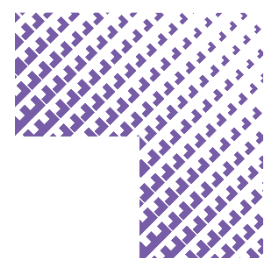




# Provisions for the transport of explosives in the ADG Code

Supplementary Consultation Paper

National Transport Commission | 28 October 2024



# Report Outline

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<b>Title</b>	Provisions for the transport of explosives in the ADG Code
<b>Purpose</b>	The purpose of this consultation paper is to seek feedback and comment from stakeholders on issues in the draft ADG Code that are particular to class 1 explosives transport.
<b>Abstract</b>	<p>In November 2020, transport and infrastructure ministers approved the NTC’s recommendation to conduct a comprehensive review of the Australian Code for the Transport of Dangerous Goods by Road and Rail (the Code). Ministers also supported that the Code be expanded to include Class 1 Explosives and that the NTC incorporate into the Code principles from both:</p> <ul style="list-style-type: none"><li>• the Agreement for the International Transport of Dangerous Goods by Road (ADR)</li><li>• the Agreement for the International Transport of Dangerous Goods by Rail (RID).</li></ul> <p>This paper is an additional consultation paper relating to the inclusion of substances and articles of class 1 (explosives) in the new ADG Code.</p>
<b>Attribution</b>	<p>This work should be attributed as follows, Source: Provisions for the transport of explosives in the ADG Code – Supplementary consultation paper.</p> <p>If you have adapted, modified or transformed this work in any way, please use the following, Source: based on National Transport Commission, Provisions for the transport of explosives in the ADG Code – Supplementary consultation paper.</p>
<b>Key words</b>	Dangerous goods, ADG Code review, transport, ADR, class 1, explosives
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# Executive Summary

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## Context

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A full review of the Australian Dangerous Goods Code (the ADG Code) has not been conducted for over a decade.

The ADG Code is applicable across Australia, and adherence to it by all relevant parties ensures specific risks posed through transport of dangerous goods by land are effectively managed.

In 2020, transport and infrastructure ministers agreed for the NTC to conduct a full review of the ADG Code. The NTC's responsibility for the ADG Code's content and stakeholder engagement over several years, highlighted that the road and rail specific requirements of the ADG Code in particular, do not fully support the smooth and safe movement of dangerous goods across borders and transport modes.

The purpose of the review, therefore, is to ensure that the ADG Code is reflective of the Australian transport environment, draws upon road and rail mode specific concepts used elsewhere in the world where appropriate, and considers inclusion of explosives as regulated dangerous goods under the ADG Code's requirements.

The transport of explosives in Australia is regulated using the Australian Code for the Transport of Explosives by Road and Rail (the AEC), which has not been updated since 2009. The ADG Code Review provides an opportunity to update and bring provisions for the transport of explosives into the new ADG Code. This additional paper has been prepared to ensure that the NTC has undertaken proper consultation on these changes.

## Themes - Introduction

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### About this review

In November 2020, transport and infrastructure ministers approved the NTC's recommendation to conduct a comprehensive review of the ADG Code.

The review seeks to better align Australia with international practices contained in the international codes for the land transport of dangerous goods by road or rail and will focus on improving transport of dangerous goods safety outcomes.

### Context of issues

This paper examines changes for class 1 that have been recommended by the Explosives Working Group and the NTC. The draft changes have been compiled for formal consultation with the wider community of explosives stakeholders, including consignors, carriers, drivers and regulators.

The NTC will take the feedback received in response to this paper and the C-RIS for the code overall and develop a code that will be recommended for approval by transport ministers in 2025.

### Discussion of the changes

The AEC is significantly out of date, and the current version was published in 2009. In addition to a lack of Australian review, many changes at the international level have not been incorporated. Further, there is no foreseeable prospect of maintaining a standalone explosives code.



Incorporation of class 1 matters into the ADG Code will support more effective maintenance and reviews of class 1 transport provisions. These benefits include:

- The same alignment to the UN processes as the ADG Code
- The ongoing updates that flow from the UN
- Greater consistency with other dangerous goods transport requirements.

There will be some adjustments to terminology because of the integration but matters not relating to transport are not addressed as a part of this work, aside from some minor matters. Additionally, this work does not address licensing and legislative issues for the transport of explosives, which remains a jurisdictional matter for each of the states and territories.

## **Themes - Draft changes and consultation issues**

### **Code Part 1 – General**

A new framework for low hazard explosives is recommended, based on the work of the explosives working group. The import and export provisions have also been moved to Part 1. This chapter also discusses updates to the methods of assigning loads of explosives to categories for transport. It also includes updates to duties from the AEC and incorporates security principles from both the AEC and the ADR.

### **Code Part 2 – Classification**

There are no significant changes to these requirements, other than modernisation of the provisions.

### **Code Part 3 – DG list and special provisions**

The NTC is seeking feedback on four special provisions for transport, the use of limited quantities provisions, and tanks and IBCs for explosives transport.

### **Code Part 4 – Packaging and tanks**

There are no significant changes to these requirements, other than modernisation of the provisions.

### **Code Part 5 – Consignment procedures**

Some adjustments are proposed to the provisions for marking and labelling of class 1, including issues relating to inner packagings and articles. We are seeking feedback on minor amendments to placarding requirements, and suggested inclusions in transport documents for explosives.

### **Code Part 6 – Containment systems**

The NTC proposes to update the requirements for explosives load compartments used for the carriage of explosives.

### **Code Part 7 – Loading, unloading and handling**

The amendments in part 7 merge the provisions in ADR and those currently applied by the AEC into a single set of loading, unloading and handling provisions for explosives. This also includes segregation provisions.





## **Code Part 8 – Vehicle crews and operations**

Part 8 applies to requirements that are typically applied to drivers and vehicle crews, including emergency equipment, and provisions to ensure that vehicles are operated safely.

## **Code Part 9 – Vehicles**

Part 9 is a new set of requirements for the ADG Code that incorporates all the relevant provisions for the design, construction and maintenance of vehicles used for transport. The NTC recommends the creation of specific vehicle types to more readily specify and communicate vehicle requirements, along with the inclusion of provisions for MPUs.

## **Next steps**

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Consultation on this issues paper will close on 10 December 2024.

The responses to this paper will be used to prepare recommendations for the inclusion of transport of explosives (class 1) into the new ADG Code.



# 1. Introduction

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## 1.1. About this review

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A set of Review Principles was developed to guide the review and give it the best chance of delivering the right outcome. These principles were developed with regard to the following key considerations:

- impacts and benefits
- stakeholder engagement
- maintaining currency of the ADG Code and associated model laws.

During the course of the review, an Explosives Working Group has reviewed both the AEC and ADR. This will allow incorporation of class 1 explosives into the future code.

The Consultation Regulatory Impact Statement (C-RIS) and draft ADG Code were published on 30 September 2024. This paper is to support consultation on:

- Amendments suggested by the Explosives Working Group
- Recommendations by the NTC on how to address explosives matters as a part of the ADG Code Review.

The NTC will use feedback from this paper in making recommendations to ministers on the inclusion of explosives in the ADG Code in 2025. Unlike earlier working papers, this paper will be used to develop recommendations.

Please note that the C-RIS uses the term “the Code”, rather than “the ADG Code”. To minimise confusion between the ADG Code and the AEC, this paper uses the term “the ADG Code”.

## 1.2. Context of issues

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The Australian Code for the Transport of Explosives by Road and Rail (the AEC) has not been updated since its third edition, published in 2009. During this time, there have been changes to the transport of explosives at the international level. However, without a maintainer for the AEC, it has not been updated.

As a part of the ADG Code Review, Ministers endorsed the NTC’s recommendation to incorporate class 1 into the ADG Code. At the international level, class 1 is treated alongside the other classes of dangerous goods. Many of the provisions for transport are the same, though there are additional class 1 specific requirements.

In Australia, the regulation of class 1 (and class 7) is separate to other dangerous goods. This is typically under different legislation, though often by the same regulatory agencies. Regardless, both the AEC and the ADG Code come from the UN model regulations. Incorporating the AEC into the ADG Code solves the lack of a maintenance framework for explosives transport.

This separate history has made incorporating the class 1 provisions into the ADG Code a challenging process. The small volume of provisions specific to class 1 has made the process manageable.

States and territories will need to update their explosives legislation to refer to the new ADG Code. The lack of model legislation in explosives will make this process one that needs to be managed by each jurisdiction. The NTC hopes that states and territories will use model dangerous goods transport legislation for explosives as well. This alone cannot solve harmonisation issues outside of transport. But



it does provide an opportunity to increase the level of harmonisation between jurisdictions for the transport of class 1.

The NTC would particularly like to thank the chair and members of the Explosives Working Group for their dedication and hard work in reviewing the existing requirements and those of the ADR. Their work and recommendations are critical in forming the draft provisions under discussion.

## 1.3. Discussion of the changes

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### Why incorporate class 1 into the ADG Code?

The Third edition of the AEC was published in 2009 and has not been kept up to date with the current UN Model Regulations. No body or agency is readily available to maintain it as a standalone document. Additionally, many of the requirements in the AEC are derived from earlier editions of either the ADG Code or the ADR (this is also true of the ADG Code).

As the UN Model Regulations and the ADR both cover the transport of class 1, the NTC supports the inclusion of class 1 in the ADG Code. The ADG Code Review provided an opportunity to do so.

We understand that some users of the AEC may be disappointed that the class 1 requirements are now part of the ADG Code. While it is a larger, more complex document, there are several advantages to this. No other body willing to maintain the AEC was identified, and the workload in maintaining a standalone AEC means that it is not practicable for the NTC to produce such a document.

Meanwhile, the ADG Code is updated every two years. With integration into the ADG Code, the provisions for class 1 will be updated biennially as well. This means explosives will benefit from developments in international regulations, including by Australia's major trading partners.

### Maintenance and reviews of provisions relating to class 1

As with other dangerous goods, the alignment to ADR provides an opportunity to more readily maintain the provisions for class 1 that have come from ADR.

However, as discussed in this paper, the new ADG Code includes many provisions that are derived from the AEC, with some modernisation. This will require an ongoing effort to maintain these provisions and update them as necessary. This is also true of the Australian-specific provisions in the ADG Code. The NTC recommends that these divergences should be reviewed, and where practicable, minimised as much as possible.

In particular, the ADG Code has over time worked to eliminate matters that are not related to transport. A few matters related to markings on Class 1 inner packagings and articles have been retained. However, the NTC's preference is that alternative locations for these requirements are found so that they can be removed from the ADG Code in future. The NTC is interested to understand the value of these provisions as part of this consultation.

### Terminology

A critical aspect of producing a coherent document, and one that can be readily maintained is the use of consistent terminology. We have made efforts to align the terminology for class 1 with that used in the draft of the ADG code.

Some specific examples of changes to terminology to align with the draft ADG Code include:

- use of the term carriage instead of transport.
- shall and should instead of must and may.



We've aimed to maintain Australian terminology in cases where it is manageable. For example, we've continued to use the term net explosive quantity (NEQ), rather than net explosive mass, which is the preferred term in ADR. ADR itself notes in the definitions that these convey the same meaning.

Additionally, the new ADG Code uses the following terminology:

“Bulk” refers to transport under a BK instruction, found in column (10) of the DG List. This uses a bulk container meeting the provisions of Chapter 6.11 of the ADG Code. It does not refer to transport in tanks or in packages, including IBCs.

“Tank” transport refers to transport under either a TP instruction found in column (10) or a non-UN tank instruction found in column (12) of the DG List.

“Package” transport refers to transport under a packing instruction found in column (8) of the DG List.

This paper proposes the elimination of tank instructions for class 1, so all explosives transport will fall under package transport under the ADG Code.

### **Terminology relating to dangerous goods and explosives**

In the draft ADG Code, the term “dangerous goods”, when used without qualification, refers to all dangerous goods, including class 1 explosives. The terms “explosives” and “class 1” are used interchangeably. Because of the varied sources of information used in developing the draft ADG Code and the provisions for this paper, the usage of these terms may be inconsistent in the draft.

However, as a part of the work to compile the ADG Code, quality checks will be undertaken to ensure that the language that is used is consistent across the ADG Code.

### **Vehicle terminology**

The Explosives Working Group recommended the creation of a specific vehicle type for explosives.

Following the naming system used in the ADR and the draft ADG Code, the NTC recommends that these be described as “EX vehicles”. Further, we've used the term “EX3 vehicles” for vehicles with requirements for the transport of explosives category 3 loads.

### **Inclusion of MPUs in the ADG Code**

The ADG Code has not historically included provisions for mobile processing units (MPUs), used for the manufacture of explosives. The style and structure of ADG 7 did not readily enable this to be included. This is mostly due to ADG 7 only recognising vehicles fitted with tanks in the context of the AS 2809 series of standards.

However, with the ADR as the source document for the new ADG Code, this is much more readily enabled. The ADR includes chapters on the design, construction and use of MPUs, and so we propose to follow this structure. However, due to the special nature of these vehicles, the requirements remain quite high-level. The NTC does not expect that the inclusion of MPUs in the draft provisions will have a material impact on these but will ensure that the use of them can be appropriately regulated.

There are some specific questions in this paper that will help ensure that the new ADG Code includes appropriate provisions relating to MPUs.

### **Other matters relating to explosives**

The NTC does not expect that the incorporation of class 1 into the ADG Code will impact on matters not related to transport of explosives. However, we will work with the competent authorities responsible for



class 1 regulation and the explosives transport industry to help ensure that the ADG Code suitably reflects or accommodates issues particular to class 1. This might include:

- Processes relating to the Australian Forum of Explosives Regulators and the Competent Authorities Panel.
- Provisions relating to competent authority authorisation of drivers, equivalent to those for licensing drivers for other dangerous goods transport.
- Consultation on updates and proposed revisions to the UN Model Regulations.

## 1.4. Further consultation

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The NTC anticipates that additional consultation will be required on specific issues raised in response to this paper. We will be undertaking issue-specific consultation on these as we develop our final recommendations for the ADG Code to be approved for use.

## 1.5. Attachments to this paper

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This paper is provided with two appendices attached.

### Appendix A – Draft ADG Code provisions for class 1 explosives

Appendix A is a compilation of the provisions in the new ADG Code relating to the transport of explosives. It does not include global requirements that apply to class 1 as well as other dangerous goods (e.g. emergency notification requirements). This is not intended to be a stand-alone document for class 1 and must not be read as one.

However, to aid the reader, where relatively brief contextual information is considered useful, we have provided it in Appendix A. To clarify these inclusions, we have marked it with a red right hand border. This paragraph is marked as an example.

Note that there were some changes suggested by the explosives working group that have been adopted more generally in the ADG Code (such as overpack requirements). These have generally not been included here. However, they can be found in the full draft of the ADG Code, published as attachment D to the C-RIS for the ADG Code Review.

### Appendix B – Dangerous goods list extract for class 1 explosives

Appendix B is a spreadsheet extract of the dangerous goods list for the class 1 entries. Note that the discussion items in this paper may result in modifications to the dangerous goods list, such as tank instructions or special provisions.

Should a reader of this document wish to review the complete dangerous goods list, a copy is attached as appendix G to the C-RIS for the ADG Code Review.



## 2. Draft changes and consultation issues

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### 2.1. Code Part 1 – General

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#### Key points

- A new framework for low hazard explosives has been recommended, along with reworked import and export provisions.
- This chapter also discusses updates to the methods of assigning loads of explosives to categories for transport.
- It also includes updates to duties from the AEC and incorporating security principles from both the AEC and the ADR.

#### Concessions for low hazard explosives

The Explosives Working Group has requested that the current concessions that apply to explosives of 1.4S be revised.

To achieve this, the provisions in the draft of the ADG Code presents a new concept – *low hazard explosives*. These are made up of explosives variously falling into 1.4C, 1.4G and 1.4S that often do not require licensing under state and territory legislation.

As these are a general concession from transport requirements, they are found in 1.1.3.14 in the draft ADG Code.

#### Definition of low hazard explosives

The Explosives Working Group has suggested a definition for low hazard explosives, and the NTC is seeking input on this definition. Unlike the UN model regulations and ADR, which generally assign concessions solely because of classification in division 1.4S, the Explosives Working Group has suggested that the concessions should be more targeted at explosives commonly used by the public. The range of explosives in 1.4S includes products with higher level safety and security concerns than those proposed for the definition of low hazard explosives.

The UN model regulations describe compatibility group S (which is only available for division 1.4) as a:

“Substance or article so packed or designed that any hazardous effects arising from accidental functioning are confined within the package unless the package has been degraded by fire, in which case all blast or projection effects are limited to the extent that they do not significantly hinder or prevent fire-fighting or other emergency response efforts in the immediate vicinity of the package.”

Given the definition of 1.4S provided, the NTC is seeking input on which of the following approaches is more appropriate:

- Adopting the concept of low hazard explosives suggested by the Explosives Working Group, or
- Continuing the use of 1.4S as the deciding factor in providing extensive concessions.

The suggested inclusions in the definition of low hazard explosives provided by the Explosives Working Group are provided below. The descriptions provided would further limit the application of low hazard explosives within the UN number entries listed in the table.



While it is typical to list entries in a table by UN number, the Explosives Working Group has advised that listing UN numbers may be problematic. This comes from the variety of UN numbers these products can be reasonably classified under, which may result in products being excluded from the definition due to an unexpected classification. The provision of UN numbers in the table is only indicative, we are also seeking input on whether these should be included in the table or left off.

UN No.	Classification Code	Description
0325 0454	1.4G 1.4S	Igniters
0014 0323	1.4S	Explosive power tool cartridges
0337	1.4S	Toy fireworks, including: <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>• Sparklers</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	1.4G 1.4S	Model rocket motors with no more than 62.5 g NEQ per motor
0503	1.4G	Airbag inflators
0012 0431 0432 0405	1.4G	Bird scaring ammunition
0191 0197 0312 0405 0505 0506 0507	1.4G	Distress signals
0193	1.4S	Railway track signals
0197 0431 0507	1.4G 1.4S	Smoke generators

We are seeking input on the following questions in relation to the definition of low hazard explosives. It should be noted that regardless of whether 1.4S explosives are included in the definition of low hazard explosives or not, they will continue to be subject to an “unlimited” threshold for explosives category 1, according to the definition provided in 1.1.8.

One potential challenge that may arise from this approach is that it may not be readily apparent from documentation whether a load is entirely made up of low hazard explosives. Given the nature of low hazard explosives and the way they are transported, this may not be a significant issue.



If needed, the NTC can consider ways to address this, such as requiring consignors to identify a load as being made up of only low hazard explosives, to aid carriers in making appropriate decisions.

- Question 1:** Which of the following options do you support for the definition of low hazard explosives? Please provide your reasoning.
- Option 1: Only low hazard explosives meeting the description suggested by the Explosives Working Group (as per the table), or
- Option 2: Continuing the AEC approach of concessions only for explosives of classification code 1.4S.
- Question 2:** Should the table of low hazard explosives in the ADG Code include UN numbers in addition to the classification code and product description? Please provide your reasoning.
- Question 3:** Are there any entries (UN numbers, DG list entries or product descriptions) that:
1. Are listed in the table above that should not be considered low hazard explosives, or
  2. Are not listed in the table above that should be considered low hazard explosives?
- Please provide your reasoning.

## Concessions for the transport of low hazard explosives

The Explosives Working Group has recommended the inclusion of two concessions relating to the transport of low hazard explosives:

- A 1 kg (NEQ) absolute exemption for transport by a private person or business for their own use.
- A substantial, but more limited concession for the transport of low hazard explosives by a business undertaking transport. This would allow up to 50 kg (NEQ) of 1.4C or 1.4G low hazard explosives, and an unlimited quantity of 1.4S low hazard explosives.

**Question 4:** Do you consider that the limits provided in the draft (in 1.1.3.14.3) are appropriate? Please provide your reasoning.

In addition to the concessions above, the NTC is seeking feedback on situations where low hazard explosives may be transported with other dangerous goods. The NTC proposes to permit such transport if the following conditions are met:

1. The low hazard explosives are within the limits set out above (up to 50 kg of low hazard 1.4C or 1.4G explosives, and an unlimited quantity of 1.4S explosives); and
2. Other dangerous goods, provided they are transported under the small load concessions as set out in 1.1.3.6 of the draft ADG Code (this is equivalent to “less than a placard load” under the current ADG code).

The draft ADG Code has replaced the concept of a “less than placard load” with a “small load”. This provides concessions when the quantity of dangerous goods is below a certain threshold (1000 kg in





most cases, with lower thresholds for higher risk goods). These concessions include the requirement to placard a vehicle, carry certain safety equipment and to segregate dangerous goods.

These provisions would mean that a transporter could transport low hazard explosives along with other dangerous goods, but not in circumstances where the vehicle is (or needs to be) placarded for the transport of dangerous goods.

**Question 5:** Do you consider the conditions set out for transport of low hazard explosives and other dangerous goods are appropriate? Please provide your reasoning.

## Import and export provisions

The NTC has moved the provisions relating to import and export to 1.1.4 in the new ADG Code, as they are triggered by the transport of dangerous goods under other regulations. We've included a provision that ensures that in cases other than import or export, the use of a freight container requires that it conform to the standard requirements for explosives load compartments laid down in Chapter 6.16 of the new ADG Code. This includes transport wholly within Australia that includes a maritime journey.

The NTC is seeking input on whether there are any other provisions that we should consider to manage unnecessary import or export barriers.

**Question 6:** Are there other import or export scenarios that you consider require conditional concessions to prevent unnecessary intermodal barriers? Please:

1. outline the scenarios where this occurs; and
2. appropriate controls to manage it.

Please provide your reasoning.

## Mixed loads of explosives and explosives categories

Section 1.1.7 of the new ADG Code has incorporated the AEC method of determination of division for mixed loads of explosives. While this is more complex than the ADR method of simply assigning the division based on a hierarchy, the Explosives Working Group recommended that Table 7.1 from the AEC should be carried over to the new ADG Code. One change was recommended, that a mixed load of division 1.3 and division 1.6 should have a resultant division of 1.1, rather than 1.3 as found in the AEC. This is a more appropriate determination of the effect of a fire involving a load of division 1.3 and division 1.6 explosives and brings the rules into alignment with explosives storage practices.

Section 1.1.8 of the new ADG Code contains the definition and method of calculating the explosives category of the load. This has largely adopted the same provisions as Chapter 2 of the current AEC, with some modifications recommended by the Explosives Working Group.

The Explosives Working Group recommended the elimination of detonator entries in the table, simplifying the calculation based on NEQ. This is in line with other aspects of class 1 regulation, where NEQ is a defining characteristic for hazard determination.

When ammonium nitrate is transported with class 1, the total mass is treated as division 1.1 or division 1.5 as appropriate. Unlike the AEC, this is the same regardless of the form of the ammonium nitrate (such as solid, mixtures or emulsions). This simplification follows the model used in ADR.

The risk categories are named as *explosives category 1*, *explosives category 2* and *explosives category 3*. These remain fundamentally the same as the AEC categories. It also maintains compatibility with



current systems for assigning these categories. However, the terminology for “low risk”, “moderate risk” and “high risk” categories has been removed, as these terms are only used in Table 2.1 of the AEC. The use of the term “explosives” in the name clarifies that these relate to the transport of class 1 only.

The provisions for “high security risk loads” in the AEC have been assigned to explosives category 3 loads. Under the AEC, most loads in explosives category 3 also meet the definition of a high security risk load. We consider that this modification simplifies the system, without significant additional costs. Additionally, the draft ADG Code includes security provisions for transport in Chapter 1.10, which address many of the same issues. This is discussed in the section on security provisions below.

**Question 7:** After reviewing the draft provisions for Chapter 1.1, do you have any comments, concerns or suggested amendments? Please provide details.

## Duties and safety obligations

Chapter 8 of the AEC includes the duties that apply to explosives transport. In addition to these duties, it also contains many important technical requirements for the transport of class 1 substances and articles. In many cases these are already addressed in the draft ADG Code for dangerous goods, however some requirements specific to the AEC for class 1 are not addressed. As appropriate, these have been distributed to a suitable location in the ADG Code.

Unlike for dangerous goods transport generally, the duties are not set out in a model regulation that has been uniformly adopted nationally. Explosives legislation generally refers to the duties contained in the AEC.

The NTC proposes to include these duties in Chapter 1.4. While we consider that most of these issues are addressed in the safety obligations in Chapter 1.4, we are considering whether to recreate the duties from the AEC in a new section. This will ensure that jurisdictions can continue to reference these duties and avoids creating an unintentional regulatory gap.

The model regulation for the new ADG Code will not exclude dangerous goods of class 1. The NTC hopes jurisdictions will adopt it for the technical aspects of class 1 transport regulation in the same manner as other dangerous goods classes. There will be matters specific to class 1 that will still need to be addressed separately in explosives legislation, such as authorising unsupervised access.

Note that the NTC will need to undertake further work on this chapter to ensure that it is properly drafted in a manner that it is enforceable and effective and is readily able to be referenced in legislation, as necessary. This additional work will take place alongside the work to draft the new model regulation and the duties for explosives will be considered at the same time. The NTC will also undertake additional consultation on this as required.

**Question 8:** After reviewing the draft duties intended for Chapter 1.4, do you have any comments, concerns, or suggested amendments? Please provide details.

## Administrative provisions

### Insurance when transporting explosives

The current AEC requires \$2,500,000 insurance when transporting an explosives category 2 load, and \$5,000,000 when transporting an explosives category 3 load.



This coverage is for:

- (a) property damage, personal injury and other damage (excepting consequential economic loss) arising out of any fire, explosion, leakage or spillage of explosives in, on or from the vehicle or a container transported on the vehicle; and
- (b) costs incurred by or on behalf of a government authority or other agency in a clean-up resulting from any event of the kind referred to in (a).

As for other dangerous goods, the NTC is seeking information on what is an appropriate level of insurance coverage for these events, when transporting explosives. The draft provisions are included in Appendix A. Note that while these provisions are drafted with a single value, the NTC can consider different values for:

- Explosives and other dangerous goods
- Explosives category 2 and explosives category 3

**Question 9:** What do you consider to be an appropriate level of insurance for incidents involving the transport of explosives? Please provide your reasoning.

## Transport emergency response planning

As with the AEC, the ADG Code includes provisions relating to emergencies. This requires the preparation of a transport emergency response plan. As a general requirement to apply across dangerous goods transport.

## Authorisation to drive a vehicle transporting explosives

For other dangerous goods, the model regulations contain the requirements to be issued a licence. For explosives, these are found in the AEC. The explosives working group recommended that these provisions are included for when a competent authority may authorise a person to drive a vehicle transporting explosives. Some clarifying amendments have been suggested, these are included in the draft provisions in 1.8.11.

**Question 10:** After reviewing the draft administrative controls for drivers in 1.8.11, do you have any comments, concerns, or suggested amendments? Please provide details.

## Security provisions

The UN Model Regulations and ADR both include security provisions, historically these have not been adopted by the ADG Code. The NTC has included these in the draft of the ADG Code presented for comment, and this is likely to be of particular interest for explosives consignors and carriers.

The general requirements found in 1.10.1 and 1.10.2 that apply to all transport operations are basic in nature and are most likely already implemented by carriers of explosives. Note that as these apply to all transport, some of the inclusions such as licensing may not be relevant to the transport of explosives under explosives legislation.

The more detailed requirements in 1.10.3, which apply to high consequence dangerous goods are more detailed. The contextual definition for high consequence dangerous goods is provided in 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.

The NTC proposes that all explosives other than low hazard explosives should be considered high consequence dangerous goods for transport.

The main requirement of transport of high consequence dangerous goods is the creation of a security plan, meeting provision laid down in 1.10.3.2.

There are additionally a number of security provisions provided for in the current AEC. The NTC has included these in the draft as:

1. Additional security requirements for the transport of class 1 substances and articles, found in 1.10.3.2.3.1-2.
2. Additional security plan requirements for the transport of explosives category 3 loads, including provisions for EX3 vehicles.

**Question 11:** Do you support the proposal to treat all explosives other than low hazard explosives as high consequence dangerous goods for transport? Please provide your reasoning.

**Question 12:** After reviewing the draft provisions for Chapter 1.10, do you have any comments, concerns, or suggested amendments? Please provide details.



## 2.2. Code Part 2 – Classification

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### Key points

- No significant changes to these requirements, other than modernisation of the provisions.

There are no significant changes expected from incorporating the classification requirements for class 1, these are already present in the current AEC. This will ensure that the classification requirements for explosives keep pace with international developments at the UN, as with other dangerous goods.



## 2.3. Code Part 3 – DG list and special provisions

### Key points

- The NTC is seeking feedback on 4 special provisions for transport, the use of limited quantities provisions, and tanks and IBCs for explosives transport.

The current code already includes the UN entries for class 1. There are however several issues the NTC is seeking input on that relate to Part 3 of the new ADG Code, as these provisions have only been informative in the current code.

### Special provisions derived from ADR

There are 4 special provisions that ADR applies to class 1 explosives in addition to those found in the UN Model Regulations. These are special provisions 616, 617, 645 and 651, and are appended to the following entries in the dangerous goods list:

UN No.	Name and descriptions	Classification code	Special provisions
0081	EXPLOSIVE, BLASTING, TYPE A	1.1D	616 617
0082	EXPLOSIVE, BLASTING, TYPE B	1.1D	617
0083	EXPLOSIVE, BLASTING, TYPE C	1.1D	267 617
0084	EXPLOSIVE, BLASTING, TYPE D	1.1D	617
0241	EXPLOSIVE, BLASTING, TYPE E	1.1D	617
0331	EXPLOSIVE, BLASTING, TYPE B (AGENT, BLASTING, TYPE B)	1.5D	617
0332	EXPLOSIVE, BLASTING, TYPE E (AGENT, BLASTING, TYPE E)	1.5D	617
0333	FIREWORKS	1.1G	645
0334	FIREWORKS	1.2G	645
0335	FIREWORKS	1.3G	645
0336	FIREWORKS	1.4G	645 651
0337	FIREWORKS	1.4S	645

Special provisions 617, 645 and 651 only make sense in the context of ADR as it is written. The draft ADG Code is written so these are not required, and they are not being carried over.

The NTC's review indicates that only special provision 616 may still be relevant, and we are seeking input on its inclusion in the new ADG Code:

616            *Substances containing more than 40 % liquid nitric esters shall satisfy the exudation test specified in 2.3.1.*

**Question 13:** Is there a reason why special provision 616 and the exudation test in 2.3.1 should not be included? Please provide your reasoning.

In future, any special provisions that are applied by ADR to class 1 dangerous goods list entries would be examined through a similar process. If such a provision is appropriate for Australian transport, it can be proposed for adoption into the ADG Code.



## Class 1 entries subject to limited quantities (LQ)

3 entries are assigned LQ values in the UN MR. These are all 1.4S entries, and all are assigned an LQ value of 5 kg:

UN No.	Name and descriptions	Classification code	LQ Amount
0012	CARTRIDGES FOR WEAPONS, INERT PROJECTILE or CARTRIDGES, SMALL ARMS	1.4S	5 kg
0014	CARTRIDGES FOR WEAPONS, BLANK or CARTRIDGES, SMALL ARMS, BLANK or CARTRIDGE FOR TOOLS, BLANK	1.4S	5 kg
0055	CASES, CARTRIDGE, EMPTY, WITH PRIMER	1.4S	5 kg

Note that no other UN numbers in class 1 are assigned an LQ value. The assignment of LQ values for these UN numbers was introduced in the UN model regulations in 2011. As the AEC predates this, these entries are not currently assigned LQ values in the AEC. Additionally, the AEC has no method for regulating the transport of class 1 under LQ provisions.

This will not be the case with incorporation of class 1 into the ADG Code. It is also noted that the UN model regulations, ADR and IMDG Code all provide additional controls on class 1 transported under the LQ provisions. The LQ provisions in the draft ADG Code require that these entries fully comply with the packaging provisions of section 4.1.5. These have been included in the draft provisions attached to this paper. While approved packaging is not required (it is exempted in 3.4.1(d)), the packaging is still required to meet the performance requirements of the relevant packing instruction.

The LQ provisions provide additional concessions for the transport of dangerous goods when they meet the relevant requirements:

- The requirement for explosives-specific markings and labels (DG diamonds)
- Requirements for transport documents

The NTC proposes to include these LQ values in the dangerous goods list, to maintain harmonisation. We are aware that these provisions are used in maritime transport into Australia, and so consider it appropriate to include these to prevent intermodal difficulties. We are seeking information on the potential use of LQ provisions to enable a recommendation to be made on this issue. The NTC is also aware that jurisdictions may not necessarily recognise LQ markings as valid in their explosives regulations.

**Question 14:** Is there a reason why the LQ values for class 1 should not be included in the DG list? Please provide your reasoning.

**Question 15:** If you currently import or export articles of UN 0012, UN 0014 or UN 0055 please provide details of any anticipated costs savings from the proposed LQ provisions.

## Use of tanks for the transport of class 1 substances

Initial investigations with the Explosives Working Group suggests that there are no class 1 substances being transported on public roads by tanks in Australia due to the widespread use of explosive precursors such as ammonium nitrate emulsions, suspensions and gels. This is much safer than the



tank transport of class 1 explosives, and a return to this practice seems highly unlikely. Only the following substances contain tank instructions:

UN No.	Name and descriptions	Classification code	ADR tank	Portable tank
0331	EXPLOSIVE, BLASTING, TYPE B (AGENT, BLASTING, TYPE B)	1.5D	YES (S2.65AN(+))	YES (T1)
0332	EXPLOSIVE, BLASTING, TYPE E (AGENT, BLASTING, TYPE E)	1.5D	NO	YES (T1)

The NTC proposes to delete these tank instructions. Given the low likelihood of these substances being transported in tanks in Australia now or in the future, the NTC sees limited risk in simply prohibiting this transport. Should there be a need to transport explosives in tanks, a carrier could seek an exemption from the competent authority to undertake the transport.

The NTC is seeking industry and regulator feedback on the most appropriate approach.

**Question 16:** Do you support the removal of tank instructions for the transport of class 1 substances? Please provide your reasoning.

## Special provisions for carriage

By following the model of ADR, the dangerous goods list will include new columns defining special provisions for carriage. These ensure that there are clear linkages between the particular dangerous goods being transported, and particular provisions that apply to these goods. The special provisions also readily enable the special conditions that apply to transport to be identified and communicated to carriers of dangerous goods. The NTC appreciates that this system will be unfamiliar to Australian transporters at first. However, we consider that enabling clearer communication between consignors and carriers of dangerous goods to be a key benefit.

This will be of lesser benefit to explosives transporters, as certain special provisions are applied near-universally across class 1. However, the NTC considers it important that these are kept, to maintain the overall cohesiveness of the new ADG Code.

This paper discusses the detailed effects of these special provisions for carriage in the sections on Part 7 and Part 8 of the Code.

**Question 17:** Do you have any comments, concerns or suggested amendments relating to Part 3 of the draft ADG Code? Please provide details.





## 2.4. Code Part 4 – Packaging and tanks

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### Key points

- No significant changes to these requirements, other than modernisation of the provisions.

As for classification, no significant impacts are expected from the text as adopted in the draft ADG Code, except for the packing instructions being brought into line with the UN Model Regulations. This compares to the AEC, where these packing instructions have not been reviewed for some time.

As already noted, it has been proposed to delete the tank instructions for class 1.

Part 4 of the code includes specific packing provisions that apply to class 1 in section 4.1.5. These provisions are derived from the UN Model Regulations. These have been included in the draft provisions in appendix A.

**Question 18:** After reviewing the draft provisions for Chapter 4.1, do you have any comments, concerns or suggested amendments? Please provide details.



## 2.5. Code Part 5 – Consignment procedures

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### Key points

- Some amendments are proposed to the provisions for marking and labelling of class 1, including issues relating to inner packagings and articles.
- We are seeking feedback on minor amendments to placarding requirements, and suggested inclusions in transport documents for explosives.

### Marking and labelling of explosives

#### Transport marking and labelling

The AEC includes a number of additional marking and labelling requirements that are beyond those found in ADR. The Explosives Working Group have suggested that the additional marking and labelling requirements be maintained from AEC. These can be found in the draft provisions in 5.2.1.5.

#### Marking and labelling on inner packagings and articles

The ADG Code is a transport code, and therefore does not mandate information that belongs on inner packagings, or articles contained in packagings, as these are not relevant to transport. This change has largely occurred since the adoption of the GHS for labelling, which the current AEC predates.

The Explosives Working Group recommended that the provisions for marking of inner packagings should reference the GHS marking requirements. While this is a move away from the DG-style marking and labelling under the AEC, it better aligns with current practices.

Other non-transport related provisions from the AEC include the requirement for markings on detonator casings and on wrappings of blasting explosives and boosters. These are found in 5.2.1.5.3.2 and 5.2.1.5.3.3 in the draft provisions in Appendix A. Due to the non-transport related nature of these provisions, the NTC's preference is that these provisions are not included in the ADG Code. We are concerned that these requirements may represent an unnecessary barrier to trade.

To support the integration of requirements from the AEC into the ADG Code, these requirements for inner packaging and article marking have been placed in section 5.2.1.5.3 in the draft provisions. This ensures they are not lost if they are still necessary.

In the event they are retained, the NTC will seek to transition these out of the ADG Code when appropriate action is taken to include them in another instrument that is not transport-focused.

**Question 19:** Is there a reason why the markings on inner packagings should not refer to the GHS requirements? Please provide your reasoning.

**Question 20:** Is it necessary to retain the provisions relating to marking and labelling on articles and wrappings in the ADG Code? Please provide your reasoning.

#### Marking and labelling of intermediate bulk containers (IBCs)

The ADG Code proposes to eliminate the use of emergency information panels (EIPs) on IBCs. With the limited range of class 1 substances eligible for transport in IBCs, and their limited use, the Explosives Working Group has requested that EIPs are retained for class 1 IBCs.



We are seeking feedback on whether EIPs should be eliminated for IBCs of class 1 substances. Note that the new ADG Code will continue to require EIPs on vehicles transporting dangerous goods (including class 1 substances) in IBCs.

**Question 21:** After reviewing the draft provisions for Chapter 5.2, do you have any comments, concerns or suggested amendments? Please provide details.

## Vehicle placarding

The provisions for vehicle placarding are fundamentally the same as for other dangerous goods. However, an additional requirement has been included that requires the display of EIPs on a vehicle (or wagon) transporting a load meeting explosives category 3. This is similar to the treatment of tank transport under the new ADG Code and is in line with the existing provisions under the AEC.

A separate section has been created for the explosives mark and detonators mark. The current AEC refers to these as placards, however the NTC has aligned the terminology to that used for the remainder of the ADG Code. The term “placard” is reserved for dangerous goods diamond class labels that are used on the outside of vehicles or larger containment systems. The term “mark” is used for other markings, such as the limited quantities mark, the elevated temperature mark and the environmentally hazardous substance mark.

Example drawings of these marks have been provided in the draft of the ADG Code, as with other placards and markings.

## Placard reflectivity

The explosives working group have suggested that the reflectivity of placards and the explosives and detonator marks should be Class 100 reflectivity according to AS/NZS 1906.1:2017.

Note that the NTC is undertaking separate consultation in the C-RIS on whether these reflectivity values should be applied across placards for the transport of dangerous goods generally.

**Question 22:** After reviewing the draft provisions for Chapter 5.3, do you have any comments, concerns or suggested amendments? Please provide details.

## Placarding of MPUs

The Code of Practice for Mobile Processing Units (MPU Code, published by the Australian Explosives Industry Safety Group) includes information on placarding for MPUs. This information is currently absent from the ADG Code and the AEC. In particular, the AEISG MPU Code provides for an MPU that is transporting both ammonium nitrate of UN1942 and ammonium nitrate emulsion, suspension or gels of UN3375 to be marked with EIPs that show:

- the proper shipping name “AMMONIUM NITRATE PRODUCTS”
- the UN number as “1942 / 3375”
- the emergency action code as “1YE”, and
- the class label as “5.1”



The NTC is seeking information on whether this should be retained in the ADG Code, as it is not consistent with other placarding provisions. If this placarding is not adopted, MPUs would continue to require EIPs that are compliant with the requirements of the ADG Code.

Further, the AEISG MPU Code provides placarding for an MPU transporting explosives. The question of whether an MPU may carry explosives, which would change the placarding requirements is addressed below.

**Question 23:** Which of the following options do you consider the ADG Code should follow:

Option 1: Permit placarding of MPUs with EIPs as set out in the MPU Code (see above).

Option 2: Require that MPUs are placarded with the appropriate EIPs for the dangerous goods being transported.

Please provide your reasoning.

## Transport documents

As with other dangerous goods, the transport document requirements have been shifted to chapter 5.4 of the new ADG Code, in line with both the UN Model Regulations and ADR. The Explosives Working Group have recommended the AEC requirements for class 1 be retained, which align to the additional requirements in ADR.

The NTC is seeking feedback on the draft provisions, noting that these are consistent with the existing AEC provisions for transport documents.

**Question 24:** After reviewing the draft provisions for Chapter 5.4, do you have any comments, concerns or suggested amendments? Please provide details.

## 2.6. Code Part 6 – Containment systems

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### Key points

- The NTC proposes to update the requirements for explosives load compartments used for the carriage of explosives.

### General

The provisions for packagings for explosives are derived from the UN Model Regulations and ADR. There may be some changes to reflect modernised packagings over the period since the current AEC was written. However, the inclusion of these requirements should simply bring the provisions for class 1 into line with those used internationally.



## Explosives load compartments

The current AEC includes a number of requirements for the transport of explosives in carry boxes and enclosed vehicle bodies. The Explosives Working Group has recommended a number of changes to these provisions to make them more understandable and more readily complied with.

We have consolidated these into a new Chapter 6.16. Part 6 deals with various containment systems for dangerous goods, making this the appropriate location for these requirements.

While the working group suggested the term carry boxes, the NTC prefers the term “explosives load compartment” as this better aligns with the language used elsewhere in the new ADG Code. We have included a note that clarifies that however they are described, an explosives load compartment must meet the outlined requirements.

The explosives load compartment requirements have been carried over from the AEC, with some modernisation. The new provisions have been reordered but are fundamentally the same.

For explosives category 3 loads, the Explosives Working Group suggested that the insulation requirements should be set to a minimum value of 25 mm. This makes understanding the construction requirements much simpler, and we understand it aligns with current practices.

**Question 25:** After reviewing the draft provisions for Chapter 6.16, do you have any comments, concerns or suggested amendments? Please provide details.

## 2.7. Code Part 7 – Loading, unloading and handling

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### Key points

- The amendments in part 7 merge the provisions in ADR and those currently applied by the AEC into a single set of loading, unloading and handling provisions for explosives. This also includes segregation provisions.

### Special provisions for carriage of packages

The draft ADG Code follows the model of using special provisions for carriage. This enables the ADG Code to readily direct transporters of certain dangerous goods to specific requirements for those goods. In the case of class 1, this is something of a formality, as most of these provisions apply across all of class 1.

#### Special provision V2

Special provision V2 is applied to the transport of all class 1 in packages, except for those under classification code 1.4S. If it is determined that certain explosives classified under 1.4S should be excluded from the definition of low hazard explosives (addressed in 0 above), then the NTC will also add V2 to each of the DG list entries under class 1.

This special provision includes the following requirements for carriage of packages that are consistent with the AEC:

1. Mandates the use of an EX vehicle for the transport of class 1, other than low hazard explosives (which are subject to a concession in Chapter 1.1).



2. Mandates the use of an EX3 vehicle for explosives category 3 loads.
3. Requires that class 1 substances and articles in EX and EX3 vehicles are carried in explosives load compartments that conform to Chapter 6.16.
4. Prohibits the transport of packages of explosives in the passenger compartment of vehicles, or in a place that is accessible from the passenger compartment. A definition for this is provided to aid in interpretation.

**Question 26:** After reviewing the draft provisions for Chapter 7.2, do you have any comments, concerns or suggested amendments? Please provide details.

### Special provisions V3 and V12

Special provision V3 is appended to 71 class 1 entries, and requires that:

*“For free-flowing powdery substances and for fireworks the floor of a container shall have a nonmetallic surface or covering.”*

Special provision V12 is appended to 4 class 1 entries, and requires that:

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

These IBCs have flexible inner plastics receptacles.

Given the Australian requirement for explosives to be carried in closed explosives load compartments conforming to Chapter 6.16, the NTC considers that both V3 and V12 are not required to be included in the new ADG Code.

**Question 27:** Do you consider that special provisions V3 and V12 need to be retained? Please provide your reasoning.

### Segregation and mixed loading

The new ADG Code uses the layout and structure for segregation and mixed loading found in ADR. However, we have adjusted these to better reflect Australian transport practices. However, ADR combines the requirements for all dangerous goods into a single table in 7.5.2.1, with additional provisions for class 1 in 7.5.2.2. Separating the class 1 provisions from those for other dangerous goods is useful in the Australian context.

Further, the Explosives Working Group has recommended some amendments to the segregation requirements found in the AEC, these segregation requirements have been included in 7.5.2 as well.

In the new ADG Code, we've created a clear separation between the segregation and mixed loading provisions for class 1 from those for other dangerous goods. This means that a person transporting class 1 substances must review 7.5.2.2 for segregation requirements, including for segregation from other dangerous goods.

The NTC considers that this more readily reflects practices in Australia and will result in more effective compliance with the transport provisions. It will also make identifying requirements for carriers of class 1 more straightforward, as well as for transporters of other dangerous goods.



## Limitations on quantity carried on a transport unit

Note that the existing limitations on the quantity of explosives that can be carried from the AEC have been included in 7.5.5.2.1.

## Transport of explosives on MPUs

The ADR includes controls on the quantity of explosives permitted to be transported on an MPU in 7.5.5.2.3. Note that any transport under this section requires authorisation from the competent authority. This means that the availability of these provisions to transporters is at the discretion of the competent authority. Transporting ammonium nitrate along with explosives could also be seen to effectively permit the tank transport of explosives due to the combined classification of the two products. As noted above the explosives working group has proposed that this should be removed from the draft ADG Code.

After consultation with the explosives working group, the NTC is proposing to delete this section. We don't believe that any jurisdiction in Australia permits the transport of explosives on MPUs, however welcome additional information to allow us to propose appropriate recommendations for this.

**Question 28:** Are there reasons why section 7.5.5.2.3 should not be deleted, allowing explosives to be transported on MPUs? Please explain your reasoning.

## Additional provisions applicable to certain goods

### Special provisions CV1, CV2 and CV3

In chapter 7.5, there are 3 “CV” codes that apply to all class 1 entries in the DG list. These CV codes ensure that class 1 explosives are properly loaded, stowed, segregated and restrained during transport.

- CV1 prohibits loading and unloading in public places in:
  - built up areas without special permission from the competent authority; or
  - other than built up areas without notifying the competent authority.
- CV2 defines that the loading surface of the vehicle shall be clean, and that fire and naked flame is not permitted in the vicinity of vehicles during handling operations.
- CV3 mandates the segregation provisions of 7.5.2.2 (discussed above).

The Explosives Working Group and NTC recommend that these three CV codes are included. CV2 is also an appropriate location for the following requirements from the AEC:

- Ensuring that the load is evenly distributed in a freight container
- Provisions for the safe and effective use of dunnage during transport
- Limitations on the transport of other goods in the same compartment as explosives.

### Special provisions CV4 and CV28

Special provision CV4 is applied to the 11 explosives in the dangerous goods list within compatibility group L, and require:

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

ADR defines a “full load” as requiring a vehicle (or freight container) that is exclusively used for the transport of these substances by a single consignor. It is consistent with the AEC and the notes in the compatibility table for explosives.



Special provision CV28 is applied to toxic substances, and within class 1 is applied to the 3 entries that carry an additional toxicity hazard. It requires segregation of toxic substances from foodstuffs, other articles of consumption or animal feeds.

The NTC considers that both CV codes should be retained, however we welcome any input on this.

**Question 29:** After reviewing the draft provisions for Chapter 7.5, do you have any comments, concerns or suggested amendments? Please provide details.





## 2.8. Code Part 8 – Vehicle crews and operations

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### Key points

- Part 8 applies to requirements that are typically applied by drivers and vehicle crews, including emergency equipment, and provisions to ensure that vehicles are operated safely.

### Fire extinguishers and emergency equipment

#### Fire extinguishers

In the new ADG Code, the fire extinguisher requirements have been simplified. When transporting dangerous goods, these are based on the size of the vehicle, and the types of containment system used.

When transporting class 1 explosives, the extinguisher requirements are matched with the provisions for other dangerous goods, using the following:

- For explosives category 2, 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 of dry chemical powder.
- For explosives category 3, 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 of dry chemical powder.

In either case, the vehicle requires at least one additional fire extinguisher suitable for fighting an engine or cab fire, with a capacity of no less than 2 kg of dry chemical powder.

As with other dangerous goods, the substitution of load area extinguishers with an appropriate extinguishing agent is permitted.

Additionally, the explosives working group has recommended that all vehicles in explosives category 1 be required to carry a minimum of one fire extinguisher of 1 kg capacity. The NTC suggests that this be aligned to the engine or cab fire extinguisher in the draft ADG Code, which is a 2 kg extinguisher. This requirement is found in 8.1.4.2 (a) in the draft provisions.

**Question 30:** Do you oppose the inclusion of a requirement to carry a 2 kg extinguisher for explosives category 1 loads? Please explain your reasoning.

#### Other emergency equipment

The new ADG Code simplifies the requirements for emergency equipment, making it like the requirements in the ADR. However, some modifications have been made for class 1 to reflect the requirements in the AEC:

- The draft ADG Code makes a wheel chock mandatory only for unbraked trailers, for dangerous goods other than class 1. But as in the current AEC, these will continue to be mandated for all vehicles transporting a load of explosives category 2 or 3.

The draft ADG Code includes requirements for eyewash, eye protection, protective gloves and boots, and an intrinsically safe torch. These apply to class 1 substances as well as other dangerous goods. The NTC has not included the requirement to carry a chemically resistant suit for dangerous goods



transport, as no justification could be identified for its inclusion or retention. It is likely that the same situation applies for class 1, however we welcome input on whether this is the case.

Nonetheless, the provisions for transport emergency response plans (in 1.8.5) also require a transporter to determine what specific equipment may be necessary for emergency response. 8.1.5.1 in the draft ADG Code further requires that any such equipment that needs to be located on the transport vehicle is carried during transport.

**Question 31:** After reviewing the draft provisions for Chapter 8.1, do you have any comments, concerns or suggested amendments? Please provide details.

## Parking and supervision of class 1 vehicles

The NTC has proposed including most of the parking and supervision requirements for class 1 vehicles in the AEC be adopted into Chapter 8.4 of the ADG Code.

### Stopping locations

The AEC provides a detailed, highly prescriptive set of provisions for stopping locations that the NTC is concerned is not aligned to the style of the new ADG Code. It also uses terminology that is out of step with the Code, such as “protected works”. However, we are aware that this is used in transport operations and are considering how best to address this issue.

The NTC considers that this issue is most appropriately planned prior to the journey. Preliminary investigations suggest that this is typically the case already, especially for long journeys where overnight stops are required. The NTC proposes to introduce a provision requiring a journey plan to be developed. We consider that this is best addressed alongside the section on route planning (in ADG Code Chapter 8.6), as this is a key aspect of journey planning.

We have retained a general provision that stops are to be avoided in built-up areas except where necessary for the transport operation.

This plan must be communicated to the driver of the vehicle prior to transport (if not prepared by the driver), with sufficient instruction and training to allow the journey plan to be implemented.

Other provisions apply to locations where stops may be made for loading or unloading, and in the event of a breakdown or emergency.

The draft provisions in Chapter 8.4 define temporary stops as up to 1 hour, while a long stop is for a longer time than this.

### Delayed brake and tyre fires

Another proposed change has been made to the existing AEC requirement that requires the vehicle to be supervised for 15 minutes to identify a delayed brake or tyre fire. The Explosives Working Group has indicated that this is challenging to comply with for vehicles carrying category 1 loads.

The Explosives Working Group recommended that this control be applied to explosives category 2 and 3 loads only. Alternative measures have also been added which allow for manual or automated checking of brake and tyre fires in lieu of a mandatory watch period.



**Question 32:** After reviewing the draft provisions for Chapter 8.4, do you have any comments, concerns or suggested amendments? Please provide details.

## Transport operations for class 1 transport

ADR assigns special provision S1 to all class 1 substances and articles. This includes a few items relating to transport operations, though they are much less extensive than those in the AEC.

We have created a new section (8.5.2), which includes the transport operations requirements for the transport of class 1. These include:

- A general set of requirements that apply to all transport of class 1 (other than those subject to the low hazard explosives exemptions).
- An additional set of provisions for loads meeting explosives category 2 or 3
- A further set of provisions that apply to explosives category 3 transport.

Many of the technical requirements dealt with in Chapter 8 of the AEC have been moved to this section, with some suggested amendments and edits from the Explosives Working Group.

The NTC considers that this should assist drivers and carriers in the transition from the AEC into the new ADG Code.

**Question 33:** After reviewing the draft provisions for Chapter 8.5, do you have any comments, concerns or suggested amendments? Please provide details.



## Journey planning for class 1 vehicles

The route planning requirements of the current ADG Code have been included in chapter 8.6 of the new ADG Code.

As noted above, the NTC considers that this may be the most appropriate location for the detailed provisions used in pre-planning where vehicles transporting class 1 explosives will stop.

The journey planning provisions require the following considerations:

- The type and quantity of explosives being transported
- Appropriate route selection
- The requirements of the security plan
- The purpose and duration of stops, and distances to other buildings, facilities or infrastructure

Additionally, any recommendations or guidance by the competent authority must also be followed.

This section also clarifies that journey planning is within the purview of the carrier and ensures that it is communicated to the driver or vehicle crew.

Finally, the NTC is seeking advice on whether this is the most appropriate location for this information. An alternative location is an appendix, which would permit the inclusion of more advisory information if that is appropriate, in addition to the mandatory requirements specified in this section.

**Question 34:** Do you consider that the journey planning requirements should be placed in Chapter 8.6 or somewhere else? Please provide details.

**Question 35:** After reviewing the draft provisions for Chapter 8.6, do you have any comments, concerns or suggested amendments? Please provide details.

## 2.9. Code Part 9 – Vehicles

### Key points

- Part 9 is a new set of requirements for the ADG Code that incorporates all the relevant provisions for the design, construction and maintenance of vehicles used for transport.
- The NTC recommends the creation of specific vehicle types to more readily specify and communicate vehicle requirements, along with the inclusion of provisions for MPUs.

### Vehicles for explosives – EX and EX3 Vehicles

To properly manage the selection and use of appropriate vehicles, the NTC has recommended the creation of EX and EX3 vehicle types for the transport of class 1 explosives in most scenarios. While derived from the ADR concept of EX/II and EX/III vehicles, these are treated slightly differently:

- An “EX vehicle” is required to transport explosives in a load meeting explosives category 1 or 2 (other than where an exemption or concession is provided).
- An “EX3 vehicle” is required to transport explosives in a load meeting explosives category 3. An EX3 vehicle has additional construction requirements. An EX3 vehicle may be used when transporting an explosives category 1 or 2 load.



As part of finalising the new ADG Code, the NTC will be preparing transitional provisions for vehicles. We don't expect that these will be necessary, as existing vehicles should comply with the requirements of the new ADG Code. The NTC will work with regulators and industry to develop and recommend appropriate transitional provisions for the finalised ADG code, including EX and EX3 vehicles if needed.

## Approval of vehicles and mobile processing units (MPUs)

In ADR countries, MPUs and EX/II and EX/III vehicles are subject to competent authority approval processes prior to being used for transport.

The Explosives Working Group has suggested that EX vehicles and MPUs should not be subject to formal approval due to the existing licensing framework already in place under State and Territory legislation. An entry into service inspection by a professional engineer for EX3 vehicles and MPUs could be implemented for vehicles built in the future to provide additional assurance.

The draft of the ADG Code includes a new section 9.1.7 to address this suggestion. This will require some renumbering in the draft ADG Code, which will take place when the ADG Code is compiled for ministerial approval.

Additionally, the draft of the ADG Code requires the preparation of a vehicle dossier. This is defined in the definitions section of part 9 and allows a person to understand the design of the vehicle and how to use and maintain it.

As the vehicle dossier is a new requirement and is intended to be prepared when a vehicle enters service, a transitional provision will be provided for vehicles that are already in service. A similar transition is proposed for vehicles in other dangerous goods service.

**Question 36:** After reviewing the draft provisions for Chapter 9.1, do you have any comments, concerns or suggested amendments? Please provide details.

## Vehicles for the transport of class 1

The new ADG Code has incorporated a number of provisions for vehicles from the current AEC. However, the Explosives Working Group recommended a number of changes to make these provisions more readily understood and applied in practice.

The provisions in Chapter 9.3 of the draft ADG Code should be reviewed for details. However, in general, an EX3 vehicle has additional design and construction requirements, applicable to firescreens, engines, fuel tanks, heat sources and electrical installations, when compared to an EX vehicle.

The explosives working group recommended that:

- Vehicles with an electric drive train should not be permitted for use in an EX vehicle; and
- A compression ignition engine fuelled by combustible liquid (e.g. diesel) should be mandated for EX3 vehicles.

The NTC has incorporated these recommendations into the draft ADG Code.

The explosives working group also recommended that the draft ADG Code include a requirement that vehicles transporting explosives category 3 loads are fitted with a fixed fire-fighting system, similar to that proposed for vehicles transporting ammonium nitrate, whether as solids, emulsions or solutions. The NTC recommends that if such a requirement is introduced, it should be applied to EX3 vehicles. This is equivalent to how AN vehicles have been treated in the new ADG Code.



**Question 37:** Do you support the provision to mandate a fixed fire-fighting system for EX3 vehicles in the new ADG Code? Please explain your reasoning.

**Question 38:** After reviewing the draft provisions for Chapter 9.3, do you have any comments, concerns or suggested amendments? Please provide details.

## Design and construction of mobile processing units (MPUs)

A limited set of provisions for MPUs has been adopted into the Part 9 of the new ADG code. This addresses the design and construction requirements for an MPU. Additionally, we are seeking input on whether it is appropriate to mandate the AEISG Code of Practice for Mobile Processing Units (the AEISG MPU Code) for the design and construction of an MPU.

The NTC does not expect that there will be any conflict with the MPU Code for design and construction, however we are seeking comment on whether this is the case.

The NTC's preference is that the ADG Code only provides high level legal requirements for the design and construction of an MPU, however the draft class 1 provisions include a placeholder that could be used to reference the MPU Code if needed.

We expect that the AEISG MPU Code will continue to provide a more detailed description of how to comply with the design and construction requirements for MPUs. It will continue to provide detailed information for operators of MPUs on the operation of these vehicles. The ADG Code would provide the underpinning legal requirements. Any such provision would refer specifically to the design and construction requirements in the MPU Code. However, the NTC notes that this edition of the MPU Code dates from September 2018 and there have been significant updates to the AS 2809 standards since then.

**Question 39:** Do you support mandating the AEISG MPU Code in the new ADG Code for design and construction of MPUs? Please provide your reasoning.

**Question 40:** After reviewing the draft provisions for Chapter 9.8, do you have any comments, concerns or suggested amendments? Please provide details.



## 3. Issues for further consultation

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### Key points

- The NTC is additionally aware of specific concessions that apply to commonwealth explosives and defence vehicles. We are seeking input on the appropriate location for these concessions.
- We are seeking advice on the scale of rail transport of explosives, and the extent to which it needs to be permitted under the new ADG Code.

### 3.1. Commonwealth explosives and legislation

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Unlike other dangerous goods, Commonwealth law includes legislation for the transport of explosives.

Commonwealth explosives are those that are:

- (a) are the property of, or are in the possession or control of, the Commonwealth;
- (b) have been manufactured by the Commonwealth and, in pursuance of an arrangement made with the Commonwealth, are intended to be, or are being, exported from the Commonwealth; or
- (c) are the property of, or are in the possession or control of, the government or the naval, military or air forces of another country and are in the Commonwealth or a Territory with the approval of the Commonwealth for the purposes of, or a purpose related to, the defence of the Commonwealth;

#### Exemptions and concessions for commonwealth explosives and defence vehicles

The AEC contains a number of exemptions and concessions that apply to the transport of explosives defined as “commonwealth explosives”, or where the transport occurs under commonwealth explosives regulations.

These include:

- Two concessions from marking and labelling requirements that apply to commonwealth explosives procured prior to 2005 or from overseas.
- An exemption from the AEC provisions in section 6.2, requiring transport in a carry box or enclosed vehicle body.
- An exemption from the AEC provisions in section 6.4.2 requiring transport in category 3 quantities in a vehicle registered by the Department of Defence.

The NTC is also aware that the commonwealth explosives regulations provide for a different segregation table than that found in the AEC.

#### Addressing these issues

The NTC will be undertaking consultation with affected stakeholders to determine an appropriate treatment of these provisions under the new ADG Code. Options include:

- Providing these exemptions in the enabling legislation.



- This is the NTC’s preference. Our view is that the ADG Code should provide the technical rules for transport that are generally applicable. We can consider including notes in the text where these exemptions are expected to be ongoing, rather than temporary.
- An example is the segregation table in 7.5.2.2, which the commonwealth explosives legislation provides for a modified version. The draft of the ADG Code includes a note that this is replaced by a different table under that legislation.
- Including these concessions directly in the ADG Code.
  - The NTC does not prefer this option, as it requires the NTC to maintain these exemptions. The ADG Code does not use this model for other narrowly applied exemptions.
  - For example, where a jurisdiction implements an exemption within their territory, it is not included in the ADG Code unless it is decided it should apply across jurisdictions.
  - These may be located either in part 1 or at the location in the ADG Code where these provisions are found.

**Question 41:** Please advise if you consider that these exemptions for commonwealth explosives should be included in the ADG Code? Please explain your reasoning.





## 3.2. Rail transport of explosives of class 1

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### Key points

- We are seeking advice on the scale of rail transport of explosives, and the extent to which it needs to be permitted under the new ADG Code.

The Explosives Working Group has advised the NTC that information on rail transport of explosives was difficult to find.

The NTC is seeking input from the transport industry on the following:

- The quantities and types of class 1 explosives being transported by rail
- The locations and frequencies of this transport

The rail transport provisions for class 1 explosives in the AEC are very aged and need to be updated. Many of the provisions for road transport apply to rail transport, however there are likely some rail specific issues, such as separation and segregation distances that need to be considered in detail.

**Question 42:** If provisions are required for rail transport, then the NTC will look to run a small consultation group with affected stakeholders so the important, rail-specific provisions can be analysed, updated and included in the draft code. We may need to consider removing these provisions if insufficient information is available to update them.

If you transport class 1 explosives by rail, please provide the following information:

1. Typical quantities and types of class 1 explosives transported by rail;
2. The locations where this occurs, and the frequency of this transport;
3. If you are willing to be part of a consultation group to assist with updating the rail-specific provisions in the AEC.



## 4. Glossary

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<b>Abbreviation</b>	<b>Term</b>
ADG Code/the Code	Australian Code for the Transport of Dangerous Goods by Road & Rail
ADG 7	Australian Code for the Transport of Dangerous Goods by Road & Rail, 7 <sup>th</sup> Edition
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
AEC	Australian Explosives Code
AEISG	Australian Explosives Industry Safety Group
AFER	Australian Forum for Explosives Regulators
CAP	Competent Authorities Panel
CoP	Code of Practice
C-RIS	Consultation Regulatory Impact Statement
DCP	Dry Chemical Powder
DGL	Dangerous Goods List
DGSA	Dangerous Goods Safety Advisor
EIP	Emergency Information Panel
FRP	Fibre-reinforced plastic
GHS	Globally Harmonised System for the Classification and Communication of Hazardous Chemicals
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO TIs	International Civil Aviation Organization Technical Instructions
IMDG	International Maritime Dangerous Goods
ITMM	Infrastructure and Transport Ministers Meeting
ISO	International Organization for Standardization
LQ	Limited Quantity
MSI	Model Subordinate Instrument on the Transport of Dangerous Goods by Road or Rail
MEMUs	Mobile Explosive Manufacturing Units (note: synonymous with MPUs)



<b>Abbreviation</b>	<b>Term</b>
MPUs	Mobile Processing Units
MPU Code	The Code of Practice for Mobile Processing Units, published by AEISG
NTC	National Transport Commission
OTIF	Organisation for International Carriage by Rail
PG	Packing Group
PSN	Proper Shipping Name
PPE	Personal Protective Equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
TDG	Transport of Dangerous Goods
TERP	Transport Emergency Response Plan
UN	United Nations
UN MR	United Nations Model Regulation
UNECE	United Nations Economic Commission for Europe

