

## **APPENDIX A**

### **DRAFT ADG CODE PROVISIONS FOR CLASS 1 EXPLOSIVES**

This attachment provides a compilation of the proposed changes in the Code relating to class 1 specifically that require additional, separate consultation. It does not include global requirements that apply to class 1 as well as other dangerous goods (e.g. emergency notification requirements).

As noted in the discussion paper, references in the text of the ADG Code to “dangerous goods” include all dangerous goods of classes 1 to 9, and therefore class 1 explosives. It is essential that a reader of these provisions does not read “dangerous goods” as meaning classes 2 to 9 only.

While the NTC has taken care in assembling this document, this is not intended to be a stand-alone document for class 1 and must not be read as one.

The footnotes in this document are used to provide context or definitions. They do not form a part of the Code, however they may be used in developing definitions.

Where contextual information that relates to the transport of dangerous goods generally is provided, it is marked with a red right hand border. This paragraph is marked in that manner as an example.

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# PART 1

## GENERAL PROVISIONS

### CHAPTER 1.1 SCOPE AND APPLICABILITY

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#### 1.1.3.6 Exemptions for small loads

1.1.3.14 Exemptions for the transport of low hazard explosives

1.1.3.14.1 Definition of low hazard explosives

Low hazard explosives are those of the following UN numbers, classification codes, meeting the description in column (3):

UN Number	Classification Code	Description
(1)	(2)	(3)
0325 0454	1.4G 1.4S	Igniters
0014 0323	1.4S	Explosive power tool cartridges
0337	1.4S	Toy fireworks, consisting of: <ul style="list-style-type: none"> <li>• Amorges and caps for toy pistols</li> <li>• Bon-bon crackers</li> <li>• Party poppers</li> <li>• Confetti cannons</li> <li>• </li> </ul>
0336	1.4G	Sparklers
0012 0014 0044	1.4S	Small arms sporting ammunition, including primers
0509	1.4C	Smokeless powder
0276 0323 0349 0351 0431 0432	1.4C 1.4G 1.4S	Model rocket motors < 62.5 g NEQ
0503	1.4G	Airbag inflators
0012 0431 0432	1.4S 1.4G	Bird scaring ammunition

0405		
0191	1.4S	Distress signals
0197	1.4G	
0312		
0405		
0505		
0506		
0507		
0193	1.4S	Railway track signals
0197	1.4G	Smoke generators
0431	1.4S	
0507		

1.1.3.14.2 Low hazard explosives transported for personal use in quantities not greater than 1 kg NEQ per vehicle are not subject to this Code.

1.1.3.14.3 Low hazard explosives may be transported in accordance with this sub-section, in the following quantities:

- (a) No more than 50 kg NEQ of low hazard explosives with classification codes 1.4C or 1.4G;
- (b) An unlimited quantity of low hazard explosives with classification code 1.4S

1.1.3.14.4 The transport shall comply with 8.5.2.1.5

1.1.3.14.5 Packages of explosives shall be closed and restrained in accordance with the load restraint guide.

1.1.3.14.6 The compartment or container in which explosives are carried shall:

- (a) be fully enclosed with walls, floor, and roof;
- (b) be strong enough to maintain its integrity during transport, and built in such a manner that it adequately protects and secures the explosives;
- (c) be weatherproof; and
- (d) have a continuous floor to contain spillage.

1.1.3.14.7 Security measures shall be implemented that can detect loss or theft of explosives between the consignor and the consignee.

**Note:** Measures may involve physical security such as shrink-wrapping pallets or locking carry boxes and compartments, or administrative security such as track and trace systems or manual checking of deliveries against transport and supply documents.

1.1.3.14.8 Low hazard explosives may be transported without application of:

- (a) the provisions of V2 requiring transport:
  - (i) in an explosives load compartment conforming to Chapter 6.16;
  - (ii) in an EX or EX3 vehicle conforming to Part 9; or
- (b) the segregation provisions of 7.5.2.2 in an explosives category 1 load.

1.1.3.15 Transport of explosives in explosives category 1

1.1.3.15.1 The provisions for the transport of explosives category 1 in 1.1.3.15.2 are not applicable to a transport unit:

- (a) Carrying dangerous goods in tanks, bulk containers, MEGCs or tube-vehicles;  
or
- (b) Displaying, or required to display, placards for dangerous goods being transported, whether class 1 or otherwise.

1.1.3.15.2 When a load meets explosives category 1 in accordance with 1.1.8, the following concessions may be applied. All relevant provisions of this Code not listed in 1.1.3.15 (a) continue to apply.

**NOTE:** The provisions listed in column (1) in each table below provides definitive inclusions and exclusions, the information provided in column (2) are provided as descriptions only.

- (a) The following provisions need not be applied when carriage is undertaken under the provisions for small loads, except as detailed in 1.1.3.15 (b):

Provision (1)	Description (2)
1.8.5.2	Transport emergency response plan
1.8.5.4	Insurance
Chapter 5.3	Vehicle placarding
5.4.3	Emergency information
Chapter 8.1 <sup>a</sup>	Equipment on vehicles, including fire extinguishers and emergency equipment
8.5.2.2	Additional provisions for class 1 in explosives categories 2 or 3.
8.5.2.3	Additional provisions for class 1 in explosives category 3.
Table notes	
<sup>a</sup> There are provisions within this item that continue to apply, these are detailed in 1.1.3.6.6 (b).	

- (b) The following provisions of this Code continue to apply, even where it is included within a provision in 1.1.3.15 (a):

Provision (1)	Description (2)
8.1.2.1 (a)	Requirement to carry transport documentation
8.1.2.3	Location of transport documentation

#### 1.1.4.8 **Import and export of substances and articles of class 1 in a freight container**

1.1.4.8.1 A freight container used for the import or export of substances or articles of class 1 shall comply with 1.1.4.8.2, provided it is:

- (a) Is in conformance with the requirements of the IMDG Code, including marking, labelling and placarding; and
- (b) No goods (whether dangerous goods or otherwise) have been removed from or added to the container since:
  - (i) If the freight container was imported into Australia, its arrival in Australia;  
or
  - (ii) If the freight container is to be exported: the load was first consigned for transport to the place from which it is to be exported.

In all other circumstances, a freight container shall comply with the requirements for an explosives compartment as laid down in 6.16.

**NOTE:** Transport within or between Australian jurisdictions under the IMDG Code are not considered import or export.

1.1.4.8.2 A freight container used for import or export shall comply with the following provisions:

- (a) There shall be only one opening to the container and each door to the opening shall be provided with two locking bars;
- (b) Except where (c) applies, the inside of the side and end walls, floor and doors of the container shall be close lined with:
  - (i) Bond plywood not less than 12 mm thick of type B quality to AS 2271;
  - (ii) Other timber not less than 17 mm thick; or
  - (iii) Aluminium sheet not less than 0.8 mm thick

extending at least 300 mm above the load. The lining shall be positioned adjacent to the walls of the container so as to provide a gap of at least 25 mm, measured from the line of the inner surface of the container.

- (c) The lining specified in (b) is not required where:
  - (i) All of the explosives in the container are in packagings having substantial wooden outside surfaces; or
  - (ii) All the explosives are Type E blasting explosives (UN 0241, UN 0332), in which case non-lined steel containers may be used.
- (d) For free-flowing powdery explosives and fireworks, the floor or the floor lining of the freight container shall have a non-metallic surface or covering which shall be in a sound condition, be sift-proof and free from cracks.

1.1.4.8.3 Within the limits of a port, any tie pockets on the freight container shall be rendered inoperative.

1.1.4.8.4 An EX3 vehicle carrying a freight container used for import or export does not require a vertical firescreen as specified in 9.3.4.2, except where the freight container is transported with forward facing doors on a cab over vehicle.

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## 1.1.7 Determination of division for mixed loads of explosives

Where explosives of more than one division are transported together in a single load, the division of the load overall shall be determined in accordance with the table below. Where more than two Divisions are present in any load, any two of those Divisions shall be considered in determining a resultant Division, which shall then be considered with the next Division and so on until all Divisions present in the load have been considered.

Division	1.1	1.2	1.3	1.4	1.5	1.6
1.1	1.1	1.1	1.1	1.1	1.1	1.1
1.2	1.1	1.2	1.1	1.2	1.1	1.2
1.3	1.1	1.1	1.3	1.3	1.1	1.1
1.4	1.1	1.2	1.3	1.4	1.5	1.6
1.5	1.1	1.1	1.1	1.5	1.5	1.5
1.6	1.1	1.2	1.3	1.6	1.5	1.6 a

### Table notes

- a** Different types of articles of Division 1.6 may be transported together as Division 1.6 only when it is proved by testing or analogy that there is no additional risk of sympathetic detonation between the articles. Otherwise, they shall be treated as Division 1.1.
- b** A load of explosives assigned to Division 1.5 or 1.6 in accordance with the table shall be assigned to Compatibility Group D or N, respectively.

**1.1.8 Determination of explosives categories for the transport of substances and articles of class 1**

1.1.8.1 This Code establishes three explosives categories which are applied to loads of explosives on vehicles and form the basis for the transport of explosives.

1.1.8.2 Where the load consists of more than one division of explosives, the overall division of the load shall be determined in accordance with 1.1.7 prior to assigning the appropriate explosives category to that load.

1.1.8.3 Where explosives are transported with ammonium nitrate, including ammonium nitrate emulsions, suspensions or gels, of division 5.1, the mass of ammonium nitrate shall be included in the determination of explosives category by treating the total mass of the ammonium nitrate as explosives.

For the purposes of this calculation, the ammonium nitrate shall be considered according to the following:

- (a) When there are explosives of division 1.1, the ammonium nitrate shall be treated as division 1.1; or
- (b) Where no division 1.1 is present in the load, the ammonium nitrate shall be considered as division 1.5.

1.1.8.4 The determination of explosives risk categories shall be determined based on Net Explosive Quantity (NEQ).

1.1.8.5 Substances and articles of division 1.1A are prohibited for carriage except with the authorisation of the competent authority.

1.1.8.6 The explosives risk category of the load shall be determined in accordance with the table below. References in this Code to 'Explosives Category 1', 'Explosives Category 2' or 'Explosives Category 3' shall be taken to be to this table.

Type of explosive	Quantity in load		
	Explosives category 1	Explosives category 2	Explosives category 3
Division 1.1A	Transport prohibited without competent authority approval		
All other Division 1.1	≤5 kg	>5–250 kg	>250 kg
Division 1.2	≤5 kg	>5–250 kg	>250 kg
Division 1.3	≤50 kg	>50–1000 kg	>1000 kg
Division 1.4S	Any quantity	n/a	n/a
All other Division 1.4	≤250 kg	>250 kg	n/a
Division 1.5	≤25 kg	>25–250 kg	>250 kg
Division 1.6	≤25 kg	>25 kg	n/a

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## CHAPTER 1.4 SAFETY OBLIGATIONS OF THE PARTICIPANTS

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### 1.4.5 Additional obligations applicable to class 1

**NOTE 1:** Unless explicitly stated otherwise, these obligations apply to the transport of loads including substances and articles of class 1.

**NOTE 2:** A person transporting substances or articles of class 1 may have other obligations that apply to transport that are detailed in State, Territory or Commonwealth legislation. It should not be presumed that compliance with this code will fulfil all legal obligations relating to the substances or articles of class 1.

- 1.4.5.1 A person undertaking carriage of substances and articles of class 1 shall additionally comply with the following obligations. In the event of conflict with the obligations set out in 1.4.1 – 1.4.4, these obligations shall prevail.
- 1.4.5.2 General
- 1.4.5.2.1 A person shall not transport substances or articles of class 1 in a way that does not comply with the provisions of this Code.
- 1.4.5.2.2 A person who is required to have a security plan for the transport of substances or articles of class 1 shall ensure that:
- (a) The plan is a written plan that complies with all relevant requirements in chapter 1.10 of this code;
  - (b) The person does anything required by the plan during the transport of the goods; and
  - (c) The person does not employ, engage or permit someone else to undertake a task not in compliance with the requirements of the security plan.
- 1.4.5.2.3 A person who is responsible for management or control of a task shall not employ, engage or permit someone else to perform the task if the other person:
- (a) has not received, or is not receiving, appropriate instruction and training to ensure that he or she is able to perform the task safely and in accordance with the provisions of this code; or
  - (b) is not appropriately supervised in performing the task to ensure that he or she is able to perform the task safely and in accordance with the provisions of this code.
- 1.4.5.2.4 A person shall not manage, control or supervise a task unless the person has received instruction and training to enable him or her to manage, control or supervise another person to perform the task safely and in accordance with the provisions of this code.

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## CHAPTER 1.8      **CHECKS AND OTHER SUPPORT MEASURES TO ENSURE COMPLIANCE WITH SAFETY REQUIREMENTS**

### 1.8.5.4      ***Insurance for occurrences during the carriage of dangerous goods***

A transport unit used for the transport of dangerous goods, other than those subject to an exemption in 1.1.3, shall be covered by a policy of insurance or another form of indemnity for a sum of not less than \$5,000,000.

This insurance policy or indemnity shall cover:

- (a) personal injury, death, property damage and other damage (other than consequential economic loss) arising out of any fire, explosion, leakage or spillage of dangerous goods in, on or from the transport unit or any packaging transported in or on the transport unit; and
- (b) costs incurred by or on behalf of a Commonwealth, State or Territory government authority in a clean-up resulting from such a fire, explosion, leakage or spillage

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### 1.8.11      ***Administrative controls for drivers of EX and EX3 vehicles***

The Competent Authority may authorise a person to drive an EX or EX3 vehicle if:

- (a) the person is at least 21 years of age;
- (b) the person has held an unrestricted driver's licence for the class of vehicle to be driven for at least 12 months;
- (c) the person has performed 50 hours of explosives transport under the direct supervision of a driver experienced in transporting explosives and licensed in the equivalent class of licence;
- (d) the person has demonstrated to the Competent Authority an adequate knowledge of:
  - (i) the nature and hazardous properties of explosives of the type to be transported; and
  - (ii) the actions to be taken to ensure the prevention of accidents, injury or damage to persons or property and to assist in any emergency that may arise in the course of transporting those explosives; and
- (e) the person was assessed by a registered medical practitioner who, not more than 6 months before the day when the application is made, examined and passed the applicant in accordance with the standards in *Assessing Fitness to Drive for Commercial and Private Vehicle Drivers — Medical Standards for Licensing and Clinical Management Guidelines* published by Austroads and the National Road Transport Commission, as in force at the time of the examination.



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## CHAPTER 1.10 SECURITY PROVISIONS

**NOTE 1:** For the purposes of this Chapter, security means measures or precautions to be taken to minimise theft, loss, unauthorised access or misuse of dangerous goods that may endanger persons, property or the environment.

**NOTE 2:** Legislation other than dangerous goods transport legislation may impose additional security requirements in transport, in particular for explosives, security sensitive substances and radioactive materials. This may include formal security clearances and licensing. The provisions of this chapter do not describe all security requirements for the transport of such materials subject to other legislation.

**NOTE 3:** In addition to these requirements, transporters of dangerous goods should be familiar with, and implement as necessary, the National Code of Practice for Chemicals of Security Concern.

### 1.10.1 General provisions

- 1.10.1.1 All persons engaged in the carriage of dangerous goods shall consider the security requirements set out in this Chapter commensurate with their responsibilities.
- 1.10.1.2 Dangerous goods shall only be offered for carriage to carriers that have been appropriately identified.
- 1.10.1.3 Areas within temporary storage terminals, temporary storage sites, vehicle depots, berthing areas and marshalling yards used for the temporary storage during carriage of dangerous goods shall be properly secured, well-lit and, where possible and appropriate, not accessible to the general public.
- 1.10.1.4 Each member of a vehicle crew shall carry with them means of identification, which includes their photograph, during carriage of dangerous goods.
- 1.10.1.5 Safety inspections in accordance with 1.8.1 and 7.5.1.1 shall cover appropriate security measures.
- 1.10.1.6 The competent authority shall maintain up-to-date registers of all licenses for drivers stipulated in 8.2.1 issued by it or by any recognized organization within its jurisdiction.

### 1.10.2 Security training

- 1.10.2.1 The training and the refresher training specified in Chapter 1.3 shall also include elements of security awareness. The security refresher training need not be linked to regulatory changes only.
- 1.10.2.2 Security awareness training shall address the nature of security risks, recognising security risks, methods to address and reduce such risks and actions to be taken in the event of a security breach. It shall include awareness of security plans (if appropriate) commensurate with the responsibilities and duties of individuals and their part in implementing security plans.
- 1.10.2.3 Such training shall be provided or verified upon employment in a position involving dangerous goods transport and shall be periodically supplemented with refresher training.
- 1.10.2.4 Records of all security training received shall be kept by the employer and made available to the employee or competent authority, upon request. Records shall be kept by the employer for a period of time established by the competent authority.

### 1.10.3 Provisions for high consequence dangerous goods

### 1.10.3.1 Definition of high consequence dangerous goods for transport purposes

**NOTE:** Other legislation may also use the term “high consequence dangerous goods” or similar to describe substances of security concern, in particular ammonium nitrate-based substances.

- 1.10.3.1.1 High consequence dangerous goods are those which have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7, mass socio-economic disruption.
- 1.10.3.1.2 High consequence dangerous goods in classes other than Class 7 are those listed in Table 1.10.3.1.2 below and carried in quantities greater than those indicated therein.

**Table 1.10.3.1.2: List of high consequence dangerous goods**

Class	Substance or article	Quantity		
		Tank (l) <sup>c</sup>	Bulk (kg) <sup>d</sup>	Packages (kg)
1	Explosives, other than low hazard explosives or explosives of division 1.4S	<sup>a</sup>	<sup>a</sup>	0
2	Flammable, non-toxic gases (classification codes including only letters F or FC)	3000	<sup>a</sup>	<sup>b</sup>
	Toxic gases (classification codes including letters T, TF, TC, TO, TFC or TOC) excluding aerosols	0	<sup>a</sup>	0
3	Flammable liquids of packing groups I and II	3000	<sup>a</sup>	<sup>b</sup>
	Desensitized explosives	0	<sup>a</sup>	0
4.1	Desensitized explosives	<sup>a</sup>	<sup>a</sup>	0
4.2	Packing group I substances	3000	<sup>a</sup>	<sup>b</sup>
4.3	Packing group I substances	3000	<sup>a</sup>	<sup>b</sup>
5.1	Oxidizing liquids of packing group I	3000	<sup>a</sup>	<sup>b</sup>
	Ammonium nitrate, including ammonium nitrate emulsions, suspensions or gels <sup>e</sup>	20	20	20
	Perchlorates	3000	3000	<sup>b</sup>
6.1	Toxic substances of packing group I	0	<sup>a</sup>	0
6.2	Infectious substances of Category A (UN Nos. 2814 and 2900, except for animal material) and medical waste of Category A (UN No. 3549)	<sup>a</sup>	0	0
8	Corrosive substances of packing group I	3000	<sup>a</sup>	<sup>b</sup>

<sup>a</sup> Not relevant.

<sup>b</sup> The provisions of 1.10.3 do not apply, whatever the quantity is.

<sup>c</sup> A value indicated in this column is applicable only if carriage in tanks is authorized, in accordance with Chapter 3.2, Table A, column (10) or (12). For substances that are not authorized for carriage in tanks, the instruction in this column is not relevant.

<sup>d</sup> A value indicated in this column is applicable only if carriage in bulk is authorized, in accordance with Chapter 3.2, Table A, column (10) or (17). For substances that are not authorized for carriage in bulk, the instruction in this column is not relevant.

<sup>e</sup> Australian jurisdictions have variously adopted provisions relating to security sensitive ammonium nitrate. This Chapter provides requirements for security in transport. Compliance with the requirements of this chapter will not address all regulatory requirements relating to security sensitive ammonium nitrate.

### 1.10.3.2 Security plans

- 1.10.3.2.1 Carriers, consignors and other participants specified in 1.4.2 and 1.4.3 engaged in the carriage of high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3) shall adopt, implement and comply with a security plan that addresses at least the elements specified in 1.10.3.2.2.

1.10.3.2.2 The security plan shall comprise at least the following elements:

- (a) Specific allocation of responsibilities for security to competent and qualified persons with appropriate authority to carry out their responsibilities;
- (b) Records of dangerous goods or types of dangerous goods concerned;
- (c) Review of current operations and assessment of security risks, including any stops necessary to the transport operation, the keeping of dangerous goods in the vehicle, tank or container before, during and after the journey and the intermediate temporary storage of dangerous goods during the course of intermodal transfer or transhipment between units as appropriate;
- (d) Clear statement of measures that are to be taken to reduce security risks, commensurate with the responsibilities and duties of the participant, including:
  - training;
  - security policies (e.g. response to higher threat conditions, new employee/employment verification, etc.);
  - operating practices (e.g. choice/use of routes where known, access to dangerous goods in intermediate temporary storage (as defined in (c)), proximity to vulnerable infrastructure etc.);
  - equipment and resources that are to be used to reduce security risks;
- (e) Effective and up to date procedures for reporting and dealing with security threats, breaches of security or security incidents;
- (f) Procedures for the evaluation and testing of security plans and procedures for periodic review and update of the plans;
- (g) Measures to ensure the physical security of transport information contained in the security plan;
- (h) Measures to ensure that the distribution of information relating to the transport operation contained in the security plan is limited to those who need to have it. Such measures shall not preclude the provision of information required elsewhere in this Code; and
- (i) Where substances or articles of class 1 are transported, the additional requirements laid down in 1.10.4.

**NOTE:** Carriers, consignors and consignees should co-operate with each other and with competent authorities to exchange threat information, apply appropriate security measures and respond to security incidents.

1.10.3.3

Devices, equipment or arrangements to prevent the theft of the vehicle carrying high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3) and its cargo, shall be applied and measures taken to ensure that these are operational and effective at all times. The application of these protective measures shall not jeopardize emergency response.

**NOTE:** When appropriate and already fitted, the use of transport telemetry or other tracking methods or devices should be used to monitor the movement of high consequence dangerous goods (see Table 1.10.3.1.2) or high consequence radioactive material (see 1.10.3.1.3).

1.10.4\* *Additional security provisions for articles and substances of class 1*

**NOTE:** The requirements of 1.10.4 apply in addition to the requirements outlined above in 1.10.3.2.

1.10.4.1 Carriers, consignors and other participants shall ensure that the security plan addresses the following additional requirements for articles and substances of class 1:

- (a) Carriers and consignees and any other person who will have access to explosives have been properly identified and are authorised to handle or receive explosives under jurisdictional legislation;
- (b) Only persons authorised to drive a vehicle under jurisdictional legislation are permitted to do so;
- (c) Only persons who have been security cleared are permitted unsupervised access to explosives.
- (d) All practicable measures are taken to avoid theft of or accident involving explosives, including:
  - (i) that all openings to tanks or other enclosures are appropriately lockable and locked during transport;
  - (ii) suitable guarding or other permitted security arrangements are implemented; and
  - (iii) reporting procedures for suspected and actual incidents during transport.
- (e) Recorded checks or audits are undertaken to determine whether there has been any breach of any secured enclosure:
  - (i) Throughout the journey; and
  - (ii) At the final destination.
- (f) Any unexplained discrepancy that cannot be legitimately explained or reconciled within a short period of time shall be reported to the police and competent authority;
- (g) Suitable procedures are implemented to ensure that the transport complies with the other requirements of this code as they relate to:
  - (i) Transport procedures such as vehicle refuelling and locations of breaks;
  - (ii) Procedures for breakdowns and accidents that account for the hazards presented by the goods being transported;
  - (iii) The location and procedures for loading and unloading of explosives.

1.10.4.2 Prior to articles and substances of class 1 being consigned, the consignor shall:

- (a) Notify the proposed shipment to the consignee and the carrier engaged to transport the explosives; and
- (b) receive advice that the consignee, or a person authorised by the consignee, is prepared to receive the consignment on arrival, or that arrangements have been made for the driver to store the explosives in a place authorised for that purpose by the Competent Authority.

If such advice is not received, the transport shall not proceed.

1.10.4.3 *Security plans for explosives category 3 loads*

1.10.4.3.1 Where a load is an explosives category 3 load as determined in accordance with 1.1.8, the written security plan shall additionally meet the following minimum requirements:

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\* Note: This section will not replace 1.10.4 in the draft Code published with the C-RIS. It corresponds to 1.10.3.2.3. The NTC will consider renumbering this section to support clearer communication. This will result in a renumbering of sections 1.10.4 and 1.10.5 prior to approval of the final code.

- (a) a description of the measures for preventing the theft of the explosives being transported by road or rail and for preventing unauthorised people from having access to those explosives;
- (b) a statement setting out the vehicle design requirements for vehicles used to transport the explosives, and the load securing requirements for securing and protecting those explosives;
- (c) a description of the arrangements for emergency communications in the event of an emergency involving those explosives;
- (d) a statement setting out the requirements for training for persons involved in the transport of the explosives by road or rail (training would include dealing with security emergencies and transporting explosives safely);
- (e) a statement setting out the requirements for ensuring that vehicles transporting the explosives travel by the safest practicable route, considering the risk, including the procedures for planning transport routes;
- (f) procedures for the testing, evaluation, review and update of the security plan;
- (g) nomination of the responsible person/security manager to implement and maintain the security plan, including the instruction of workers in the relevant access controls, recording procedures and reporting security incidents;
- (h) a list of all those, including any contractors, who will have unsupervised access to explosives, and who have been appropriately security cleared, including provisions for adding to or removing from the list; and
- (i) a means for ensuring that the involvement of any other person ensures that the other person is operating under the relevant security plan.

1.10.4.3.3 Only security cleared personnel\* shall be permitted to drive or ride on a vehicle transporting an explosives category 3 load.

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The NTC will consider including defining this term in the ADG Code.

*"Security cleared personnel* means a person who has satisfied the security clearance requirements of the jurisdiction and the security plan and has been deemed appropriate to have unsupervised access to explosives"

## **PART 2**

### **CLASSIFICATION**

This part contains no changes from draft code

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## **PART 3**

### **DANGEROUS GOODS LIST, SPECIAL PROVISIONS AND EXEMPTIONS RELATED TO LIMITED AND EXCEPTED QUANTITIES**

A copy of the dangerous goods list class 1 entries is found in Appendix B. A copy of the full dangerous goods list can be found as Appendix G attached to the C-RIS.

Note that there will be a consequential change if the Explosives Working Group's definition of Low Hazard Explosives is adopted. V2 would be added to all class 1 entries that it does not apply to, to ensure that it is included in the requirements for transport.

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## PART 4

### PACKING AND TANK PROVISIONS

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#### CHAPTER 4.1      USE OF PACKAGINGS, INCLUDING INTERMEDIATE BULK CONTAINERS (IBCS) AND LARGE PACKAGINGS

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- 4.1.5            Special packing provisions for goods of Class 1
- 4.1.5.1        The general provisions of Section 4.1.1 shall be met.
- 4.1.5.2        All packagings for Class 1 goods shall 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 carriage including foreseeable changes in temperature, humidity and pressure;
  - (b)    The complete package can be handled safely in normal conditions of carriage; and
  - (c)    The packages will withstand any loading imposed on them by foreseeable stacking to which they will be subject during carriage 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 carriage, shall have been classified in accordance with the procedures detailed in 2.2.1.
- 4.1.5.4        Class 1 goods shall be packed in accordance with the appropriate packing instruction shown in Column (8) of Table A of Chapter 3.2, as detailed in 4.1.4.
- 4.1.5.5        Unless otherwise specified in this Code, packagings, including IBCs and large packagings, shall conform to the requirements of chapters 6.1, 6.5 or 6.6, as appropriate, and shall meet their test requirements for packing group II.
- 4.1.5.6        The closure device of packagings containing liquid explosives shall ensure a double protection against leakage.
- 4.1.5.7        The closure device of metal drums shall include a suitable gasket; if a closure device includes a screw-thread, the ingress of explosive substances into the screw-thread shall be prevented.
- 4.1.5.8        Packagings for water soluble substances shall be water resistant. Packagings for desensitized or phlegmatized substances shall be closed to prevent changes in concentration during carriage.
- 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 shall be added to the water to prevent freezing. Anti-freeze that could create a fire hazard because of its inherent flammability shall not be used.
- 4.1.5.10       Nails, staples and other closure devices made of metal without protective covering shall 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 shall be accomplished in a manner which prevents the explosive substances or articles from becoming loose in the outer packaging under normal conditions of carriage. Metallic components of articles shall be prevented from making contact with metal packagings. Articles containing explosive substances not enclosed in an outer casing shall 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 shall 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 carriage, 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 shall be prevented.
- 4.1.5.14 Plastics packagings shall 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 shall be protected against stimuli encountered during normal conditions of carriage. A negative result in Test Series 4 on an unpackaged article indicates that the article can be considered for carriage 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 carriage.
- Where such large explosive articles are as part of their operational safety and suitability tests subjected to test regimes that meet the intentions of this Code and such tests have been successfully undertaken, the competent authority may approve such articles to be carried in accordance with this Code.
- 4.1.5.16 Explosive substances shall 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, 1N1, 1N2, 4A, 4B, 4N 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 packaging has been approved by a competent authority regardless of whether the packaging complies with the packing instruction assignment in Column (8) of Table A of Chapter 3.2.

## PART 5

### CONSIGNMENT PROCEDURES

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#### CHAPTER 5.1 GENERAL PROVISIONS

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5.1.3 Empty uncleaned packagings (including IBCs and large packagings), tanks, MPUs, vehicles and containers for carriage in bulk

5.1.3.1 Empty uncleaned packagings (including IBCs and large packagings), tanks (including tank-vehicles, battery-vehicles, demountable tanks, portable tanks, tank-containers, MEGCs), MPUs, vehicles and containers for carriage in bulk having contained dangerous goods of the different classes other than Class 7, shall be marked and labelled as if they were full.

**NOTE:** For documentation, see Chapter 5.4.

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## CHAPTER 5.2 MARKING AND LABELLING

### 5.2.1 Marking of packages including IBCs

**NOTE 1:** For marks related to the construction, testing and approval of packagings, large packagings, gas receptacles and IBCs, see Part 6.

**NOTE 2:** In accordance with the GHS, a GHS pictogram not required by this Code should only appear in carriage as part of a complete GHS label and not independently.

5.2.1.1 Unless provided otherwise in this Code, 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" and the name and address in Australia of the manufacturer or consignor of the dangerous goods, or their agent shall be clearly and durably marked on each package. The UN number and the letters "UN" shall 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 shall be at least 6 mm in height and except for packages of 5 litres or 5 kg or less when they shall be of an appropriate size. In the case of unpackaged articles the mark shall be displayed on the article, on its cradle or on its handling, storage or launching device.

5.2.1.2 All package marks required by this Chapter:

- (a) shall be readily visible and legible;
- (b) shall be able to withstand open weather exposure without a substantial reduction in effectiveness.

**NOTE:** Package marks should be placed on a surface that allows them to be normally visible when stacked together for transport. 5.2.2 further requires that labels are placed next to marks on packages.

5.2.1.3 Salvage packagings including large salvage packagings and salvage pressure receptacles shall additionally be marked with the word "**SALVAGE**". The lettering of the "**SALVAGE**" mark shall be at least 12 mm high.

5.2.1.4 Intermediate bulk containers of more than 450 litres capacity and large packagings shall be marked on two opposite sides.

5.2.1.5 (Reserved)

### 5.2.1.5 Additional provisions for goods of Class 1

5.2.1.5.1 For goods of Class 1, packages shall, in addition, be clearly marked on the outside surface with:

- (a) the authorised name of the explosives in the package;
- (b) the word 'EXPLOSIVE' in upper case, unless it is included in the Class label;
- (c) means of identifying production details for traceability purposes;
- (d) the name and address in Australia of the manufacturer or consignor (or the agent of one of these) of the explosives;
- (e) the net explosive quantity of the substance and the number of articles or units (e.g. boosters, plugs, cartridges, etc.) contained within.

**NOTE:** the information in (a) and (c) may be omitted where it cannot reasonably practicably be determined, such as when packing waste explosives.

5.2.1.5.2 Each package containing substances or articles of division 1.1 or 1.5 shall be marked with the date of manufacture from the factory of manufacture.

5.2.1.5.3 *Marking and labelling on inner packagings and articles*

**NOTE:** This Code does not typically mandate markings on inner packagings, as this is not considered to be a matter for transport, in line with the principles of the UN Model Regulations. However, the requirements of this section are included here to support the incorporation of the Australian Explosives Code into this Code.

5.2.1.5.3.1 Every inner packaging containing explosives shall be clearly marked on the outside surface as required by the version of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) adopted by the Model WHS Regulations as published by Safe Work Australia from time to time.

5.2.1.5.3.2 The casing of every detonator of UN 0029, 0030, 0255, 0267, 0360, 0361, 0455, 0456, 0500, 0511, 0512, or 0513 shall be marked with the word 'EXPLOSIVE' in upper case letters.

The marking shall be embossed or otherwise indelibly marked on the casing and be clearly legible. Where a package is of such irregular shape or small size that the words cannot be satisfactorily marked, the words may be attached to the article by a securely affixed tag or other suitable means.

5.2.1.5.3.3 Every wrapping enclosing a cartridge of blasting explosive, or boosters of UN 0042 or 0283, or a charge for blasting or similar purpose, shall be clearly marked on the outside surface with the word 'EXPLOSIVE' in upper case, and where there is sufficient space available, the authorised name.

5.2.1.5.4 *Marking and labelling of intermediate bulk containers*

5.2.1.5.4.1 The marking and labelling for the substance contained shall be in the form of an emergency information panel as set out in 5.3.2 on at least two sides. A panel shall be located either:

- (a) above any lifting points intended or used for forklift tines; or
- (b) below any lifting points intended for top lifting.

5.2.1.5.4.2 Where an IBC has a capacity of not more than 1500 L, the dimensions of the emergency information panel may have dimensions not less than half those required by 5.3.2.

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## CHAPTER 5.3      **PLACARDING AND MARKING OF CONTAINERS, BULK CONTAINERS, MEGCS, MPUS, TANK-CONTAINERS, PORTABLE TANKS, VEHICLES AND WAGONS**

...

5.3.1.1.2      For class 1, vehicles, wagons, containers or special compartments of MPUs carrying substances or articles of different divisions shall bear only placards conforming to the model of the division of the load determined in accordance with 1.1.7.

Placards [for class 1] shall be reflective, meeting the specifications of Class 100 reflectivity according to AS/NZS 1906.1:2017.

Compatibility groups shall not be indicated on placards if the vehicle, wagon, container or special compartments of MPUs are carrying substances or articles belonging to two or more compatibility groups, except where division of the load determined in accordance with 1.1.7 is:

- (a) Division 1.5, in which case compatibility group D may be indicated; or
- (b) Division 1.6, in which case compatibility group N may be indicated.

5.3.2.1.1      An emergency information panel shall be displayed on the sides and rear of each:

- (a) bulk container, MEGC, tank container, portable tank, tube vehicle, tube-wagon, MPUs, tank vehicle and tank-wagon,
- (b) transport unit or wagon carrying bulk containers, tanks or IBCs;
- (c) transport unit or wagon carrying a load determined to be Explosives Category 3 determined in accordance with 1.1.8.

Emergency information panels are not required to be displayed on the rear of wagons.

5.3.2.1.1.1      Emergency information panels shall be securely fixed to the unit, be weather-resistant and the marking shall be durable throughout the entire journey.

5.3.2.1.1.2      Emergency information panels shall be mounted or displayed such they are:

- (a) clearly visible;
- (b) on a substantially vertical plane;
- (c) no less than 450 mm above the ground, measured to the lower edge; and
- (d) placed as close to the front of the load area as practicable, except when on a bulk container, MEGC, tank container, portable tank.

5.3.2.1.1.3      Tanks, tank vehicles or tube-vehicles having more than one compartment carrying dangerous goods may display an emergency information panel on each tank compartment or each element of tube-vehicles.

5.3.2.1.1.4      For MPUs these requirements shall only apply to tanks and bulk containers.

5.3.2.1.1.5      Emergency information panels are not required to be displayed on the rear of a vehicle within a combination, other than the final vehicle within the combination.

5.3.2.1.2      An emergency information panel shall conform to the specifications in 5.3.2.2 and, except where 5.3.2.1.3 or 5.3.2.1.4 apply, shall include for the dangerous goods being transported:

- (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)
  - the Emergency Action Code assigned to the dangerous goods in Appendix C Emergency Action Codes
- (d) in space (d)
  - the expression: "IN EMERGENCY DIAL 000, POLICE or FIRE BRIGADE"
- (e) in space (e)
  - the placard(s) required in 5.3.1.1
- (f) In space (f)
  - The name of an organisation and telephone number where specialist advice concerning the dangerous goods in question can be obtained in English at any time during carriage.

...

#### 5.3.2.1.9 *Emergency information panels for the transport of class 1*

Where the load includes substances and articles of class 1 with more than one proper shipping name:

- (a) space (a) in the emergency information panel shall read "EXPLOSIVES"; and
- (b) space (b) in the emergency information panel shall be left blank.

#### 5.3.2.2 **Specifications for emergency information panels**

5.3.2.2.1 The emergency information panels shall be of 80 cm base and of 60 cm high; they shall have a black border of 10 mm wide. The material used shall be weather-resistant and ensure durable marking. The panel shall not become detached from its mount in the event of 15 minutes' engulfment in fire. It shall remain affixed irrespective of the orientation of the vehicle or wagon. The emergency information panels may be separated in their middle with a black horizontal line of 15 mm thickness.

If, because of an obstruction on the tank, tank-vehicle, tank-wagon, tube-trailer, tube-wagon, wagon or transport unit, it is not reasonably practicable to affix an emergency information panel as a whole, the panel may be divided vertically into two parts and affixed on either side of the obstruction.

For containers carrying dangerous solid substances in bulk and for tank-containers, MEGCs and portable tanks, the panels prescribed in 5.3.2.1.2, 5.3.2.1.4 and 5.3.2.1.5 may be replaced by a self-adhesive sheet, by paint or by any other equivalent process. This alternative marking shall conform to the specifications set in this sub-section except for the provisions concerning resistance to fire.

5.3.2.2.2 The emergency action code and the UN number shall consist of black digits 100 mm high and of 15 mm stroke thickness. Interchangeable numbers and letters on panels presenting the emergency action code and the UN number shall remain in place during carriage and irrespective of the orientation of the vehicle. The placement and dimensions of all other aspects shall be as specified in 5.3.2.2.3. All markings shall be durable and legible.

### 5.3.2.2.3 Examples of Emergency Information Panels

#### Figure 5.3.2.2.3 (a): Format and Colour of Emergency Information Panel

Background, white.

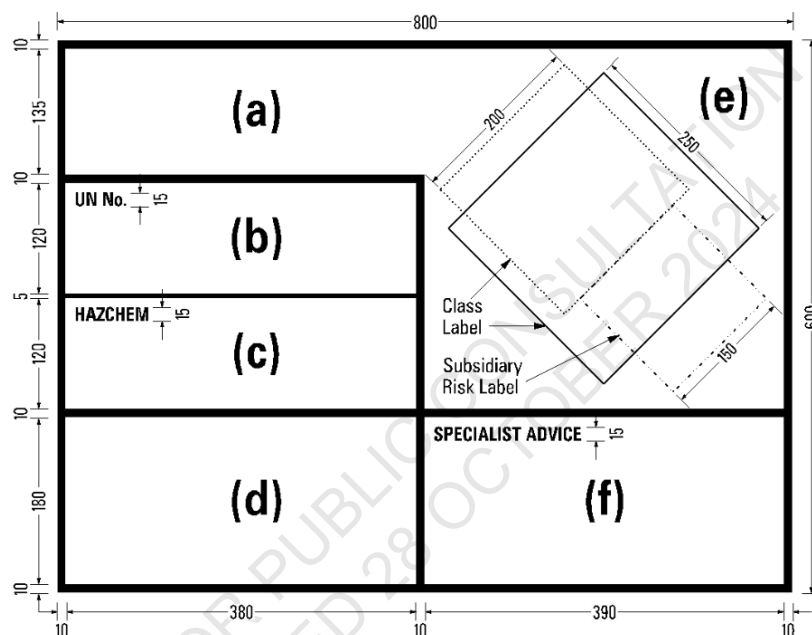
Border and horizontal line, black, thickness as specified in Figure 5.3.2.2.3 (a)

UN number and emergency action code, black, 15 mm thickness.

Proper shipping name, black, 15 mm thickness (this may be reduced to 10 mm if displayed on two lines)

Label(s) as specified in 5.3.1.1

All measurements in millimetres



### 5.3.7

#### Explosives mark and detonators mark

#### 5.3.7.1

When a placard for class 1 is required to be displayed in accordance with the provisions of section 5.3.1, vehicles and wagons shall be additionally marked with a reflective mark displaying the word "EXPLOSIVES" in red, upper case, not less than 150mm high on a white background.

The Explosives Mark shall be displayed at the front, rear of the transport unit, and on both sides of each vehicle in a combination or wagon in a train that is transporting explosives



Mark for carriage of explosives

- 5.3.7.2 Any detonator compartment that forms part of a mixed load of class 1 shall be additionally marked with a reflective mark displaying the word “DETONATORS” in red, upper case, not less than 150mm high on a white background.



Mark for detonator compartment

- 5.3.7.3 The reflectivity of these marks shall meet the specifications of Class 100 reflectivity according to AS/NZS 1906.1:2017.

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## CHAPTER 5.4 DOCUMENTATION

### 5.4.0 General

5.4.0.1 Unless otherwise specified, any carriage of goods governed by this Code shall be accompanied by the documentation prescribed in this Chapter, as appropriate.

**NOTE:** For the list of documentation to be carried on board transport units, see 8.1.2.

5.4.0.2 The use of electronic data processing (EDP) or electronic data interchange (EDI) techniques as an aid to paper documentation is permitted, provided that the procedures used for the capture, storage and processing of electronics data meet the legal requirements as regards the evidential value and availability of data during transport in a manner at least equivalent to that of paper documentation.

5.4.0.3 When the dangerous goods transport information is given to the carrier by EDP or EDI techniques, the consignor shall be able to give the information to the carrier as a paper document without delay, with the information in the sequence required by this Chapter

### 5.4.1 Dangerous goods transport document and related information

#### 5.4.1.1 General information required in the transport document

5.4.1.1.1 The transport document(s) shall contain the following information for each dangerous substance, material or article offered for carriage:

- (a) the UN number preceded by the letters "UN";
- (b) the proper shipping name supplemented, when applicable (see 3.1.2.8.1) with the technical name in brackets (see 3.1.2.8.1.1), as determined in accordance with 3.1.2;

- (c) - for substances and articles of Class 1: the classification code given in Column (3b) of Table A in Chapter 3.2.

When, in Column (5) of Table A in Chapter 3.2, label model numbers other than 1, 1.4, 1.5 and 1.6 are given, these label model numbers, in brackets, shall follow the classification code;

- for radioactive material of Class 7: the Class number: "7";

**NOTE:** For radioactive material with a subsidiary hazard, see also special provision 172 in Chapter 3.3.

- for lithium batteries of UN numbers 3090, 3091, 3480 and 3481: the Class number "9";
- for other substances and articles: the label model numbers given in Column (5) of Table A in Chapter 3.2 or applicable according to a special provision referred to in Column (6). When more than one label model numbers are given, the numbers following the first one shall be given in brackets. For substances and articles for which no label model is given in Column (5) of Table A in Chapter 3.2, their class according to Column (3a) shall be given instead;

- (d) where assigned, the packing group for the substance which may be preceded by the letters "PG" (e.g. "PG II"), or the initials corresponding to the words "Packing Group" in the languages used according to 5.4.1.4.1;

**NOTE:** For radioactive material of Class 7 with subsidiary hazards, see special provision 172 (d) in Chapter 3.3.

- (e) the number and a description of the packages when applicable. UN packaging codes may only be used to supplement the description of the kind of package (e.g. one box (4G));

**NOTE:** The number, type and capacity of each inner packaging within the outer packaging of a combination packaging is not required to be indicated.

- (f) the aggregate quantity of each item of dangerous goods bearing a different UN number, proper shipping name or, when applicable, packing group (as a volume or as a gross mass, or as a net mass as appropriate);

**NOTE 1:** In the case of intended application of 1.1.3.6, the total quantity and the calculated value of dangerous goods for each transport category shall be indicated in the transport document in accordance with 1.1.3.6.3 and 1.1.3.6.4.

**NOTE 2:** For dangerous goods in machinery or equipment specified in this Annex, the quantity indicated shall be the total quantity of dangerous goods contained therein in kilograms or litres as appropriate.

- (g) the name and address of the consignor, including the consignor's contact telephone number which:

- (i) for dangerous goods transported in bulk containers, portable tanks, tank vehicles, tank-wagons or receptacles with a capacity of more than 500 kg(L), should be the number of the 'telephone advisory service'; or
- (ii) whenever practicable, should be an Australian 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.

**NOTE:** Goods are considered as being transported during the time from they are consigned to the time they are received by the consignee.

- (h) the name and address of the consignee(s);

**NOTE:** Where there are multiple consignees, 5.4.1.4 permits this information to be located on other documentation carried during transport.

- (i) the date the dangerous goods transport document or an electronic copy of it was prepared or given to the initial carrier;

- (j) (Reserved)

- (k) (Reserved)

The location and order in which the elements of information required appear in the transport document is left optional, except that (a), (b), (c) and (d) shall be shown in the order listed above (i.e. (a), (b), (c), (d)) with no information interspersed, except as provided in this Code.

Examples of such permitted dangerous goods descriptions are:

"UN 1098 ALLYL ALCOHOL, 6.1 (3), I" or

"UN 1098, ALLYL ALCOHOL, 6.1 (3), PG I"

**NOTE:** Elements of information that apply to all dangerous goods listed on the transport document, such as (g), (h) or (i), need not be displayed for individual entries in the transport document.

5.4.1.1.2 The information required on a transport document shall be legible, in English, easy to identify and durable.

Although upper case is used in Chapter 3.1 and in Table A in Chapter 3.2 to indicate the elements which shall be part of the proper shipping name, and although upper and lower case are used in this Chapter to indicate the information required in the transport document, the use of upper or of lower case for entering the information in the transport document is left optional.

5.4.1.2.1 *Special provisions for Class 1*

(a) In addition to the requirements of 5.4.1.1(a), the transport document shall indicate the authorised name of the explosive

**NOTE:** the information in (a) may be omitted where it cannot reasonably practicably be determined, such as when packing waste explosives.

(b) The transport document shall indicate, in addition to the requirements in 5.4.1.1.1 (f):

- for each kind of package of substances or articles, the net explosive quantity and gross mass per package;
- the net explosive quantity for each substance or article bearing a different UN number;

(c) For the carriage of substances and articles assigned to an N.O.S. entry or the entry "0190 SAMPLES, EXPLOSIVE" or packed conforming to packing instruction P101 of 4.1.4.1, a copy of the competent authority approval with the conditions of carriage shall be attached to the transport document. It shall be drafted in English;

(d) If normally incompatible substances and articles of class 1 are loaded together in the same vehicle and are segregated in accordance with a competent authority approval, a copy of the competent authority approval of the means of segregation, protective compartment or containment system in accordance with 7.5.2, shall be attached to the transport document;

(e) When explosive substances or articles are carried in packagings conforming to packing instruction P101, the transport document shall bear the inscription "**Packaging approved by the competent authority of ...**" (see 4.1.4.1, packing instruction P101);

(f) *(Reserved)*

(g) *(Reserved)*

(h) The transport document shall include the following additional information for all the substances and articles of class 1 listed on the transport document:

- the total net explosive quantity for all substances and articles;
- the overall load division determined in accordance with 1.1.7;
- the explosives category for the load determined in accordance with 1.1.8.

- 5.4.1.4.7 If substances and articles of class 1 are being transported with other goods (whether other dangerous goods or otherwise), the substances and articles of class 1 shall be listed first.

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## PART 6

# REQUIREMENTS FOR THE CONSTRUCTION AND TESTING OF PACKAGINGS, INTERMEDIATE BULK CONTAINERS (IBCS), LARGE PACKAGINGS, TANKS AND BULK CONTAINERS AND SEGREGATION DEVICES

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### CHAPTER 6.16 EXPLOSIVES LOAD COMPARTMENTS FOR THE TRANSPORT OF CLASS 1 SUBSTANCES

**NOTE 1:** An explosives load compartment is any load compartment used for the transport of explosives. This may be a carry box, an integral part of the vehicle body or a freight or shipping container. It may be demountable or an integral part of a vehicle transporting explosives.

**NOTE 2:** Where a freight or shipping container is used for the transport of explosives within Australia and is not subject to the import or export provisions in 1.1.4, this Code requires it to meet the same construction requirements as outlined in this section.

#### 6.16.1 All loads of explosives

An explosives load compartment shall meet the following requirements:

- 6.16.1.1 The openings shall be lockable to prevent unauthorised access to explosives.
- 6.16.1.2 It shall be designed to allow it to be restrained to the vehicle:
  - (a) Where it is designed to be removable, in accordance with the load restraint guide; or
  - (b) Where it is designed to be permanently mounted, in accordance with 9.3.3.2.
- 6.16.1.3 The outer surface of an explosives load compartment shall be of rigid metal construction.
- 6.16.1.4 The inside surface shall be of wood or some other material that is:
  - (a) Incapable of producing incensive sparks;
  - (b) Incapable of generating static electricity;
  - (c) Durable, spill resistant, abrasion resistant, and heat and flame resistant; and
  - (d) Clean and in good condition;
  - (e) Free of defects or projections capable of causing damage to packages during transport; and
  - (f) Complete so that it completely covers all openings and windows.
- 6.16.1.5 Iron and steel objects and surfaces shall not be exposed in the interior of an explosives load compartment.
- 6.16.1.6 It shall be strong enough to maintain its integrity during transport and built in such a manner that it adequately protects and secures the goods;
- 6.16.1.7 It shall be weatherproof.
- 6.16.1.8 It shall be closed and have a continuous floor to contain spillage.

#### 6.16.2 Additional requirements for explosives category 3 loads

- 6.16.2.1 An explosives load compartment used for the transport of an explosives category 3 load shall meet the following requirements in addition to those in 6.16.1.
- 6.16.2.2 On any opening to an explosives load compartment fitted with two doors, the primary door shall overlap the secondary door so the secondary door cannot be opened without first opening the primary door, unless the secondary door is independently locked.
- 6.16.2.3 The outer surface of the explosives load compartment shall be made of steel not less than 0.9mm thick or of aluminium not less than 1.0mm thick.

6.16.2.4

An explosives load compartment shall be insulated with at least 25 mm of insulating material between its outer surface and inner lining. The insulating material shall be non-combustible when tested in accordance with AS 1530.1.

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## PART 7

### PROVISIONS CONCERNING THE CONDITIONS OF CARRIAGE, LOADING, UNLOADING AND HANDLING

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#### CHAPTER 7.2 PROVISIONS CONCERNING CARRIAGE IN PACKAGES, INCLUDING INTERMEDIATE BULK CONTAINERS (IBC) AND LARGE PACKAGINGS

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- 7.2.1 Unless otherwise provided in 7.2.2 to 7.2.4, packages may be loaded:
- (a) in closed vehicles, closed wagons or in closed containers; or
  - (b) in sheeted vehicles, sheeted wagons or in sheeted containers; or
  - (c) in open vehicles, open wagons or in open containers (unsheeted).
- 7.2.2 Packages comprising packagings made of materials sensitive to moisture shall be loaded on to closed or on to sheeted vehicles, closed or sheeted wagons or into closed or sheeted containers.
- 7.2.3 *(Reserved)*
- 7.2.4 When they are shown under an entry in Column (16) of Table A of Chapter 3.2, the following special provisions apply:
- V1 Packages shall be loaded on to closed or sheeted vehicles, closed or sheeted wagons, or into closed or sheeted containers.
- V2 (1) Packages:
- (a) In an explosives category 3 load, according to 1.1.8, shall be loaded on an EX3 vehicle only; or
  - (b) In an explosives category 1 or 2 load according to 1.1.8, shall be loaded on an EX vehicle.
- NOTE:** *The use of an EX3 vehicle is permitted when an EX vehicle is required.*
- (2) *(Reserved)*
- (3) Packages on an EX or EX3 vehicle shall only be carried in an explosives load compartment conforming to the requirements of Chapter 6.16, except for:
- (a) Low hazard explosives transported in accordance with 1.1.3.14
  - (b) Explosives for import or export transported in accordance with 1.1.4.8
- (4) Packages shall not be loaded:
- (a) in the passenger compartment of a vehicle; or
  - (b) in a place in the vehicles that is accessible from the passenger compartment.
- NOTE:** *Packages are considered accessible if a package containing explosives can be accessed without physically leaving the passenger compartment.*
- V3 For free-flowing powdery substances and for fireworks the floor of a container shall have a non-metallic surface or covering.
- ...

V12 IBCs of type 31HZ2 (31HA2, 31HB2, 31HN2, 31HD2 and 31HH2) shall be carried in closed vehicles, closed wagons or containers.

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## CHAPTER 7.5 PROVISIONS CONCERNING LOADING, UNLOADING AND HANDLING

### 7.5.1 General provisions concerning loading, unloading and handling

7.5.1.1 The vehicle and the vehicle crew, as well as the container(s), bulk-container(s), MEGC(s), tank-container(s) or portable tank(s) if any, shall comply with the regulatory provisions (especially those concerning safety, security, cleanliness and satisfactory operation of the equipment used in loading and unloading) upon arrival at the loading and unloading sites, which include container terminals.

7.5.1.2 Unless otherwise specified in this Code, the loading shall not be carried out if:

- an examination of the documents; or
- a visual inspection of the vehicle, wagon or of the container(s), bulk-container(s), MEGC(s), tank-container(s) or portable tank(s) if any, as well as of their equipment used in loading and unloading,

shows that the vehicle and the vehicle crew, wagon, a container, a bulk-container, a MEGC, a tank-container, a portable tank or their equipment do not comply with the regulatory provisions. The interior and the exterior of a vehicle, wagon or container shall be inspected prior to loading to ensure that there is no damage that could affect its integrity or that of the cargo to be loaded in it.

The cargo transport unit shall be checked to ensure it is structurally serviceable, that it is free of possible residues incompatible with the cargo and that the interior floor, walls and ceiling, where applicable, are free from protrusions or deterioration that could affect the cargo inside and that large containers are free of damages that affect the weather-tight integrity of the container, when required.

Structurally serviceable means that the cargo transport unit is free from major defects in its structural components. Structural components of cargo transport units for multimodal purpose are e.g. top and bottom side rails, top and bottom end rails, corner posts, corner fittings and, for large containers, door sill, door header and floor cross members. Major defects include:

- (a) Bends, cracks or breaks in structural or supporting members and any damage to service or operational equipment that affect the integrity of the cargo transport unit;
- (b) Any distortion of the over-all configuration or any damage to lifting attachments or handling equipment interface features great enough to prevent proper alignment of handling equipment, mounting and securing on a chassis or wagon or vehicle, or insertion into ships' cells; and, where applicable;
- (c) Door hinges, door seals and hardware that are seized, twisted, broken, missing or otherwise inoperative.

7.5.1.3 Unless otherwise specified in this Code, the unloading shall not be carried out, if the above-mentioned inspections reveal deficiencies that might affect the safety or the security of the unloading.

7.5.1.4 In accordance with the special provisions of 7.3.3 or 7.5.11, in conformity with Columns (17) and (18) of Table A of Chapter 3.2, certain dangerous goods shall only be forwarded as a "full load" (see definition in 1.2.1). In such a case, the competent authorities may require the vehicle or large container used for such carriage to be loaded at only one point and unloaded at only one point.

7.5.1.5 When orientation arrows are required packages and overpacks shall be oriented in accordance with such marks.

**NOTE:** *Liquid dangerous goods shall be loaded below dry dangerous goods whenever practicable.*

7.5.1.6 All means of containment shall be loaded and unloaded in conformity with a handling method for which they have been designed and, where required, tested.

## 7.5.2.2

Packages containing substances or articles of Class 1, bearing a label conforming to models Nos. 1, 1.4, 1.5 or 1.6 which are assigned to different compatibility groups shall not be loaded together in the same vehicle or container, unless mixed loading is permitted in accordance with the following Table for the corresponding compatibility groups.

Compatibility Group	A	B	C	D	E	F	G	H	J	K	L	N	S
A	X <sup>f</sup>												
B		X		a									X <sup>a g</sup>
C			X	X	X		e					b c	X <sup>g</sup>
D		a	X	X	X		e					b c	X <sup>g</sup>
E			X	X	X		e					b c	X <sup>g</sup>
F						X							X <sup>g</sup>
G			e	e	e		X						X <sup>g</sup>
H								X					X <sup>g</sup>
J									X				X <sup>g</sup>
K										X			X <sup>g</sup>
L											X <sup>d</sup>		
N			b c	b c	b c							b	X <sup>g</sup>
S		X <sup>a g</sup>	X <sup>g</sup>	X <sup>g</sup>	X <sup>g</sup>	X <sup>g</sup>	X <sup>g</sup>	X <sup>g</sup>	X <sup>g</sup>	X <sup>g</sup>		X <sup>g</sup>	X <sup>g</sup>

X Mixed loading permitted.

a Packages containing articles of compatibility group B, or detonators of compatibility group S, and those containing substances or articles of compatibility group D shall only be loaded together in accordance with 7.5.2.5.3.

b Different types of articles of division 1.6, compatibility group N, may be carried together as articles of division 1.6, compatibility group N, only when it is proven by testing or analogy that there is no additional hazard of sympathetic detonation between the articles. Otherwise they shall be treated as hazard division 1.1.

c When articles of compatibility group N are carried with substances or articles of compatibility groups C, D or E, the articles of compatibility group N shall be considered as having the characteristics of compatibility group D.

d Packages containing substances and articles of Compatibility Group L shall only be loaded together on one vehicle or in one container with packages containing the same type of substances and articles of that compatibility group.

e Explosive articles in compatibility group G (other than fireworks) that are not liable to give rise to loose explosive powder may be loaded together with explosive articles of compatibility groups C, D, E and G if no explosive substances are present in the load.

f Explosives of Compatibility Group A may only be transported with the approval of and subject to conditions imposed by the Competent Authority.

7.5.2.5 Application of prohibitions on mixed loading for substances and articles of class 1

7.5.2.5.1 For mixed loading prohibitions laid down in 7.5.2.1 concerning mixed loading of packages bearing labels conforming to models Nos. 1, 1.4, 1.5 or 1.6 with other packages, and in 7.5.2.2 concerning mixed loading of explosives of different compatibility groups, the incompatible goods shall not be loaded on the same vehicle or combination vehicle.

7.5.2.5.2 Additional prohibitions on mixed loading of substances and articles of class 1 with other goods.

- (a) Ammonium nitrate, ammonium nitrate mixtures or ammonium nitrate based explosives shall not be carried with chlorates or chlorate based explosives.
- (b) Substances and articles of class 1 shall not be transported in the same load compartment as domestic, commercial or industrial waste, including empty packagings or pallets not part of an overpack.
- (c) Explosives shall not be transported on the same vehicle or combination road vehicle as other Classes of dangerous goods, fire risk substances or any other materials likely to cause, communicate or intensify fire, except as permitted by 7.5.2.5.3.
- (e) Mixed loading of dangerous goods packed in limited quantities with any type of explosive substances and articles, except low hazard explosives, is prohibited.

7.5.2.5.3 Mixed loading of substances and articles of class 1 with other goods that would otherwise contravene 7.5.2.5.2 is permitted in the following circumstances:

- (a) Mixed loading is permitted between blasting explosives (except UN No. 0083 explosive, blasting, type C) and ammonium nitrate (UN Nos. 1942 and 2067), ammonium nitrate emulsion or suspension or gel (UN No. 3375) and alkali metal nitrates and alkaline earth metal nitrates provided the aggregate is treated as blasting explosives under Class 1 for the purposes of placarding, segregation, stowage and maximum permissible load.

Alkali metal nitrates include caesium nitrate (UN 1451), lithium nitrate (UN 2722), potassium nitrate (UN 1486), rubidium nitrate (UN 1477) and sodium nitrate (UN 1498). Alkaline earth metal nitrates include barium nitrate (UN 1446), beryllium nitrate (UN 2464), calcium nitrate (UN 1454), magnesium nitrate (UN 1474) and strontium nitrate (UN 1507).

- (b) (Reserved)\*
- (c) where dangerous goods are carried:
  - (i) under the exemptions in 1.1.3.1 (a) or (c),
  - (ii) do not exceed 1 kilogram/litre in aggregate;
  - (iii) and are in a separate compartment to the explosives;

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\* This provision relates to segregation on rail vehicles. The NTC proposes to undertake specific consultation on this issue if it is required. See section 3.2 in the discussion paper.

NOTE: the exemptions in 1.1.3.1 (a) and (c) apply to dangerous goods carried by private individuals or where carriage is ancillary to the main activity of the carrier.

- (d) where wooden pallets are used to carry explosives in overpacks; or
- (e) in other circumstances specifically approved by the Competent Authority

7.5.2.5.4 Mixed loading of substances and articles of class 1 that would otherwise contravene 7.5.2.2 is permitted in the following circumstances:

- (a) Substances and articles of class 1 not permitted to be transported together under 7.5.2.2 may be transported on the same vehicle [or combination] provided that the incompatible explosives are:
  - (i) stored in separate explosives load compartments that are segregated by an effective means of segregation demonstrated to prevent sympathetic detonation of the incompatible explosives; or
  - (ii) segregated by other means specifically approved by a Competent Authority for that purpose.
- (b) Detonators of classification code 1.1B may be transported with other explosives using a method approved under 7.5.2.5.4 (a), or in accordance with the following:
  - (i) the quantity of detonators does not exceed 125 detonators;
  - (ii) the total quantity of explosives does not exceed the upper limit for Explosives Category 2, as determined according to 1.1.8; and
  - (iii) detonators shall be placed in a separate carry box or compartment and separated from other explosives by at least 2 metres from other explosives.
- (c) Detonators of Classification Code 1.4B or 1.4S may be carried with other explosives on the same vehicle provided they are in a separate explosives load compartment from the other explosives.

**NOTE:** 1.1.3.14.8 permits low hazard explosives to be transported without application of the segregation provisions in an explosives category 1 load.

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#### 7.5.4 Precautions with respect to foodstuffs, other articles of consumption and animal feeds

If special provision CV28 is indicated for a substance or article in Column (18) of Table A of Chapter 3.2, precautions with respect to foodstuffs, other articles of consumption and animal feeds shall be taken as follows.

Packages as well as uncleaned empty packagings, including large packagings and intermediate bulk containers (IBCs), bearing labels conforming to models Nos. 6.1 or 6.2 and those bearing labels conforming to model No. 9 containing goods of UN Nos. 2212, 2315, 2590, 3151, 3152 or 3245, shall not be stacked on or loaded in immediate proximity to packages known to contain foodstuffs, other articles of consumption or animal feeds in vehicles, in containers and at places of loading, unloading or transhipment.

When these packages, bearing the said labels, are loaded in immediate proximity of packages known to contain foodstuffs, other articles of consumption or animal feeds, they shall be kept apart from the latter:

- (a) By complete partitions which should be as high as the packages bearing the said labels;
- (b) By packages not bearing labels conforming to models Nos. 6.1, 6.2 or 9 or packages bearing labels conforming to model No.9 but not containing goods of UN Nos. 2212, 2315, 2590, 3151, 3152 or 3245; or
- (c) By a space of at least 0.8 m;

unless the packages bearing the said labels are provided with an additional packaging or are completely covered (e.g. by a sheeting, a fibreboard cover or other measures).

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## 7.5.5.2 Limitations with respect to explosive substances and articles

### 7.5.5.2.1 Substances and quantities carried

**NOTE:** Jurisdictions may impose additional restrictions for certain routes. Carriers should ensure this is addressed in journey planning.

The total NEQ of class 1 substances and articles which may be carried on one transport unit shall be limited as indicated in the table below (see also 7.5.2.2 as regards the prohibition of mixed loading):

Type of transport unit	Load division according to 1.1.7	Quantity
(1)	(2)	(3)
Road vehicle, including combination road vehicles	1.1, 1.2 or 1.3	25 tonnes
Road vehicle, including combination road vehicles	1.5 or 1.6	40 tonnes
Rail wagon	1.1, 1.2, 1.3, 1.5 or 1.6	40 tonnes
Road vehicle, combination vehicle or rail wagon	1.4	Unlimited

### 7.5.5.2.2 (Reserved)

### 7.5.5.2.3 Carriage of explosives on MPUs

Carriage of explosives on MPUs is only permitted subject to the following conditions:

- (a) The competent authority shall authorize the transport operation within its territory;
- (b) The type and quantity of packaged explosives carried shall be limited to those necessary for the quantity of material to be manufactured on the MPU, and in any case shall not exceed:
  - 200 kg of explosives of compatibility group D; and
  - a total of 400 units of detonators or detonator assemblies, or a mixture of both,
 unless otherwise approved by the competent authority;
- (c) Packaged explosives shall only be carried in compartments that meet the requirements of 6.12.5;

- (d) No other dangerous goods may be carried in the same compartment as the packaged explosives;
- (e) Packaged explosives shall only be loaded onto the MPU once the loading of other dangerous goods has been completed and immediately prior to carriage;
- (d) When mixed loading is permitted between explosives and substances of Class 5.1 (UN 1942 and UN 3375) the aggregate is treated as blasting explosives under Class 1 for the purposes of segregation, stowage and maximum permissible load.

#### 7.5.11

#### Additional provisions applicable to certain classes or specific goods

In addition to the provisions of sections 7.5.1 to 7.5.10, the following provisions shall apply when they are shown under an entry indicated in Column (18) of Table A of Chapter 3.2.

- CV1
- (1) The following operations are prohibited:
    - (a) Loading or unloading goods in a public place in a built-up area without special permission from the competent authorities;
    - (b) Loading or unloading goods in a public place elsewhere than in a built-up area without prior notice thereof having been given to the competent authorities, unless these operations are urgently necessary for reasons of safety.
    - (c) Loading or unloading goods during a thunderstorm.
  - (2) If, for any reason, handling operations have to be carried out in a public place, then substances and articles of different kinds shall be separated according to the labels.
  - (3) Packages shall not be dropped, thrown or otherwise mishandled.
- CV2
- (1) Before loading, the loading surface of the vehicle, wagon or container shall be thoroughly cleaned.
  - (2) The use of fire or naked flame shall be prohibited on vehicles and containers carrying goods, in their vicinity and during the loading and unloading of these goods.
  - (3) Packages stowed in a freight container shall be arranged so as to distribute the load evenly over the container floor, or otherwise arranged to ensure that the weight distribution is symmetrical in relation to the lifting of the container.
  - (4) Dunnage used in the stowage of substances and articles of class 1 shall be:
    - (a) kept dry before use;
    - (b) securely restrained during transport; and
    - (c) the amount used shall be minimised.
  - (5) Fireworks and detonators of class 1 shall not be stowed in the same explosives load compartment as other goods likely to cause damage without special permission from the Competent Authority.

Substances and articles of class 1, other than fireworks and detonators, shall not be stowed in the same explosives load compartment as other goods likely to cause damage except:

- (a) Load securing devices constructed and used so as not to present an initiation hazard to the explosives;
- (b) Manual handling equipment (such as pallet jacks and conveyor rollers) that are securely restrained behind a segregating partition whose height exceeds the highest point of the load; or
- (c) With special permission from the Competent Authority.

Stowage of substances and articles of class 1 in the same compartment as other goods likely to cause damage, including other equipment and articles:

- (a) For fireworks and detonators, is prohibited without exception; or
- (b) Other than for fireworks and detonators, is prohibited with the exception of manual handling equipment (such as pallet jacks and conveyor rollers), that are securely positioned behind a segregating partition so as to prevent movement during transport. The height of the segregating partition shall exceed the highest point of the load.

CV3 See 7.5.5.2.

CV4 Substances and articles of compatibility group L shall only be carried as a full load\*.

CV28 See 7.5.4.

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\* "Full load" means any load originating from one consignor for which the use of a vehicle or of a large container is exclusively reserved and all operations for the loading and unloading of which are carried out in conformity with the instructions of the consignor or of the consignee.

## PART 8

### REQUIREMENTS FOR VEHICLE CREWS, EQUIPMENT, OPERATION AND DOCUMENTATION

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#### CHAPTER 8.1      GENERAL REQUIREMENTS CONCERNING TRANSPORT UNITS AND EQUIPMENT ON BOARD

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#### 8.1.4      Fire-fighting equipment

8.1.4.1.1      If the maximum permissible mass of the transport unit is no more than 4.5 tonnes, the load area of the vehicle shall be equipped with at least one fire extinguisher with a capacity of no less than 2 kg.

8.1.4.1.2      If the maximum permissible mass of the transport unit is greater than 4.5 tonnes:

- (a) If the vehicle is transporting dangerous goods in packages only, the load area of each vehicle shall be equipped with at least one fire extinguisher with a capacity of no less than 4.5 kg.
- (b) If the vehicle is transporting dangerous goods in tanks or bulk containers, the load area of each vehicle shall be equipped with at least two fire extinguishers, with a total combined capacity of no less than 9 kg.

One of these extinguishers shall have a capacity of no less than 4.5 kg.

8.1.4.1.3      In addition to the fire extinguishers referred to in 8.1.4.1.1 and 8.1.4.1.2, the vehicle shall carry at least one fire extinguisher suitable for fighting an engine or cab fire. The fire extinguisher shall have a capacity of no less than 2 kg.

#### 8.1.4.2      *Fire extinguishers for vehicles transporting substances and articles of class 1*

A vehicle transporting substances and articles of class 1 shall be equipped with the following fire extinguishers, in place of the provisions set out in 8.1.4.1.1 – 8.1.4.1.3:

- (a) A vehicle transporting a load meeting explosives category 1, 2 or 3 shall be fitted with an extinguisher that complies with 8.1.4.1.3.
- (b) A vehicle transporting a load meeting explosives category 2 shall be fitted with fire extinguishers in the load area that comply with 8.1.4.1.2 (a), regardless of the mass of the transport unit
- (c) A vehicle transporting a load meeting explosives category 3 shall be fitted with fire extinguishers in the load area that comply with 8.1.4.1.2 (b), regardless of the mass of the transport unit.

#### 8.1.4.3      Selection of fire extinguishers

8.1.4.3.1      The portable fire extinguishers shall be suitable for use on a vehicle and shall comply with the relevant requirements of AS/NZS 1841 and 1850.

8.1.4.3.2      The portable fire extinguishers referred to in 8.1.4.1.1 and 8.1.4.1.2 may be partially or wholly substituted with an equivalent capacity of foam or water fire extinguishers.

8.1.4.3.3      A foam or water fire-fighting system designed for the vehicle and the load using compressed air, electric pumps or other means may be fitted to the vehicle. The capacity shall be appropriate for the vehicle, but in no case shall be less than the capacity in 8.1.4.1.1 or 8.1.4.1.2.

This fire-fighting system shall be operational even when the engine of the vehicle is turned off and shall be suitable for the types of fire scenarios likely to be encountered with the aim of preventing the spread of fire to the load.



Except in cases where this system is mandatory, such a system being fitted is considered to replace the portable fire extinguishers referred to in 8.1.4.1.1 and 8.1.4.1.2.

**NOTE:** A foam or water fire-fighting system in accordance with 8.1.4.3.3 is mandatory for AN and EX3 vehicles. In these cases, this system is additional to the portable extinguishers.

8.1.4.3.4 If the vehicle is equipped with a fixed fire extinguisher, automatic or easily brought into action for fighting a fire in the engine, the portable extinguisher referred to in 8.1.4.1.3 need not be suitable for fighting a fire in the engine. The extinguishing agents shall be such that they are not liable to release toxic gases into the driver's cab or under the influence of the heat of the fire.

8.1.4.4 The portable fire extinguishers conforming to the provisions of 8.1.4.1 or 8.1.4.2 shall be fitted with a seal or another measure which allows verifying that they have not been used.

The fire extinguishers shall be subjected to inspections and maintenance in accordance with AS/NZS 1851.

8.1.4.5 The fire extinguishers shall be securely installed on the transport units in a way that they are easily accessible to the vehicle crew, such as by fitting in a quick release bracket. The installation shall be carried out in such a way that the fire extinguishers shall be protected against effects of the weather so that their operational safety is not affected. During carriage, the date required in 8.1.4.4 shall not have expired, and a means of verifying this shall be provided.

**NOTE:** AS/NZS 1851 requires portable extinguishers to be inspected every six months. The standard contains the detailed requirements for these inspections.

8.1.4.6 Where two or more fire extinguishers in the load area are fitted in accordance with 8.1.4.1.1 or 8.1.4.1.2, one should be located on the left (near, or passenger) side towards the rear of the vehicle and, wherever practicable, another should be mounted on the right (off, or driver) side towards the front of the vehicle.

8.1.5 Miscellaneous equipment and equipment for personal protection

**NOTE 1:** The equipment in this section are the minimum requirements for the transport of dangerous goods. Consideration shall be given to the properties of the dangerous goods, and the nature of the transport operation when selecting appropriate equipment.

**NOTE 2:** Where the vehicle crew undertake other tasks involving dangerous goods (such as filling or emptying tanks, bulk containers or packages), additional personal protective equipment may be required to meet the requirements of other safety legislation. If the equipment under this section also fulfils that purpose, it shall meet these requirements throughout transport.

8.1.5.1 Each transport unit carrying dangerous goods shall be provided with items of equipment for general and personal protection in accordance with 8.1.5.2. The items of equipment shall be selected in accordance with the danger label number of the goods loaded. The label numbers can be identified through the transport document.

Where the transport emergency response plan prepared in accordance with 1.8.5 has identified emergency equipment:

- (a) with particular features (such as resistance to certain chemicals), or
- (b) in addition to that specified below to be carried on the transport unit

the transport unit or vehicle crew shall carry this equipment.

8.1.5.2

The following equipment shall be carried on board the transport unit:

- A wheel chock of a size suited to the maximum mass of the vehicle and to the diameter of the wheel.  
For dangerous goods other than class 1, this is only required for each trailer not fitted with brakes;
- Three portable warning triangles;
- Eye rinsing liquid, no less than 250 mL (not required when only transporting goods with danger label numbers 2.1, 2.2 and 2.3); and

for each member of the vehicle crew

- A warning vest, or equivalent high-visibility clothing (e.g. as described in AS/NZS 4602.1);
- A torch conforming to the provisions of 8.3.4\*;
- A pair of protective gloves;
- Eye protection (e.g. protective goggles as described in AS 1337); and
- Foot protection (e.g. enclosed, protective footwear).

8.1.5.3

Additional equipment required when solids and liquids are being transported:

- A shovel;
- A drain seal;
- A collecting container.

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\* 8.3.4 requires that the torch is compliant for zone 1 hazardous areas when transporting class 1.

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## CHAPTER 8.3 MISCELLANEOUS REQUIREMENTS TO BE COMPLIED WITH BY THE VEHICLE CREW

### 8.3.1 Passengers

Apart from members of the vehicle crew, no passengers may be carried in transport units carrying dangerous goods.

This provision does not apply to an authorised officer, police officer or officer of an emergency service or a person authorised to ride in the vehicle by such a person.

**NOTE:** A person accompanying a driver for safety, security, training or operational reasons is defined as a member of a vehicle crew in 1.2.1.

### 8.3.2 Use of fire-fighting appliances

Members of the vehicle crew shall know how to use the fire-fighting appliances.

### 8.3.3 Prohibition on opening packages

A driver or a driver's assistant may not open a package containing dangerous goods.

**NOTE:** This provision does not apply in circumstances where opening packages forms part of a driver's other duties, and appropriate instruction and training is provided.

### 8.3.4 Torch

The torch used shall be suitable for use in a zone 1 hazardous area as defined in AS/NZS 60079.10.1.

The torch need not meet the above requirement for use in a zone 1 hazardous area if the vehicle is not transporting any substances or articles of class 1; or have a flammability or oxidising hazard.

### 8.3.5 Prohibition on smoking

Smoking shall be prohibited during:

- (a) handling operations in the vicinity of vehicles;
- (b) inside the vehicles.

This prohibition of smoking is also applicable to the use of electronic cigarettes and similar devices.

Any smoking accessories for the use of the vehicle crew shall be carried in a sealed container to prevent the spreading of any inadvertent ignition, and which shall not be accessible to the vehicle crew while driving, and shall not be carried in the load area.

### 8.3.6 Running the engine during loading or unloading

Except where the engine has to be used to drive the pumps or other appliances for loading or unloading the vehicle and is otherwise permitted, the engine should be shut off during loading and unloading operations.

**NOTE:** There are additional restrictions on running the engine during transfer of dangerous goods in Chapter 8.7.

### 8.3.7 Use of the parking brakes

No vehicles carrying dangerous goods may be parked without the parking brakes being applied. Trailers without braking devices shall be restrained from moving.

If the vehicle is powered by a compression ignition engine, the vehicle shall not be parked in gear unless:

- (a) the vehicle is fitted with a device to prevent the engine from starting if the vehicle moves; and
- (b) the device is engaged.

### **8.3.8 Use of cables for electronic braking systems**

In the case of a transport unit equipped with an anti-lock or other electronic braking system, consisting of a motor vehicle and one or more trailers with a maximum mass exceeding 4.5 tonnes, the connections referred to in sub-section 9.2.2.8.5 shall connect the towing vehicle and the trailer at all times during carriage.

### **8.3.9 Breakdowns**

8.3.9.1 If a vehicle carrying dangerous goods is disabled on a road, or has stopped and constitutes a traffic hazard, the vehicle crew shall:

- (a) if the battery has not been disconnected to prevent danger:
  - (i) turn the hazard lights on and leaving them on while the vehicle is stopped; or
  - (ii) if 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) place the portable warning triangles in accordance with the positioning requirements of the Road Rules in the jurisdiction where the breakdown occurs.

**NOTE 1:** This requirement to place portable warning triangles applies regardless of any provisions in the road rules relating to vehicle mass.

**NOTE 2:** Rule 227 of the model Australian Road Rules provides the following positioning requirements for portable warning triangles:

- (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.

### **8.3.9.2 Additional requirements for vehicles carrying explosives category 2 or 3 loads**

8.3.9.2.1 The vehicle crew shall carry out the following as soon as is practicable:

- (a) Notify the situation to the police;
- (b) Notify the carrier of the situation; and
- (c) Take any other actions required by the transport emergency response plan.

8.3.9.2.2

The carrier shall carry out the following as soon as is practicable:

- (a) the vehicle shall be repaired to the extent that it may be removed safely from the road taking adequate protections in the course of the repairs to ensure the safety of the vehicle and the explosives aboard; or
- (b) the vehicle shall be towed in a safe manner to a place for repair.

Should a vehicle require to be removed from the site by towing or otherwise, consideration should be given to removing it to a safe area to allow the explosives to be transferred to another vehicle.

The carrier shall inform the operator of the tow vehicle of the hazards associated with the explosives on board the disabled vehicle.

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## CHAPTER 8.4 REQUIREMENTS CONCERNING THE SUPERVISION OF VEHICLES

**NOTE 1:** Where the vehicle is transporting high consequence dangerous goods in accordance with 1.10.3, the provisions of the security plan as they relate to parking and supervision apply in addition to the provisions of this chapter.

**NOTE 2:** Depending on jurisdictional legislation, overnight parking of a loaded MPU may be considered storage and require licensing under explosives legislation.

### 8.4.1 Definitions

8.4.1.1 A vehicle is considered supervised when a member of the vehicle crew, or another suitably instructed, trained and authorised person, is readily available to attend to any issues involving the vehicle.

**NOTE:** A vehicle is not considered unsupervised during a temporary stop if a driver secures and leaves the vehicle for no longer than is necessary, to access nearby facilities for required fatigue, rest, refreshment or service purposes, but remains readily available to attend to the vehicle.

8.4.1.2 A vehicle is considered to be in an isolated position when it is separated from:

- (a) Buildings and places in which there is or is likely to be a concentration of people by at least 15 metres; and
- (b) Other vehicles transporting dangerous goods displaying placards by at least 8 metres.

### 8.4.1.3 Duration of stops

8.4.1.3.1 A temporary stop is a stop no longer than 1 hour.

8.4.1.3.2 A long stop is a stop longer than 1 hour.

### 8.4.2 Parking and supervision of vehicles transporting dangerous goods

8.4.2.1 Vehicles carrying dangerous goods, other than a small load, shall be supervised or alternatively may be parked, unsupervised, in a secure depot or secure factory premises.

If such facilities are not available, the vehicle, after having been properly secured, may be parked, unsupervised, in an isolated position meeting the requirements of (a), or (b) below:

- (a) A vehicle parking facility supervised by an attendant who has been notified of the nature of the load and the whereabouts of the driver;
- (b) A suitable open space separated from the public highway and from dwellings, where the public does not normally pass or assemble.

The parking facilities permitted in (b) shall be used only if those described in (a) are not available.

8.4.2.2 A driver that is not able to continue driving due to fatigue-related laws may park in a position that is not normally permitted by 8.4.2.1, provided the driver complies with the requirements of 8.4.2.1 as far as is practicable in the circumstances.

8.4.2.3 A vehicle carrying substances or articles of class 1 shall additionally comply with section 8.4.4, which prevails to the extent of any inconsistency with 8.4.2.

### 8.4.3 Parking and supervision of MPUs

Loaded MPUs shall be supervised or alternatively may be parked, unsupervised, in a secure depot or secure factory premises. Empty uncleaned MPUs are exempted from this requirement, however all appropriate requirements of the security plan shall be followed.

**8.4.4                    Parking and supervision of vehicles transporting substances and articles of class 1**

8.4.4.1                A vehicle loaded with substances or articles of class 1, other than low hazard explosives transported in accordance with 1.1.3.14 shall:

- (a)    Be left stationary for a temporary stop only when the vehicle is either attended or the driver's cabin and the load carrying compartment(s) are locked;
- (b)    Be left stationary for a long period only when the vehicle is supervised;
- (c)    Be parked for a long period on private property only with the consent of the owner or occupier of the property, as far as reasonably practicable;
- (d)    Be parked at least 6 metres away from any accumulation of combustible material including dry vegetation, and from any fuel or LP Gas storage or handling facility, which might be a fire risk to the vehicle.

8.4.4.3                Stops in built up areas shall be avoided except as necessary for the transport operation.

8.4.1.2                A vehicle loaded with a load meeting explosives category 2 or 3 shall be monitored to detect a dangerous tyre or wheel temperature. The monitoring may take the form of:

- (a)    Fitting with automated temperature monitoring of tyres or wheel assemblies;
- (b)    Manual monitoring of tyre or wheel temperatures using an infrared thermometer; or
- (c)    Direct supervision for at least 15 minutes after the engine has been stopped, to recognise any delayed brake or tyre fires.

The monitoring shall be part of an established procedure that includes instruction for the driver and what to do if a dangerous temperature is detected.

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## CHAPTER 8.5      **ADDITIONAL REQUIREMENTS RELATING TO PARTICULAR CLASSES OR SUBSTANCES**

8.5.1      In addition to the requirements of Chapters 8.1 to 8.4, when reference is made to them in Column (19) of Table A of Chapter 3.2, the following requirements shall apply to the carriage of the substances or articles concerned. In the event of conflict with the requirements of Chapters 8.1 to 8.4, the requirements of this Chapter shall take precedence.

**S1:**      See 8.5.2

...

### **8.5.2      Requirements concerning the carriage of explosive substances and articles (Class 1)**

#### **8.5.2.1      *General provisions applying to all transport of class 1***

##### **8.5.2.1.1      *Prohibition of smoking, fire, naked flame and ignition sources***

Smoking, the use of fire or of naked flames shall be prohibited on or within 6 metres of vehicles carrying substances and articles of Class 1, in their vicinity and during the loading and unloading of these substances and articles. This prohibition of smoking is also applicable to the use of electronic cigarettes and similar devices.

Any such accessories for the use of the vehicle crew shall be carried in a sealed container, which would prevent the spreading of any inadvertent ignition, and which shall be carried in the cabin of the vehicle.

A person shall not take a radio transmitter, mobile phone, pager or other radio frequency transmitters into an explosive carrying compartment.

##### **8.5.2.1.2      *Places of loading and unloading***

Loading or unloading of substances and articles of Class 1 shall not take place in a public place in a built-up area without special permission from the competent authorities;

Loading or unloading of substances and articles of Class 1 in a public space elsewhere than in a built-up area without prior notice thereof having been given to the competent authorities shall be prohibited, unless operations are urgently necessary for reasons of safety;

If, for any reason, handling operations have to be carried out in a public place, then substances and articles of different kinds shall be separated according to the labels;

When vehicles carrying substances and articles of Class 1 are obliged to stop for loading or unloading operations in a public place, a distance of at least 50 m shall be maintained between the stationary vehicles. This distance shall not apply to vehicles belonging to the same transport unit.

##### **8.5.2.1.3      *Convoys***

When vehicles carrying substances and articles of Class 1 travel in convoy, a distance of not less than 50 m shall be maintained between each transport unit and the next;

The competent authority may lay down rules for the order or composition of convoys.

##### **8.5.2.1.4      *Locking of vehicles and security***

Doors and rigid covers in the load compartments of explosives vehicles and all openings in the load compartments of explosives vehicles that are transporting



carrying substances and articles of Class 1 shall be locked during transport, except for the periods of loading and unloading.

Checks or audits shall be carried out after each time the vehicle is parked and before each journey is commenced to determine that there has been no breach of any receptacle, carry box, other enclosed portion of a vehicle containing explosives, or closed transport unit used to transport explosives by road or rail.

A recorded check at the time of delivery shall ensure that there is no discrepancy between the quantities and types of explosives loaded and unloaded when compared against the transport documentation.

Any breach or discrepancy that is discovered during a check or audit which cannot be legitimately explained or reconciled within 24 hours, shall immediately be notify the local police and competent authorities in accordance with 1.8.5. Competent authorities shall be notified in the following jurisdictions:

- (a) Where the journey commenced;
- (b) Where the journey where the breach or discrepancy was detected; and
- (c) Where the carrier is licensed to transport explosives.

**NOTE:** For imported explosives, the journey is considered to have commenced at the port where they were imported into Australia.

#### 8.5.2.1.5 *Prohibition on loading in passenger compartments*

Explosives shall not be loaded in the following locations:

- (a) in the passenger compartment of a vehicle, or
- (b) in a location that is accessible from the passenger compartment of the vehicle.

**NOTE:** Packages are considered accessible if a package containing explosives can be accessed without physically leaving the passenger compartment.

#### 8.5.2.1.6 *Vehicles with an electric drive train*

Vehicles with an electric drive train shall not be used when transporting substances and articles of class 1, other than low hazard explosives.

**NOTE:** this likewise applies to hybrid vehicles that include an electric power train in the mechanical driveline of an internal combustion engine.

### 8.5.2.2 ***Additional provisions applying to loads of explosives category 2 or 3***

#### 8.5.2.2.1 *Consignment procedures*

Prior to a load being consigned, the consignor shall:

- (a) Notify the proposed shipment to the consignee and the carrier engaged to transport the explosives; and
- (b) receive advice that the consignee, or a person authorised by the consignee, is prepared to receive the consignment on arrival, or that arrangements have been made for the driver to store the explosives in a place authorised for that purpose by the Competent Authority.

#### 8.5.2.2.2 *Loading and unloading*

The consignee or a person authorised by the consignee shall be present to receive the consignment of explosives, or the driver shall place and secure the explosives in a place approved for the storage of explosives.

Sources of ignition shall not be brought closer than 6 metres to the point where those explosives are being loaded or unloaded

The loading or unloading operation shall be completed without delay.

The vehicle's engine shall be turned off and the vehicle's brakes or wheel chocks shall be applied to prevent movement.

Unless otherwise approved, or the explosives are of UN 0332, freight containers shall not be handled with forklift tines.

Explosives shall only be loaded or unloaded during hours of daylight, unless adequate artificial lighting is provided.

8.5.2.2.2 *Transport procedures*

8.5.2.2.2.1 Prior to any explosives being loaded on an empty vehicle, a vehicle shall have sufficient fuel to complete the proposed journey or be carrying its maximum fuel load. If refuelling is necessary during the journey:

- (a) refuelling locations shall be pre-planned;
- (b) the refuelling shall be carried out in a remote location as far as is practicable;
- (c) the vehicle engine shall be shut down during refuelling;
- (d) sources of ignition shall be at least 6 metres from the vehicle;
- (e) refuelling shall not be carried out during thunderstorms; and
- (f) mobile telephones, radio transmitters and other personal electronic devices shall not be operated during refuelling.

8.5.2.2.2.2 A vehicle carrying explosives shall only stop in accordance with a journey plan determined in advance of the journey, and prepared in accordance with Chapter 8.6.

**NOTE:** This does not apply in the case of breakdowns, emergencies or to comply with traffic laws or lawfully issued directions.

8.5.2.2.2.3 A vehicle transporting explosives shall avoid close proximity to any other vehicle displaying Explosives Class labels or "Explosives" placards, except when overtaking or passing the other vehicle.

8.5.2.3 ***Additional provisions applying to explosives category 3 only***

8.5.2.3.1 *Security requirements*

A load compartment containing an explosives category 3 load of explosives shall be:

- (a) locked with a padlock or lockset
  - (i) of physical security level SP8 or better, and corrosion resistance level of C4 or better, according to AS 4145.4; or
  - (ii) rated SL3 or better according to the Security Equipment Evaluated Product List (SEEPL) published by the Security Construction and Equipment Committee (SCEC)\*; and
- (b) fitted with a tamper-evident security seal as described in AS 4225 to detect unauthorised access. Each seal shall be individually numbered and sufficiently robust to resist snapping or breaking.

8.5.2.3.2 *Vehicle monitoring system*

An EX3 vehicle used for the transport of an explosive category 3 load shall be fitted with a monitoring system that ensures, independent of the vehicle crew:

- (a) the location of an explosives category 3 load is known and recorded, in compliance with the security plan;
- (b) in the event of a breach of security involving an explosives category 3 load of explosives, immediate notification is made of the nature, location and time of the event to enable response assistance.

Records made in accordance with this section shall be kept for no less than 30 days.

\*

The SCEC is a standing inter-departmental committee responsible for the evaluating security equipment for use by Australian Government departments and agencies. It is managed under the Commonwealth Attorney-General's Department.

#### 8.5.2.3.3 *Transport procedures*

During the transport of a load meeting explosives category 3, a telephone advisory service meeting the requirements of 1.8.5.3 shall be available throughout the transport operation.

The vehicle crew for a vehicle transporting a load meeting explosives category 3 more than 5 km shall consist of at least 2 persons meeting the requirements applied to vehicle crews in 8.2.1. In place of the attendant, the vehicle may be equipped with a mobile communication system, provided that:

- (a) The mobile communication system enables the driver to make voice contact with a base or emergency services at any point throughout the journey; and
- (b) The driver is provided with a means of radio communication (e.g. portable UHF radio) which can be operated independently, away from the vehicle in cases of emergency; and
- (c) The safety of loading and/or unloading operations is not compromised by reduction in available personnel; and
- (d) The driver has been trained in the use of the communication system and in the emergency procedures.

DRAFT FOR PUBLIC CONSULTATION  
RELEASED 28 OCTOBER 2024

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## **CHAPTER 8.6      ROUTE PLANNING FOR VEHICLES CARRYING DANGEROUS GOODS**

### **8.6.1      Prohibited routes for dangerous goods**

- 8.6.1.1      Any provisions relating to route selection due to the presence of dangerous goods on a vehicle or train shall be observed during the transport of dangerous goods.
- 8.6.1.2      The provisions may require that dangerous goods may be or shall or shall not be transported:
- (a)      on a specified route; or
  - (b)      in or through a specified area; or
  - (c)      at a specified time.
- 8.6.1.3      The provisions may be subject to conditions concerning the quantity of certain classes or specific dangerous goods being transported.
- 8.6.1.4      The provisions may be made:
- (a)      As a determination by the competent authority;
  - (b)      By another authority that is authorised to make such provisions; or
  - (c)      Under other legislation that applies in the jurisdiction.

### **8.6.2      Route planning for dangerous goods**

- 8.6.2.1      As far as is practicable, routes for road vehicles transporting dangerous goods shall be pre-planned. This route planning shall take into account the factors in this Section, and the other requirements of this Code.
- 8.6.2.2      Drivers, and other persons who may be involved in vehicle routing, shall be provided with information on any route restrictions for dangerous goods in the locations where it is reasonably foreseeable that they may drive.
- 8.6.2.3      Where it is not possible to pre-plan the route in detail, the driver shall nonetheless be made aware of any areas to avoid in localities where travel is anticipated.
- 8.6.2.4      Routes should be selected to minimise the risk of personal injury or harm to the environment or property during the journey.
- 8.6.2.5      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.
- 8.6.2.6      Even where formal restrictions are not in place, consideration should be given to whether a particular route is the most appropriate route to take.

### **8.6.3      Journey planning for the carriage of substance and articles of class 1**

- 8.6.3.1      In this section "Protected work" means:
- (a)      any dwelling-house, place of worship, public building, school or college, hospital, theatre or any other building or facility in which persons are accustomed to assemble;
  - (b)      any factory, workshop, office, store, warehouse or shop;
  - (c)      depot for the keeping of dangerous goods;
  - (d)      any significant public infrastructure, for example dams, electrical substations, gas pipelines; or
  - (e)      an open place where the public is accustomed to assemble, open place of work in another occupancy;

8.6.3.2 A vehicle loaded with substances or articles of class 1 meeting explosives category 2 or 3 shall only make stops in accordance with a journey plan developed in advance of the carriage operation. Such a plan shall address the following requirements:

- (a) The requirements of the security plan as described in Chapter 1.10;
- (b) The route planning requirements of Chapter 8.6.2;
- (c) Stopping locations permitted by 8.6.3.2; and
- (d) Any recommendations made by the competent authority.

The plan shall be prepared by the carrier, and the driver provided with appropriate instruction and training to permit the plan to be implemented.

8.6.3.2 Stops under the journey plan shall comply with the following provisions:

- (a) temporary stops shall not be made within 100 metres of protected works; and
- (b) long stops shall not be made:
  - (i) within 10 metres of a road, street, source of ignition or railway; or
  - (ii) within the distances to other protected works as specified in the table:

Load NEQ (kg)	Load division according to 1.1.7				
	1.1	1.2	1.3	1.5	1.6 <sup>a</sup>
>5 – 25	100 m	150 m	<sup>b</sup>	<sup>b</sup>	100 m
>25 – 250	150 m	200 m	60 m	150 m	150 m
>250 – 1,000	200 m	200 m	60 m	200 m	200 m
>1,000 – 5,000	400 m	250 m	100 m	400 m	400 m
>5,000 – 10,000	500 m	300 m	150 m	500 m	500 m
>10,000 – 20,000	600 m	300 m	200 m	600 m	600 m
>20,000 – 40,000	750 m	350 m	200 m	750 m	750 m
Table notes <sup>a</sup> The risk from articles of Division 1.6 is limited to the explosion of a single article and therefore the quantity of explosives referred to, is that of the largest NEQ of any article of the load. <sup>b</sup> This combination of NEQ and load division does not meet explosives category 2 or 3.					

## PART 9

### REQUIREMENTS CONCERNING THE CONSTRUCTION AND APPROVAL OF VEHICLES

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#### CHAPTER 9.1      SCOPE, DEFINITIONS AND GENERAL REQUIREMENTS FOR VEHICLES

##### 9.1.1.2      *Definitions*

“EX vehicle” means a vehicle for the transport of substances and articles of class 1 in a load meeting explosives category 1 or explosives category 2 according to 1.1.8.

“EX3 vehicle” means a vehicle for the transport of substances and articles of class 1 with a load meeting explosives category 3 according to 1.1.8.

**NOTE:** *An EX3 vehicle is considered to meet the requirements of an EX vehicle.*

“Permanently mounted” means a tank, bulk container or load compartment that is fixed to the vehicle, not designed for the carriage of goods without breakage of load, and normally can only be handled when it is empty. It may also include a packaging, where the packaging has been modified to be used as a tank or bulk container.

9.1.2.4      EX vehicles, EX3 vehicles and MPUs shall comply with the relevant requirements of this Part.

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9.1.7\*      Initial inspection of completed EX3 vehicles and MPUs

9.1.7.1      Every complete or completed EX3 vehicle and MPU shall be subjected to an initial inspection to verify conformity with the relevant technical requirements of Chapter 9.3 or 9.8 as appropriate.

9.1.7.2      At the time of this inspection, a vehicle dossier shall be completed and be provided to the purchaser of the vehicle and kept by the vehicle owner. It shall be transferred to the new owner if the vehicle is sold or otherwise transferred.

9.1.7.3      This initial inspection shall be undertaken by a professional engineer who was not involved in the original design of the vehicle.

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\* Note: This section will not replace 9.1.7 in the draft Code published with the C-RIS. There will be a renumbering prior to approval of the final code if this section is adopted.

## CHAPTER 9.2 REQUIREMENTS FOR FL AND AT VEHICLES USED FOR THE TRANSPORT OF TANKS

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### 9.2.2.8 Electrical equipment

#### 9.2.2.8.1 General provisions

The installation shall be so designed, constructed and protected that it cannot provoke any unintended ignition or short circuit under normal conditions of use of vehicles.

#### 9.2.2.8.2 Wiring

##### 9.2.2.8.2.1 Cables

No cable in an electrical circuit shall carry a current in excess of that for which the cable is designed. Conductors shall be adequately insulated.

The cables shall be suitable for the conditions in the area of the vehicle, such as temperature range and fluid compatibility conditions as they are intended to be used.

The cables shall be in conformity with the requirements of AS 2809.

Cables shall be securely fastened and positioned to be protected against mechanical and thermal stresses.

##### 9.2.2.8.2.2 Additional protection

Cables located to the rear of the driver's cab and on trailers shall be additionally protected to minimize any unintended ignition or short-circuit in the event of an impact or deformation. They shall consist of both positive and negative wires.

The additional protection shall be suitable for the conditions during normal use of the vehicle.

The additional protection is complied with if multicore cables in conformity with AS 2809 or one of the examples in figures 9.2.2.8.2.2.1 to 9.2.2.8.2.2.4 below or another configuration that offers equally effective protection.

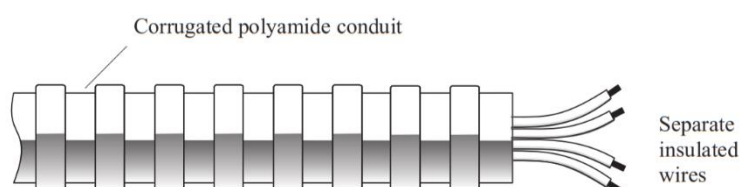


Figure 9.2.2.8.2.2.1

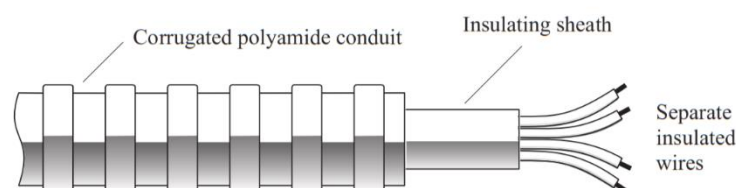


Figure 9.2.2.8.2.2.2

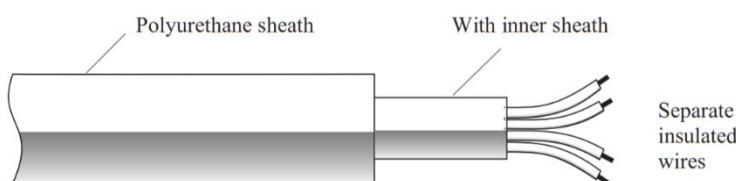


Figure 9.2.2.8.2.2.3

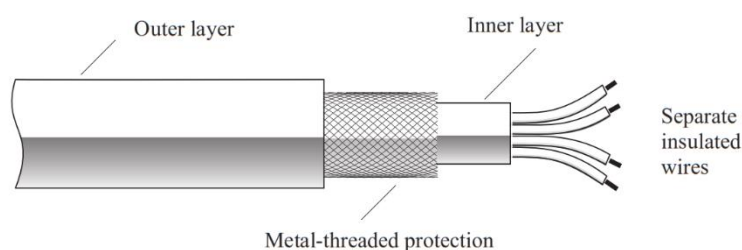


Figure 9.2.2.8.2.2.4

#### 9.2.2.8.3 *Fuses and circuit breakers*

All circuits shall be protected by fuses or automatic circuit breakers, except for the following:

- From the starter battery to the cold start system;
- From the starter battery to the alternator;
- From the alternator to the fuse or circuit breaker box;
- From the starter battery to the starter motor;
- The above unprotected circuits shall be as short as possible.

#### 9.2.2.8.4 *Batteries*

Battery terminals shall be electrically insulated or the battery shall be covered by an insulating cover.

Batteries which may develop ignitable gas and are not located under the engine bonnet, shall be fitted in a vented box.

#### 9.2.2.8.5 *Electrical connections between motor vehicles and trailers*

##### 9.2.2.8.5.1 Electrical connections shall be designed to prevent:

- Ingress of moisture and dirt; the connected parts shall have a protection degree of at least IP 54 in accordance with AS 60529;
- Accidental disconnection

9.2.2.8.5.2 Electrical connections for other purposes concerning the proper functioning of the vehicles or their equipment may be used provided they comply with the requirements of 9.2.2.8.5.1.

#### 9.2.2.8.6 *Battery isolation switch*

9.2.2.8.6.1 A switch for breaking the electrical circuits shall be placed as close to the battery as practicable. If a single pole switch is used it shall be placed in the supply lead and not in the earth lead.

9.2.2.8.6.2 A control device to facilitate the disconnecting and reconnecting functions of the switch shall be installed in the driver's cab. It shall be readily accessible to the driver and be distinctively marked. It shall be protected against inadvertent operation by either adding a protective cover, by using a dual movement control device or by other suitable means. Additional control devices may be installed provided they are distinctively marked and protected against inadvertent operation. If the control device(s) are electrically operated, the circuits of the control device(s) are subject to the requirements of 9.2.3.5.4

9.2.2.8.6.3 The switch shall break the circuits within 10 seconds after activation of the control device.

9.2.2.8.6.4 The switch shall have a casing with protection degree IP 65 in accordance with AS 60529.

9.2.2.8.6.5 The cable connections on the switch shall have protection degree IP 54 in accordance with AS 60529. However, this does not apply if these connections are contained in a housing which may be the battery box. In this case it is sufficient to insulate the connections against short circuits, for example with a rubber cap.

9.2.2.8.6.6 The vehicles electrical system shall be fitted with a roll-over device to actuate the battery isolation switch in the event of a vehicle roll-over.



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## CHAPTER 9.3      REQUIREMENTS FOR VEHICLES FOR THE TRANSPORT OF CLASS 1 SUBSTANCES AND ARTICLES

### 9.3.1      **Materials to be used in the construction of vehicle bodies**

No materials likely to form dangerous compounds with the explosive substances carried shall be used in the construction of the body.

### 9.3.2      **Combustion heaters and auxiliary air-conditioning equipment**

9.3.2.1      Combustion heaters shall not be fitted to vehicles for the transport of class 1

9.3.2.2      Any auxiliary air-conditioning equipment for the cabin of the vehicle shall be installed in a way that does not create a risk to the explosives being transported.

### 9.3.3      **General requirements for all EX and EX3 vehicles**

9.3.3.1      Any load area or compartment used for the transport of substances or articles of class 1 shall comply with the requirements of explosives compartments set out in Chapter 6.16.

9.3.3.2      Fastenings of permanently mounted explosives compartments and freight containers shall be capable of absorbing, under the maximum permissible load, the following separately applied static forces:

- In the direction of travel: twice the total mass multiplied by the acceleration due to gravity (g);
- Horizontally, at right angles to the direction of travel: the total mass multiplied by the acceleration due to gravity (g);
- Vertically upwards: the total mass multiplied by the acceleration due to gravity (g);
- Vertically downwards: twice the total mass multiplied by the acceleration due to gravity (g).

**NOTE:** The requirements of this paragraph do not apply to twist lock tie-down devices in compliance with AS 3711.3:2015 "Freight containers Corner fittings". However, the requirements apply to any frames or other devices used for support of such fastenings on the vehicle.

9.3.3.3      Any surfaces of the vehicle in contact with packages containing substances and articles of class 1, shall be clean, in good condition, and free of any defects or projections likely to cause damage to packages during transport.

9.3.3.4      All load securing devices shall be in good condition and effective for their designed purposes.

9.3.3.5      Vehicles with an electric drive train shall not be used for EX vehicles.

**NOTE:** this likewise applies to hybrid vehicles that include an electric power train in the mechanical driveline of an internal combustion engine.

### 9.3.4      **Requirements for EX3 vehicles for the carriage of an explosives category 3 load**

**NOTE 1:** 9.3.4 only applies to vehicles transporting an explosives category 3 load and does not apply to vehicles registered by the department of defence.

**NOTE 2:** This section is based on the requirements for high security risk loads from the AEC, which has been merged with explosives category 3.

#### 9.3.4.1      **General**

9.3.4.1      The vehicles shall be designed, constructed and equipped so that the explosives are protected from external hazards and the weather. These vehicles shall be closed. The driver's compartment shall be separated from the load compartment by a continuous wall. The loading surface shall be continuous. Load restraint anchorage points may

be installed. All joints shall be sealed. All openings shall be capable of being locked. They shall be so constructed and placed as to overlap at the joints.

#### **9.3.4.2 Firescreens**

9.3.4.2.1 The vehicle shall be fitted with both horizontal and vertical fire screens as defined in this section, except where:

- (a) All explosives compartments are fitted with horizontal firescreen(s) meeting the requirements of 9.3.4.2.2;
- (b) All explosives compartments adjacent to the vehicle cabin are fitted with vertical firescreen(s) meeting the requirements of 9.3.4.2.3.

**NOTE 1:** *The vehicle tray may function as the horizontal firescreen, provided it meets the performance requirements.*

**NOTE 2:** *The end wall of a freight container may function as the vertical firescreen, provided it meets the construction requirements in this section. Forward facing container doors alone are not considered to meet this requirement in the absence of other mitigations. To provide equivalent resistance to a continuous firescreen, doors or other gaps in the horizontal or vertical face of the firescreen shall be covered and protected.*

9.3.4.2.2 Horizontal firescreens shall:

- (a) Be made of steel no less than 3 mm thick;
- (b) Cover the whole of the vehicle tray or chassis.

9.3.4.2.3 Vertical firescreens shall:

- (a) be of steel not less than 3 mm thick;
- (b) extend to the full width of the explosives compartment and from the top of the vehicle passenger compartment down to the horizontal firescreen;
- (c) meet the horizontal firescreen for the full length of the contact line of the firescreens; and
- (d) be so fitted that there is an air gap of at least 100 mm between the vertical firescreen and the passenger compartment.

#### **9.3.4.3 Engine, fuel tank and explosives compartment**

9.3.4.3.1 The engine propelling the vehicle shall be placed forward of the front wall of the load compartment; it may nevertheless be placed under the load compartment, provided this is done in such a way that any excess heat does not constitute a hazard to the load by raising the temperature on the inner surface of the load compartment above 80 °C.

9.3.4.3.2 The vehicle engine shall be a compression ignition engine which uses a combustible liquid as a fuel.

**NOTE:** *Vehicles with an electric drive train are not permitted for the transport of explosives.*

9.3.4.3.3 Where the engine is fitted with an alternator, the battery isolation switch shall be of a type which automatically opens the alternator field coil circuit immediately before the battery is isolated.

9.3.4.3.4 Where the vehicle fuel tank is located to the rear of the vertical firescreen, it shall be:

- (a) mounted below the horizontal firescreen;
- (b) protected so that the likelihood of accidental damage is minimal; and
- (c) designed to prevent accumulation of spilt fuel on any part of the vehicle.

#### **9.3.4.4 External heat sources and explosives compartment**

9.3.4.4.1 The exhaust system of the vehicle or other parts of these complete or completed vehicles shall be so constructed and situated that any excess heat shall not constitute

a hazard to the load by raising the temperature on the inner surface of the load compartment above 80 °C.

9.3.4.4.2 The exhaust shall be located no less than 50 mm below the horizontal firescreen.

**9.3.4.5 *Electrical equipment***

9.3.4.5.1 The electrical installation shall comply with the requirements of 9.2.2.8

9.3.4.5.2 There shall be no electrical installation in an explosives compartment.

9.3.4.5.3 No wiring shall be positioned inside an explosives compartment.

**9.3.4.6 Additional fire-fighting equipment for EX3 vehicles**

9.3.4.6.1 EX3 vehicles shall be fitted with a fixed fire fighting system in accordance with 8.1.4.3.3. This shall be additional to the fire extinguishers required by 8.1.4.1.

9.3.4.6.2 Alternatively, an EX3 vehicle may be equipped with an equivalent capacity of additional extinguishing agent in portable extinguishers as required by 8.1.4.3.3, installed in accordance with 8.1.4.5.

9.3.4.6.3 Additional fire-fighting equipment for EX3 vehicles shall be subjected to a suitable inspection and maintenance regime.

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## CHAPTER 9.8 ADDITIONAL REQUIREMENTS CONCERNING COMPLETE AND COMPLETED MPUS

### 9.8.1 General provisions

9.8.1.1 In addition to the vehicle proper, or the units of running gear used in its stead, a MPU comprises one or more tanks and bulk containers, their items of equipment and the fittings for attaching them to the vehicle or to the running-gear units.

9.8.1.2 The design of an MPU shall comply with the design and construction requirements of the standards or codes listed below, except that this code shall prevail to the extent of any inconsistency.

Column (4) gives the latest date when existing type approvals shall be automatically withdrawn; if no date is shown the type approval remains valid until it expires.

Reference	Title	Applicable for new type approvals or for renewals	Latest date for withdrawal of existing type approvals
(1)	(2)	(3)	(4)
[PLACEHOLDER]	[PLACEHOLDER]	Until further notice	

### 9.8.2 Requirements concerning tanks and bulk containers

Tanks, bulk containers and special compartments for packages of explosives of MPUs shall meet the requirements of Chapter 6.12.

### 9.8.3 Electrical bonding of MPUs

Tanks, bulk containers and special compartments for packages of explosives made of metal or of fibre-reinforced plastics material shall be linked to the chassis by means of at least one good electrical connection. Any metal contact capable of causing electro-chemical corrosion or reacting with the dangerous goods carried in the tanks and bulk containers shall be avoided.

### 9.8.4 Stability of MPUs

The stability of the MPU shall meet the requirements of 9.2.2.4, except for 9.2.2.4.3.

The design of the MPU shall be such that it is as stable as is practicable, whether determined using stability angle or the SRT method.

### 9.8.5 Rear protection of MPUs

A bumper sufficiently resistant to rear impact shall be fitted over the full width of the tank at the rear of the vehicle. There shall be a clearance of at least 100 mm between the rear wall of the tank and the rear of the bumper (this clearance being measured from the rearmost point of the tank wall or from protecting fittings or accessories in contact with the substance being carried). Vehicles with a tilting shell with rear discharge do not require a bumper if the rear fittings of the shell are provided with a means of protection which protects the shell in the same way as a bumper.

NOTE: This provision does not apply to MPUs where the tanks are protected adequately against rear impact by other means, e.g. machinery or piping not containing dangerous goods.

9.8.6 (Reserved)

### 9.8.7 Additional safety requirements

- 9.8.7.1 MPUs shall be equipped with automatic fire extinguisher systems for the engine compartment.
- 9.8.7.2 Protection of the load by metal thermal shields against tyre fire shall be provided.

**9.8.8 Additional security requirements**

Process equipment and special compartments in MPUs shall be fitted with locks.

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