AS 2809.4:2017

Australian STANDARD

Road tank vehicles for dangerous goods

Part 4: Tankers for toxic and corrosive cargoes

STANDARDS Australia

This Australian Standard® was prepared by Committee ME-057, Road Tankers for Hazardous Liquids and Gases. It was approved on behalf of the Council of Standards Australia on 13 March 2017.
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The following are represented on Committee ME-057:

- Australasian Fire and Emergency Service Authorities Council
- Australia New Zealand Industrial Gas Association
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Institute of Petroleum Gas
- Energy Australia
- National Bulk Tanker Association
- National Heavy Vehicle Regulator
- Petroleum Industry Contractors Association
- Queensland Transport
- SafeWork SA
- The Bitumen Users Group
- WorkSafe Victoria

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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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Australian Standard®

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Part 4: Tankers for toxic and corrosive cargoes

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PREFACE

This Standard was prepared by the Standards Australia Committee ME-057, Road Tankers for Hazardous Liquids and Gases, to supersede AS 2809.4—2001. It is complementary to AS 2809.1—1999*, Road tank vehicles for dangerous goods*, Part 1: *General requirements*, and provides requirements that are specifically applicable to road tankers for the transport of liquids that are toxic or corrosive or both.

Please note that the scope of this revision was limited; a further revision of the full AS 2809 series, including this Standard, has been approved by Standards Australia and is currently underway.

This Standard is Part 4 of the AS 2809 series, which comprises six Parts. Part 1 specifies general requirements for all road tank vehicles and Parts 2 to 6 provide specific requirements applicable to particular road tank vehicles. The series is as follows:

AS		
2809	Road tank vehicles for dangerous goods	
2809.1	Part 1:	General requirements for all road tank vehicles
2809.2	Part 2:	Road tank vehicles for flammable liquids
2809.3	Part 3:	Road tank vehicles for compressed liquefied gases
2809.4	Part 4:	Tankers for toxic and corrosive cargoes (this Standard)
2809.5	Part 5:	Tankers for bitumen-based products
2809.6	Part 6:	Tankers for cryogenic liquids

This Standard was written at the request of state statutory authorities for the purpose of providing a reference standard for state regulations dealing with safety in the transport of dangerous goods. Since no other national standards existed from which requirements could be derived, this Standard has been modelled largely as dictated by industry experience in the transport of these goods.

This Standard deals with all the substances covered by Classes 6 and 8 of *The Australian Dangerous Goods Code* (ADG Code), although it is recognized that only a small number of them are transported in such a volume that specific road tankers are built to deal with them. For such materials, transport is by conventional trucks using packages or container tanks.

Specific attention is drawn to the following features of this Standard:

(a) A variety of types of tanks are provided for, according to the characteristics of the cargo. For certain very highly toxic substances, two needs are paramount, i.e. venting must be severely restricted, and the tank must be unusually robust to prevent splitting or tearing in the event of collision or rollover. For this class of cargo, the cargo tank is a pressure vessel, and specific design pressures are nominated, which vary according to the grade of toxicity and the normal vapour pressure. At lower levels of toxicity, a pressure vessel is only required if the normal vapour pressure requires it; otherwise cargo density is the only parameter. For corrosive cargo, the density, the vapour pressure, and the tank life are the main parameters.

To facilitate the selection of the correct type of tank for the particular cargo, the ADG Code incorporates an addition to its ‘Packaging Method’ code, indicating the type of tanker to be used if transport is in bulk. This Standard prescribes the construction of each type of tank.

(b) Additional shell thicknesses for corrosive cargo are not specifically nominated. The approach is that the corrosion allowance needs to be worked out for the particular characteristics of the cargo, from known attack rates, and for a predetermined tank life, for which 8 years is recommended; however, it is recognized that short-life tanks may have occasional applications, so appropriate judgement provisions are included.

(c) Any opening into the tank, e.g. vents, hatches and filling provisions, present particular problems for these classes of cargo. It is desirable to protect the tank against excessive pressure accumulations arising either from environmental or chemical causes, especially in the aftermath of an accident. However, the conventional spring-loaded pressure, vacuum, and emergency vents usual in petroleum service are not always suitable. They are vulnerable to fouling by corrosives, and toxic materials generally cannot be allowed to vent.

Hatches for filling, and manhole openings for entry for cleaning or inspection, present similar problems, i.e. there is a greater need for cargo retention after an accident.

Clauses of this Standard relating to vents represent an attempt to give general guidance on this complex and difficult matter, as Committee ME-057 considers it to be impracticable to treat the individual needs of each dangerous substance. Specific agreements between the owner, the manufacturer, and the authority will often be necessary.

IT SHOULD BE NOTED THAT COMPLIANCE WITH THIS STANDARD MAY NOT NECESSARILY FULFIL ALL THE LEGAL OBLIGATIONS.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the design and construction of tankers for the transport of toxic or corrosive cargo, which is normally liquid. This Standard is complementary to AS 2809.1. For toxic and corrosive compressed liquefied gases refer to AS 2809.3 in addition to this Standard.

NOTES:

1 Five alternative types of cargo tanks are described in the 6th edition of the ADG Code. Where it is desired to transport a product not listed in the ADG Code, the Authority should be consulted. Regulations may forbid the transport of certain dangerous goods in bulk, or may limit the quantity, or may require specific approval beforehand.

2 The 6th edition of the ADG Code makes the link between cargo type and tank type. In the context of this Standard, and aside from identifying the tank type, the latest version of the ADG Code should be used for all other purposes.

1.2 APPLICATION

Tankers for the transport of toxic or corrosive liquids shall comply with AS 2809.1 and this Standard. Where any requirement of this Standard differs from a similar requirement in AS 2809.1, this Standard shall take precedence. Where the cargo has two characteristics, e.g. toxic and flammable, or where a tanker is switched from one cargo to another, the requirements of both relevant parts shall apply.

1.3 NEW DESIGNS AND INNOVATIONS

Any innovative material, design, method of assembly procedure, etc., which does not comply with specific requirements of this Standard, or is not mentioned in it, but which gives equivalent results to those specified, is not necessarily prohibited, provided the minimal dimensional and performance requirements specified herein are met.

1.4 REFERENCED DOCUMENTS

The following Standards are referred to in this Standard:

AS		
1180	Methods of test for hose made from elastomeric materials	
1180.13B	Method 13B:	Determination of electrical resistance of hose assembly
1180.13C	Method 13C	Determination of electrical continuity of a hose assembly with reinforcing wire(s)
1210	Pressure vessels	
1271	Safety valves, other valves, liquid level gauges and other fittings for boilers and unfired pressure vessels	
1874	Aluminium and aluminium alloys—Ingots and castings	