

# Australian Dangerous Goods Code Comprehensive Review

Working group paper #3



## Approval of tanks, bulk containers and vehicles

March 2023

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Chair – Tanks, vehicles and emergencies working group

# Report outline

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<b>Title</b>	Australian Dangerous Goods Code Comprehensive Review – Approval of tanks, bulk containers and vehicles
<b>Type of report</b>	Discussion paper
<b>Purpose</b>	For public consultation
<b>Abstract</b>	Approval of tanks, bulk containers and vehicles used for dangerous goods is necessary to ensure the safe transport of these goods. This paper explores the parameters that are required for a vehicle to be approved under ADR and will be used to incorporate relevant requirements from ADR into the future ADG Code.
<b>Submission details</b>	The NTC will accept submissions until 1 May 2023 online at <a href="http://www.ntc.gov.au">www.ntc.gov.au</a> or by mail to: <a href="mailto:dkirk@ntc.gov.au">dkirk@ntc.gov.au</a>
<b>Attribution</b>	<p>This work should be attributed as follows, Source: National Transport Commission, Approval of tanks, bulk containers and vehicles, discussion paper #3.</p> <p>If you have adapted, modified or transformed this work in anyway, please use the following, Source: based on National Transport Commission, Approval of tanks, bulk containers and vehicles, discussion paper #3.</p>
<b>Key words</b>	Dangerous goods, ADG Code review, tank vehicles, transport, bulk containers, receptacles, ADR
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# Have your say

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## What to submit

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This paper asks many questions relating to existing and potential processes for approving tanks, bulk containers, and vehicles for dangerous goods transport.

Please provide any relevant supporting information, explanation for your reasons, or data that you have when answering these questions; or when providing information in addition to the questions.

The experiences of individuals or organisations with experience in designing, constructing, repairing, or maintaining tanks or tank vehicles will be useful in understanding the current and future needs of the dangerous goods transport industry.

## When to submit

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We are seeking submissions on this issues paper by **1 May 2023**.

## How to submit

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Any individual or organisation can make a submission to the NTC.

### Making a submission

 Visit [www.ntc.gov.au](http://www.ntc.gov.au) and select 'Have your say' on the homepage.

Or

Email your submission to [dkirk@ntc.gov.au](mailto:dkirk@ntc.gov.au)

Where possible, you should provide evidence, such as data and documents, to support the views in your submission.

### Publishing your submission

Unless you clearly ask us not to, we publish all the submissions we receive online. We will not publish submissions that contain defamatory or offensive content.

The *Freedom of Information Act 1982* (Cwlth) applies to the NTC.

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# Purpose of this paper

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The National Transport Commission (NTC) is conducting a comprehensive review of the Australian Code for the Transport of Dangerous Goods by Road & Rail (the Code).

In conducting the review, the NTC will seek to achieve greater alignment with the internationally recognised land mode-specific requirements contained in the Agreement for the International Transport of Dangerous Goods by Road (ADR) and the Agreement for the International Transport of Dangerous Goods by Rail (RID).

The review is focused on outcomes that serve the best interest of all parties involved in the transport of dangerous goods. This includes those parties on which the requirements are imposed, those who regulate and administer the requirements, and those who must maintain them.

This paper deals specifically with the approval of tanks, bulk containers and vehicles. The responses to this paper will be used to draft changes to the Code. While the exact changes are yet to be determined, some of the anticipated changes are:

- A tank design approval process that is focused on tanks specifically.
- A bulk container approval process that is focused on bulk containers specifically.
- A separate process for vehicle approvals.
  - It is likely that processes to allow tank and vehicle approvals to be completed together will be possible.
- Industry and competent authorities will be provided with more clearly defined details to address as part of the approvals process.
- More clearly defined parameters for when tank design modifications require further approval.

The changes that are drafted will be subjected to further consultation to ensure the proposed draft text is suitable.

This paper uses edition 7.7 of the Code, and the 2021 edition of ADR as the source for the provisions. While these editions have now been superseded, this does not affect the content of this paper.

This paper relates to:

The Code – Part No.	<input type="checkbox"/>	Working group	<input checked="" type="checkbox"/>	Discrete issue	<input checked="" type="checkbox"/>
		Tanks, vehicles, and emergencies		Approval of tanks and vehicles.	

# Executive summary

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While the current ADG Code treats tanks, or bulk containers, and vehicles as a single approval, ADR and RID separates these into separate systems. Further, ADR and RID provides significant additional information on the approval processes.

This document explores these differences and asks questions that will be used to determine how the ADR and RID provisions should be carried over into the future ADG Code. This paper is focused on concepts and questions relating to tank, bulk container and vehicle approvals, rather than the exact provisions that are contained in ADR and RID.

## Context

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

The 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 Code. The NTC's responsibility for the Code's content and stakeholder engagement over several years, highlighted that the road and rail specific requirements of the 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 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 Code's requirements.

Given the scale of the review, the content of the code has been broken into a series of topics. This paper focuses on the approval of tanks, bulk containers, and vehicles for dangerous goods transport.

## Themes

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### Chapter 1 – Project to Review the Australian Dangerous Goods Code

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

The review seeks to better align Australia with international practices contained in the road and rail mode specific versions of the UN Model Regulations and will focus on improving transport of dangerous goods safety outcomes.

### Chapter 2 – context

This chapter provides contextual overview for the topics included within this paper. This paper deals with the approval processes for tanks, bulk containers and certain vehicle types used to transport dangerous goods. Approvals relating to other types of packagings (such as boxes, drums, and IBCs) are not within the scope of this paper.



### **Chapter 3 – Division between receptacles and vehicles**

ADR divides approvals between the receptacle (tank or bulk container) used to transport the dangerous goods, and the vehicles used to transport those receptacles. This chapter explores this division, and questions if this division is appropriate.

### **Chapter 4 – Approval of tanks and bulk containers**

The Review seeks to understand existing practices for tank and bulk container approval, and to evaluate how the practices contained in ADR (and RID) will fit in an Australian context. This chapter is divided into topics on the different types of tanks and bulk containers that are used to transport dangerous goods.

### **Chapter 5 – Approval of vehicles**

The existing Code is unclear on how approvals for vehicles are applied. This chapter explores questions relating to how vehicles are approved under ADR.

### **Chapter 6 – Administrative issues for approvals**

Unlike the existing Code, ADR (and RID) provide significant additional information relating to the administrative aspects of tank, bulk container, and vehicle approvals. This section explores these differences and asks questions relating to how they may be incorporated into the future Code.

## **Next steps**

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Consultation on this issues paper will close on 1 May 2023.

The responses to this paper will be used to develop a consultation draft of the tank, bulk container, and vehicle approval provisions for the future Code.

It will likely be necessary to wait for the responses to future papers and to deal with these chapters of ADR and RID in full.

### **List of questions**

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# 1 About this project

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## Key points

- 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).
- Mode-specific requirements of the current code consist of a repository of often disjointed, contradictory requirements that fall apart when closely examined.
- The review seeks to better align Australia with international practices as set out in the ADR and RID.
- The review will focus on outcomes that serve the best interest of all parties involved in the transport of dangerous goods.
- Given the scale of the review, the content of the code has been broken into a series of topics, each allocated to a topic specific working group.

## 1.1 Project objectives

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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 the proposal to incorporate into the Code principles from both:

- the Agreement for the International Transport of Dangerous Goods by Road (ADR)
- the Agreement for the International Transport of Dangerous Goods by Rail (RID).

The ADR and RID are used extensively throughout Europe, Africa and Asia. As with the Australian code, both the ADR and RID are based on the United Nations Recommendations on the Transport of Dangerous Goods - Model Regulations (UN Model Regulations). In general, the requirements of the ADR and RID are the same, they only differ where requirements need to apply specifically to either road transport or rail transport.

Stakeholder feedback over the years and a literature review of relevant materials suggests that the mode-specific requirements of the current code consist of a repository of often disjointed, contradictory requirements that fall apart when closely examined. In many instances, there was no supporting evidence or data for their introduction and there is no evidence that they have contributed to safer outcomes. The lack of consistency and cohesiveness in these requirements coupled with a lack of a framework for maintaining the mode-specific requirements results in a continuing cycle of ad-hoc, random amendments without consideration of the consequential inconsistencies or contradictions.

### Goal of the review

The goal of the review is to deliver a code that:

- addresses the specific risks of transport by land, while also recognising any risks unique to the Australian transport environment
- remains contemporary

- is aligned to international practices that support the smooth and safe movement of dangerous goods across borders and transport modes.

The review is focused on outcomes that serve the best interest of all parties involved in the transport of dangerous goods. This includes:

- parties that must meet the requirements
- parties that regulate and administer the requirements
- parties that must maintain the requirements.

The aim of the review is to deliver more than just a cohesive and contemporaneous code. We also aim to deliver a framework for making sure the Code remains up to date and aligned with international standards.

## 1.2 Background

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In 2020, the NTC released an issues paper on the land transport of dangerous goods. The paper focused on the legislative framework that supports the dangerous goods code. However, the responses we received highlighted several problems with the code itself.

A major concern raised in submissions centred on the Australia-specific chapters of the current code. The biennial maintenance cycle of the Code, which keeps it aligned to the UN Model Regulations, is appreciated. However, many submissions noted the Australia-specific chapters have not been reviewed or revised. Many of these chapters were carried over from the sixth edition of the Code (ADG 6), either in full or in part, without examination. They have not been critically reviewed for over 15 years and are now outdated. In the case of some requirements, no evidence base, or justification can be found to support their original introduction.

Industry and regulators also noted the Australian Explosives Code is outdated and has no responsible agency. They expressed a strong preference for the dangerous goods code to be expanded to include Class 1 Explosives, and for the Australian Explosives Code to be made obsolete.

After analysing the submissions received, the NTC made recommendations to infrastructure and transport ministers. All recommendations were endorsed, including the following:

### **Recommendation 4:**

Conduct a full review of the Australian Dangerous Goods Code to update outdated chapters, identify and correct translation errors, incorporate relevant ADR concepts and incorporate requirements for Class 1 and Division 6.2. Note: the technical requirements for Class 1 and Division 6.2 will be incorporated into the [ADG] Code but the legal requirements will not be incorporated into the regulations.

## 1.3 Approach

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A set of Review Principles has been 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 Code and associated model laws.

Given the scale of the review, the content of the code has been broken into a series of topics, each allocated to a topic specific working group.

This discussion paper deals specifically with questions relating to the process of how tanks and vehicles are approved for use in dangerous goods service in Australia.

## 1.4 Supplementary paper on terminology

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This paper must be read in conjunction with working group supplementary paper #S1 - Tank provisions in ADR – Terminology. The supplementary paper, which explores the terminology relating to tanks, bulk containers and vehicles has been published for use as a reference when reading tank and vehicle related papers.

## 1.5 Source documents for this paper

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This paper has been prepared by reviewing the following editions of the Code, ADR and RID:

- Edition 7.7 of the Australian Code for the Transport of Dangerous Goods by Road and Rail (the Code). [https://www.ntc.gov.au/sites/default/files/assets/files/ADG%20Code%207.7\\_0.pdf](https://www.ntc.gov.au/sites/default/files/assets/files/ADG%20Code%207.7_0.pdf)
- 2021 edition of the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). <https://unece.org/adr-2021-files>
- 2021 edition of the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). [https://otif.org/fileadmin/new/3-Reference-Text/3B-RID/RID\\_2021\\_e\\_09\\_June\\_2022.pdf](https://otif.org/fileadmin/new/3-Reference-Text/3B-RID/RID_2021_e_09_June_2022.pdf)
- The Model Subordinate Instrument as approved by the Transport and Infrastructure Council on 5 June 2020 <https://pcc.gov.au/uniform/2020/Model-Subordinate-Instrument-on-Transport-of-Dangerous-Goods-2020-06-05.pdf>
- Australian Standard 2809.1:2020 – Road tank vehicles for dangerous goods, Part 1: General requirements for road tank vehicles.

These documents have been revised since this analysis was commenced, and while it is unlikely that any significant changes have occurred, there may be some minor changes. In particular, the chapter numbers have been changed between Edition 7.7 and 7.8 of the Code (though not the content in those chapters).

## 2 Context

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### Key points

- Approval of tanks, bulk containers and vehicles is a critical step in ensuring that they are suitable for transport.
- The current Model Subordinate Instrument and Code have limited information on approval processes for tanks, bulk containers and vehicles and treat tanks and vehicles together.
- The ADR provides more comprehensive information on approvals and separates the approval of tanks or bulk containers and the approval of vehicles.
- This paper considers approval of tanks, bulk containers, and vehicles. It does not consider packagings.
- For ease of reading, this paper uses the term 'receptacle' as a collective term for tanks and bulk containers.

### Division between receptacles and vehicles

The current Code does not differentiate between the receptacle (tank or bulk container) used to contain the dangerous goods and vehicles for the purposes of packaging approvals. While this is generally managed by the industry and competent authorities, it results in a number of ambiguities in application.

ADR splits approvals into independent processes for the receptacle being transported, and the vehicle being used to transport the receptacle.

### Approval of tanks and bulk containers

The approvals processes for receptacles in the current Model Subordinate Instrument and Code are not very detailed. This results in large parts of the process being a function of practice and convention, rather than written requirements. This means that significant effort is required to ensure common practice across the country.

ADR contains much more detailed requirements relating to the approval process for tanks and bulk containers than Australia.

There are some tanks used in transport that require approvals or registration under other legislation (for example as pressure vessels). It is expected that where possible duplication of these processes will be minimised. Issues that relate to design and construction of these tanks will be explored in a future paper on tank design and construction.

### Approval of vehicles

The current Code deals with vehicle approvals where the vehicle is a tank vehicle. This is a result of historical practice; and the inclusion of vehicle requirements in Australian Standard AS 2809.

ADR deals with vehicle approvals separately from the approval of receptacles. It provides significant additional information on vehicle approval. Approved vehicles are also required in a larger range of circumstances than under the current Code.

## **Scope of this paper**

This paper deals with the approval processes for tanks, bulk containers and certain vehicle types used to transport dangerous goods. Approvals relating to other types of packagings (such as boxes, drums, and IBCs) are not within the scope of this paper.

This paper does not discuss terminology in detail, please see the supplementary paper, Tank provisions in ADR – Terminology, working group supplementary paper #S1.

For ease of reading, this paper uses the term 'receptacle' when referring to both tanks and bulk containers.

The responses to the questions in this paper will be used to draft the related provisions in the future code. Further opportunities for comment on the draft provisions will be provided.

### 3 Division between receptacles and vehicles

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ADR separates the receptacles used to hold dangerous goods, and the vehicle that is used to transport the dangerous goods in that receptacle. By contrast, the current ADG Code merges these two, treating the receptacle and vehicle as a unified approval.

While under both systems, it is possible to build a vehicle where the receptacle forms an integral part of the vehicle (e.g. a tank vehicle), many vehicles are constructed in a way that permits the receptacle to be removed from the vehicle with relatively little effort.

Additionally, ADR specifies that vehicles used to transport a wider range of tanks require approval, such as portable tanks (isotanks). This is not currently the case under the Code, where only tank vehicles are subject to approval, and the definition of tank vehicle specifically excludes isotanks.

By separating these approvals, ADR ensures that each approval is properly targeted to the receptacle that will be used for the dangerous goods, and to the vehicle that is used to transport the receptacle. It is possible to undertake an approval of both a tank and a vehicle together, but this system can provide flexibility for considering the approvals separately.

From the ADR definition of “tank”, a tank approval would apply to all parts that may interact with the dangerous goods, including the vapours or vapour space, and any structural members that are necessary for the safe operation of the tank. A similar differentiation would apply for bulk transport, where the bulk container approval would only apply to the receptacle.

The vehicle approval would refer to the vehicle proper, and items other than those specified as service equipment.

Such a system for approvals would not prevent tank and vehicle approvals being completed at the same time, but it would provide flexibility to approve them separately. For example, where demountable tanks are used, this would allow an approved tank to be mated to an approved vehicle, even though they were not both approved together.

Supplementary paper #S1 on terminology in ADR provides a more detailed explanation of these terms.

**Question 1:** Is dividing approvals between receptacles used for the dangerous goods, and the vehicles that transport receptacles a sensible division? Please explain your reasoning.



# 4 Approval of tanks and bulk containers

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## Key points

- ADR contains a more comprehensive set of tank and bulk container requirements than in the current Code, including approval processes.
- This section explores how the approvals process is different under ADR.
- Questions in this section will be used to ensure that the future Code meets the needs of the Australian dangerous goods transport industry.

## 4.1 Portable tanks that are UN-compliant

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The sections dealing with UN portable tanks are already included in Chapter 6.7 of ADG 7. Both the ADR and ADG 7 derive this text from the UN Model Regulations. This means that no significant changes are expected in this section, though a text comparison will be undertaken to verify this.

Further, most portable tanks are used in intermodal/international service, so it is expected these will generally be approved overseas or by Australian Maritime Safety Authority (if approved in Australia).

With no changes, these sections are expected to be carried forward.

**Question 2:** Are you aware of any UN portable tanks in use in Australia, that were approved by Australian land transport competent authorities?

### References: Relevant ADR sections

- 6.7.2.18 – design approval of portable tanks for class 1 and classes 3 to 9
- 6.7.3.14 – design approval of portable tanks intended for the carriage of non-refrigerated liquefied gases
- 6.7.4.13 – design approval of portable tanks intended for the carriage of refrigerated liquefied gases
- 6.7.5.11 – design approval of UN multiple-element gas containers (MEGCs) intended for the carriage of non-refrigerated gases

### References: Relevant ADG Code sections

- 6.7.2.18 – design approval of portable tanks for class 1 and classes 3 to 9
- 6.7.3.14 – design approval of portable tanks intended for the carriage of non-refrigerated liquefied gases
- 6.7.4.13 – design approval of portable tanks intended for the carriage of refrigerated liquefied gases
- 6.7.5.11 – design approval of UN multiple-element gas containers (MEGCs) intended for the carriage of non-refrigerated gases

## 4.2 Tanks that are not UN-compliant

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The ADR provides a much more comprehensive process and set of requirements for type-approval of non-UN tanks used for dangerous goods transport.

The approval of tanks and the approval of vehicles is carried out separately, though there should be nothing to prevent these processes being carried out at the same time.

The ADR permits type approval of equipment covered by a Standard listed in the table of Standards (Ref: 6.8.2.3.1 para 5). This includes items such as hatches, valves, etc. These may then be used in dangerous goods service where compatible with the needs of the tank being designed. A search of earlier Competent Authorities Panel (CAP) approvals indicates that this has been previously performed in Australia under ADG 6 and earlier.

The ADR clearly permits type approvals to apply to serially manufactured tanks (this is currently also accepted practice in Australia).

The ADR permits variations in the design where the loads or stresses are reduced, or where the safety is increased (6.8.2.3.2 para 2). This permits approvals to cover a range of scenarios such as different volumes or configurations. A clear description of the variation is required as part of the application.

The ADR defines that for modifications, only the part of the tank that is modified requires an additional approval. The existing approval remains valid for the unmodified components of the tank design. Based on the definition of tank, which includes service and structural equipment, any modifications to the following would be subject to approval:

- the tank shell itself
- the equipment that interacts with the dangerous goods
- any item that provides a product containment or structural function.

This approval may be either as a modification or as a new tank design.

Certain goods (class 2 substances and UN 1790 HYDROFLUORIC ACID with more than 85% hydrogen fluoride) are assigned special provision TA4 in the dangerous goods list in ADR. For these goods, the type approval for the tank requires the inspecting body to be accredited to EN/IEC 17020:2012. This standard has been adopted by Standards Australia as AS/IEC 17020:2013. This is an additional requirement that applies to these tanks.

Additional requirements are applied to approval of fibre-reinforced plastic (FRP) tanks, including compatibility and design life. These are not likely to be a significant burden as far as approval processes is concerned.

**Question 3:** Will permitting variations in approvals (such as allowing an approval to cover a range of volumes) where safety is increased result in a more effective approvals process?

**Question 4:** What evidence and record keeping in relation to variations is reasonable for a tank designer to have to support this?

**Question 5:** Will incorporating the provisions relating to modifications in the ADR in the future Code provide additional certainty for industry and regulators about when further approval is needed for modifications?

**Question 6:** Are there any additional provisions or guidance that you consider would be needed to manage further approvals for modifications? Please provide details.

**Question 7:** Does the Australian tank manufacturing industry have sufficient access to AS 17020 accredited organisations to enable inspections of tanks for class 2 and UN 1790 (greater than 85%)?

**Question 8:** If AS 17020 accreditation is not accessible, are there alternative standards that may be referenced to provide for these controls?

**References: Relevant ADR sections**

6.8.2.3 – type approval of fixed tanks (tank-vehicles), demountable tanks and tube-vehicles, tank-containers, and non-UN MEGCs

6.8.4(c) – special provisions for tanks that relate to type approval

6.9.4.4 – type approval of FRP tanks (additional to Chapter 6.8)

**References: Relevant ADG Code sections**

6.9.2.1 – approval of tank designs

### 4.3 Approval of bulk containers

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Most of the content that relates to bulk containers is already included in Chapter 6.8 of the current code. The actual approval requirements are a relatively simple “shall be approved by the competent authority” statement.

Both the ADR and the Code refer to ISO 1496-4:1991 as “deemed to comply” provisions where the container complies with the standard. There may be other bulk containers that require approval, though with limited information available, the parameters to be applied for approval is less clear.

The current code does not include provisions relating to approval of BK3 flexible bulk containers.

**Question 9:** What approval processes are currently in place in Australia for bulk containers that don’t comply with ISO 1496-4:1991?

**Question 10:** What additional sources of information are available for the design of bulk containers that don’t comply with ISO 1496-4:1991?

**Question 11:** Are you aware of any BK3 flexible bulk containers currently in use in Australia (in dangerous goods service)?

**References: Relevant ADR sections**

- 6.7.2.18 – design approval of portable tanks for class 1 and classes 3 to 9
- 6.7.3.14 – design approval of portable tanks intended for the carriage of non-refrigerated liquefied gases
- 6.7.4.13 – design approval of portable tanks intended for the carriage of refrigerated liquefied gases
- 6.7.5.11 – design approval of UN multiple-element gas containers (MEGCs) intended for the carriage of non-refrigerated gases

**References: Relevant ADG Code sections**

- 6.7.2.18 – design approval of portable tanks for class 1 and classes 3 to 9
- 6.7.3.14 – design approval of portable tanks intended for the carriage of non-refrigerated liquefied gases
- 6.7.4.13 – design approval of portable tanks intended for the carriage of refrigerated liquefied gases
- 6.7.5.11 – design approval of UN multiple-element gas containers (MEGCs) intended for the carriage of non-refrigerated gases

## 4.4 Approval of tanks under RID

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The Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) contain essentially identical approval processes to ADR for tank-wagons, demountable tanks, tank-containers, tube-wagons or MEGCs. These are not discussed separately here, but a detailed analysis will be undertaken as part of the drafting of the future code.

**Question 12:** Will using the approval processes provided in the ADR sections on road transport be sufficient for rail transport?

**Question 13:** Are there additional requirements that need to be incorporated into the Code from RID to ensure that tanks for rail transport are properly approved?

**References: Relevant RID sections**

- 6.8.2.3 – type approval of tank-wagons, demountable tanks, tank-containers, tube-wagons or MEGCs
- 6.8.4(c) – special provisions for tanks that relate to type approval
- 6.9.4.4 – type approval of FRP tank-containers for rail use

**References: Relevant ADG Code sections**

- 6.9.2.1 – approval of tank designs

# 5 Approval of vehicles

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## Key points

- ADR contains a more comprehensive set of tank and vehicle requirements than found in the current ADG Code, including details of approval processes.
- This section explores how the approvals process is different under ADR.
- Questions in this section will be used to ensure that the future ADG code meets the needs of the Australian dangerous goods transport industry.

## 5.1 Road vehicle approval

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Vehicle approval is a more complex issue than tank approvals. There are a number of requirements that would be additional to the current system. Most of the checks involved in this process are required as part of the 3-monthly inspections currently required by the Code and AS 2809.

While most of the inspection and test requirements will be dealt with as part of a later paper, some questions are included here.

The ADR requires an initial inspection of the vehicle by the competent authority, though it permits this to be waived for prime movers where the manufacturer, their representative or a recognised body declares the prime mover to be in conformance. A similar system could be implemented in Australia.

The ADR requires an annual technical inspection of the vehicle to be undertaken to verify that it conforms to the requirements of the ADR and other general safety regulations (i.e., road transport requirements). The ADR does not define who is responsible for this technical inspection. The ADR also notes that this does not impose additional requirements on the tanks themselves, and so is only intended to apply to the vehicle (though tanks are subject to other inspection requirements).

As a vehicle-related issue, the skill set required for vehicle inspection or approval may be different to that required for tank design approval under the current Code. For example, currently a mechanical engineer with tank design experience is required for tank approvals in Australia, this may be excessive or inappropriate for ensuring a vehicle meets the requirements for approval. In NSW (for instance), the Vehicle Safety Compliance Certification Scheme (VSCCS) provides licensing to persons suitably qualified and experienced in assessing vehicle modifications. Such a scheme may be useful for ensuring that vehicles are appropriately designed, in accordance with AS 2809.

One potential issue is that some states and territories may not have schemes in place that could be used to provide a ready source of expertise in this area. Additionally, even where such a scheme is available, the scheme may not be sufficiently resourced or able to take on this work, and there may be questions about the competence of assessors who can undertake an assessment against the requirements of AS 2809.

However, where an approved tank is mounted onto another vehicle (re-horsing), a process for separate approval of vehicles, would permit a simplified approval process to assess, review and approve the vehicle.

Under the current system, as AS 2809 contains requirements for tank vehicles, competent authorities consider the requirements that apply to vehicles as a part of the tank approval process.

- Question 14:** Who should be able to verify that a vehicle meets the technical requirements for approval? Please provide your reasoning.
- Question 15:** Should the Code provide clear requirements on who should undertake the initial inspection?
- Question 16:** If an annual technical inspection requirement was introduced, who should be responsible for carrying out this inspection of the vehicle? Please provide your reasoning.
- Question 17:** Can this technical inspection be undertaken as a part of the normal inspection and maintenance of a tank vehicle?
- Question 18:** What record keeping should be expected for the technical inspection of the vehicle?
- Question 19:** Are there alternatives to a competent authority approval process for vehicles available, and appropriate? (e.g., certification by a suitably qualified person with associated record keeping).
- Question 20:** Are there schemes available (such as the VSCCS scheme in NSW) that could be utilised to ensure that vehicles are appropriately designed and constructed for dangerous goods service? Please provide details.
- Question 21:** Where such a scheme exists, is it able to take on the tasks that would be required to undertake these assessments?
- Question 22:** What alternative methods could be implemented to ensure that vehicles remain fit for dangerous goods service during their lifetime?

**References: Relevant ADR sections**

- 1.8.7.1 – general provisions relating to assessment
- 1.8.7.2 – type approvals for tanks, battery-vehicles or MEGCs (note this section also references pressure receptacles)
- 1.8.7.7.1 – technical documentation required for type approval

**References: Relevant ADG Code sections**

- 6.9.2.1 – approval of tank designs

## 5.2 Rail wagon approval

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Unlike the ADR, RID does not include any special vehicle approval requirements. The approval of the tanks, etc. is restricted to the tank and its structural features. Approval of wagons is thus presumed to be left to rail safety authorities.



**Question 23:** Is it appropriate to leave issues relating to rail wagon (though not tank) approval to rail safety authorities?

# 6 Administrative issues for approvals

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## Key points

- The current code and model legislation provide limited information about administrative issues relating to approvals of tanks, bulk containers, and vehicles.
- ADR provides much more detail on administering approvals.
- Responses to this section will be used to provide more certainty about how administrative aspects of approvals are treated.

## 6.1 Administrative controls

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Chapter 1.8 in ADR provides administrative controls relating to the approval processes generally. These provide information on the following:

- Expectations on applicants, inspecting bodies and competent authorities.
- The details that are to be included in the type approval certificate.
- Some general parameters for approvals:
  - approvals are valid for a maximum of 10 years
  - manufacture is not permitted after expiry or withdrawal of an approval
  - type approved containers may continue to be used provided they remain in conformance with ADR, and use, inspection and other requirements continue to apply
  - renewal processes for approvals that remain in conformance with ADR
  - a requirement that bodies that issue approvals must retain all documents while the approval is valid.
- Principles under ADR for modifications:
  - limits the modifications to those parts that are modified. Unaffected components or features are permitted to continue to use the existing approval
  - notes that modifications may apply to multiple items manufactured under an approval
  - that modifications require approval, and a certificate to be issued.

The Code does not provide direction or principles for tank design approval. This means that individual competent authorities are relatively free to define these principles, but this also increases uncertainty, and requires coordination between competent authorities to manage harmonisation. Even if the parameters used in ADR are modified, including such information would increase certainty for regulators and industry.

**Question 24:** Would there be any issues with incorporating these concepts into the Code?

**Question 25:** Do the general parameters for approvals make sense to the tank and vehicle industries, and to regulators?

**Question 26:** Would it be appropriate to make the information required mandatory, or should this be left to competent authorities to define?

**Question 27:** Are there specific requirements that need to be adopted for tank vehicles where the modifier is not the holder of the original approval?

**References: Relevant ADR sections**

*ADR 2021*

1.8.7.1 – general provisions relating to assessment

1.8.7.2 – type approvals for tanks, battery-vehicles or MEGCs (note this section also references pressure receptacles)

1.8.7.7.1 – technical documentation required for type approval

**References: Relevant Model Subordinate Instrument sections**

*MSI 2020*

4.2.3 – applications for approval of packaging design

4.2.4 – approval of packaging designs

## 6.2 Technical documentation for approvals

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Additional information on what technical documentation may be required to be submitted for an approval is contained ADR section 1.8.7.7.1. This is non-mandatory text and appears to be included to set expectations. Including this text will allow competent authorities undertaking approvals to clarify the document they expect to be provided as part of the approval process.

The Code does not presently define this, and it is left to each competent authority to define what is expected. The MSI provides competent authorities with powers relating to the approval of packaging designs, and thus the information required to assess the design.

Incorporating this information would assist competent authorities and industry to better understand the general expectations. It may also reduce the variation between the different competent authorities, though there may still be some variation in how competent authorities expect to receive the documentation.

**References: Relevant ADR sections**

1.8.7.7.1 – technical documentation required for type approval

**References: Relevant Model Subordinate Instrument sections**

4.2.3 – applications for approval of packaging design

4.2.4 – approval of packaging designs

## 6.3 Expiry of approvals

Expiry of approvals under ADR is handled with either a 10-year standard expiry, or a transitional provision. There is nothing in ADR that suggests an approval can't be limited to less than 10-years.

In ADG 7.8, a requirement that standards not be used for approvals after 12 months after expiry has been implemented. Under the Code, the expiry of an approval is defined in the approval itself.

Transitional provisions are written into ADR with each update. This has the advantage of making transitions and blanket expiries of older approvals much clearer. General transitional provisions are written into ADR in Chapter 1.6, while the list of applicable standards in Chapter 6.8. This helps to make clear when a standard may no longer be used for an approval by adding in a date in column (4). For example, the following is extracted from the table of referenced standards in 6.8.2.6.1:

Reference	Title of document	Applicable sub-sections and paragraphs	Applicable for new type approvals or for renewals	Latest date for withdrawal of existing type approvals
For design and construction of tanks				
EN 13094:2004	Tanks for the transport of dangerous goods – Metallic tanks with a working pressure not exceeding 0.5 bar – Design and construction	6.8.2.1	Between 1 January 2005 and 31 December 2009	
EN 13094:2008 + AC:2008	Tanks for the transport of dangerous goods – Metallic tanks with a working pressure not exceeding 0.5 bar – Design and construction	6.8.2.1	Between 1 January 2010 and 31 December 2018	
EN 13094:2015	Tanks for the transport of dangerous goods – Metallic tanks with a working pressure not exceeding 0.5 bar – Design and construction <b>NOTE:</b> The guideline on the website of the secretariat of the United Nations Economic Commission for Europe	6.8.2.1	Until further notice	

( <a href="http://www.unece.org/trans/danger/danger.html">http://www.unece.org/trans/danger/danger.html</a> ) also applies.			
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Adopting this method would mean that in each update, NTC would need to increment the approved standards, but would also provide transparency about which editions of a standard are applicable to an approval, when approvals expire, and when approvals are required to be withdrawn.

Of note is that ADR permits an approval to be used until it expires or is withdrawn by the competent authority. This creates administrative workload for a competent authority. An alternative approach would be for existing approvals to expire automatically, this would require a variation from the text in ADR.

The inclusion of these dates would be subject to consultation as part of the development of each new Code revision, giving the industry an opportunity to provide comment on the proposed withdrawal dates, and sufficient warning of when a standard would no longer be able to be used.

**Question 28:** Would including expiry and withdrawal dates in the list of standards (modified to reflect standards in Australia such as AS 2809) support a more effective transition process for new design standards?

**Question 29:** Should the new Code provide for automatic withdrawal of an approval after a certain date if an entry is made in column (5) of the table of standards, instead of requiring a competent authority to withdraw it (as written in ADR)?

**References: Relevant ADR sections**

- 1.6 – transitional measures
- 6.8.2.6 – list of referenced standards

**References: Relevant Model Subordinate Instrument sections**

- 1.2.3.2 – references to other codes, standards, or international rules

# 7 Next steps

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Consultation on this issues paper will close on 1 May 2023.

The responses to these questions will be used to develop proposed provisions for the future code. Due to the complexity of these provisions, the proposed provisions may be prepared after other papers containing critical questions have completed consultation.

# Glossary

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See the supplementary paper on tank and vehicle terminology for detailed discussion of terms relating to tanks, bulk containers and vehicles.

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