than by drying, before the drum is refilled.

Weld means the action of repairing a hole by welding. Welding does not include the placing of a patch.

Welding is not permitted on the bottom of a drum or within 50mm of a body seam, chime of flange.

Welding of holes longer than 15mm or those caused by corrosion or fatigue is not permitted.

D3 SELECTION OF DRUMS

A drum may be re-used or reprocessed for use with dangerous goods provided that:

(a) the drum is selected for re-use, laundering or reconditioning, or rejection, in accordance with the criteria specified in the selection table in Section D9; and

(b) the drum selected for reprocessing does not exhibit damage to a degree equivalent to those illustrations designated as `NOT ACCEPTABLE' in the Pictorial Guide in Section D10 of this Code of Practice.

D4 EQUIPMENT

Reprocessors must possess both leak testing equipment and a set of scales. Both of these must be calibrated against Australian StandardsStandards or equivalent and only used within their calibration period. The following equipment is optional:

- washing machine
- spray painting equipment
- chaining or de-scaling equipment
- de-denter

- chime straightener.

Reprocessors who possess either a de-denter or a chime straightener (or both) will be deemed to be reconditioners.

All equipment must be adequately protected to minimise the risk of injury to equipment operators.

D5 TESTING OF DRUMS

Except for drums which are only being re-used, every drum must be subjected to the following tests before being utilised for the transport of dangerous goods:

D5.1 Leakproofness Test

Description of test:

A pressure of 20kPa must be applied using a test method approved by the Competent Authority.

Criteria for passing the test successfully:

There must be no leakage.

NOTE: *Leakproofness testing equipment must be adequately protected to minimise the risk of injury to equipment operators.*

D5.2 Tare Weight Test

Description of test:

The clean empty reprocessed drum must be weighted to an accuracy of +/- 0.1 kg.

Criteria for passing the test successfully:

The mass of the drum must be not less than 15.5kg.

D6 MARKING OF DRUMS

Drums reprocessed in accordance with this Code of Practice must be marked in accordance with Section 6.1.3.

D7 APPROVAL OF REPROCESSORS

Each reprocessing facility must be approved as a laundering or reconditioning facility by the Competent Authority in whose jurisdiction the facility is located.

NOTE: Details of approved drum reprocessors can be obtained from the Competent Authority.

The following steps must be undertaken to obtain approval:

(a) The reprocessor must make an application for approval to the Competent Authority. The application must be in writing and will:

(i) nominate responsible persons in charge of the reprocessing operation;

(ii) list the reprocessing equipment in the facility; (Essential and optional equipment for reprocessors is listed at D4 of this Code of Practice)

(iii) verify that all reprocessed drums, prior to being placed into dangerous goods service will have:

- had their tare mass determined;
- passed through all necessary processes in this Code of Practice; and
- been leak tested;

(iv) nominate an identifying mark for use under D6.

(b) Following receipt of an application completed in accordance with (a), the Competent Authority will inspect the reprocessor's premises and witness all the equipment listed under (a)(ii) in operation. (The level of equipment will depend on whether a reconditioner or launderer is being inspected). For this inspection, leak testing equipment must be set up and equipped with an accurate gauge.

(c) If satisfied with the site inspection under (b) the Competent Authority will grant written approval to the reprocessor. The approval will include a confirmation of the identifying mark nominated in (a)(iv) and advice of approval as a `reconditioner' or a `launderer'.

(d) The Competent Authority will fully re-inspect the reprocessor's premises at least biennially.

D8 TRAINING

It is a requirement of this Code of Practice that reprocessor's staff involved in the reprocessing of drums for use in the transport of dangerous goods are trained in the drum selection procedures and the procedures for reprocessing and testing contained in this Code of Practice.

D9 DRUM AND PROCESS SELECTION

To be suitable for reuse, laundering or reconditioning for packaging dangerous goods, a drum must:

(a) be an approved drum, complying with Chapter 6.1 of this Code, as verified by markings in accordance with 6.1.3;

(b) have a minimum tare mass of 15.5 kg; and

(c) not be damaged to such an extent that, after reprocessing, it may not be capable of meeting the performance tests of this Code applicable to drums for their intended service.

Detailed criteria to be applied to the selection of drum suitable for reprocessing are provided in Table D overleaf. This table also indicates what processing is required for different types of damage.

This table should be used for segregating drums into those to be reused and those which are candidates for reprocessing or rejection.

The pictorial guide provided at D10, must be used to assist in interpreting damage levels referred to in Table D.

Table D: Reprocessing Criteria and Options

CRITERIA FOR SELECTION		PROCESS OPTION			
		Reuse	**Launder**	**Recondition**	**Reject**
Criteria based on Original (as new) Status					
Approved drums 1		2	2	2	2
Unapproved drums		-	-	-	3
Weight Criterion					
Minimum Tare Mass:	– Nominally > 15.5kg	2	2	2	2
	– Nominally < 15.5kg	-	-	-	3
Damage Criteria					
Damage Categories	**Type, extent or degree**				
Ullage Reduction:	Minor	2	2	2	2
	Major	-	-	-	3
Apparent Leaks:	Minor	-	-	2	2
	Major	-	-	-	3
Flanges:	Rust Pitted	-	-	-	3
	Loose in Head	-	-	-	3
	Out of Round	-	-	-	3
	Thread Damage	-	-	2	2
Bungs:	Rust Pitted	-	-	-	3
	Thread or Mechanical Damage	-	-	-	3
Blown Ends:	Minor	-	-	2	2
	Major	-	-	-	3
General End Damage:	Minor	2	2	2	2
	Major	-	-	-	3
Out of Rounds		-	-	2	2
Dents:					
Body – Within Bands:	Shallow and rounded	2	2	2	2
	Deep	-	-	-	3
	Creased	-	-	-	3
Body – Adjacent to Chime		-	-	2	2
Swedge:	Shallow and rounded	2	2	2	2
	Creased	-	-	-	3
Seam:	Shallow and rounded	2	2	2	2
	Creased	-	-	-	3
Chime – Folded:	Minor	2	2	2	2
	Major	-	-	-	3

CRITERIA FOR SELECTION		PROCESS OPTION			
		Reuse	**Launder**	**Recondition**	**Reject**
Chime – Flattened		-	-	2	2
Corrosion:					
External:	Minor	2	2	2	2
	Major	-	-	-	3
Internal:	Minor	-	2	2	2
	Major	-	-	-	3
Modifications to Body or Ends		-	-	-	3

Key to Table D:

1. \`Approved' means the drum has been originally approved in accordance with this Code and is marked accordingly.
2. Denotes an acceptable option.
3. Denotes mandatory action.

NOTE: *Any drum, irrespective of the extent of damage, may be rejected.*

D10 PICTORIAL GUIDE

This section provides illustrations of drums which have been used for the transport of dangerous goods and have suffered varying degrees of damage. The reprocessor must examine each drum received to determine the extent of its damage and the type of reprocessing to be undertaken in order to render it suitable to be used in the transport of dangerous goods.

The illustrations are designed to provide guidance to reprocessors in the selection of drums based on the condition of the drum. Drums suffering damage to a degree equivalent to those illustrations designated as \`NOT ACCEPTABLE' must not be reprocessed for use with dangerous goods. The illustrations have been reproduced, with permission, from the Shell publication \`Guidelines for the Selection of Used Drums'.

This pictorial guide should be used in conjunction with the Selection Guide in Table D.

Figure D1: Reprocessing steel drums – dents

A large dent. NOT ACCEPTABLE

The dent is too deep to be blown out satisfactorily.

Note the damage to the swedged rolling hoops.

These sharp indents are potential leak areas.

Major body denting. NOT ACCEPTABLE

The dents cannot be blown out.

Note the damage to the swedged rolling hoops.

The sharp indentations will be the site of leaks.

Deep dents. NOT ACCEPTABLE

The 5 dents shown in the photo are too deep to be blown out successfully.

Note the sharp dents in both swedged rolling hoops, which are potential leak areas.

Shallow dents. ACCEPTABLE.

Can be blown out sufficiently to make the drum usable.

Figure D2: Reprocessing steel drums – chime and head damage

Two photos of the same damage. NOT ACCEPTABLE.

Dent in chime is too deep to be rolled out.

Any attempt will result in splitting of chime and cracking of the drum body.

NOT ACCEPTABLE.

The chime dent can be hammered out to enable the drum to fit the rollers.

The dent can then be rolled out further but in doing so the buckles in the head could be cut by the rollers resulting in leaks.

NOT ACCEPTABLE.

The chime cannot be re-rolled nor can the dent in the body be blown out.

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