

Australian Standard™

Road tank vehicles for dangerous goods

Part 4: Tankers for toxic and corrosive cargoes



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 30 April 2001 and published on 28 May 2001.

The following interests are represented on Committee ME-057:

Australasian Fire Authorities Council
Australian Chamber of Commerce and Industry
Australian Gas Association
Australian Industrial Gas Manufacturers Association
Australian Industry Group
Australian Institute of Petroleum
Australian Liquefied Petroleum Gas Association
Australian Valve Manufacturers Association
Commercial Vehicle Industry Association of Australia
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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—1986. 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.

This Part of the 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 Part has been modelled largely as dictated by industry experience in the transport of these goods.

This Part of the Standard deals with all the substances covered by Classes 6 and 8 of the Australian Code for the Transport of Dangerous Goods by Road and Rail (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 Part:

- (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 capsize. 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 relating to vents represent an attempt to give general guidance on this complex and difficult matter, as it is felt 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.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE.....	4
1.2 APPLICATION	4
1.3 NEW DESIGNS AND INNOVATIONS	4
1.4 INTERPRETATIONS.....	4
1.5 REFERENCED DOCUMENTS.....	4
1.6 DEFINITIONS.....	5
1.7 ULLAGE FOR TANKS OR CONTAINERS EXCEEDING 8600 L.....	5
SECTION 2 TANKS OF TYPES 1, 2 AND 3	
2.1 APPLICATION	6
2.2 TANK DESIGN AND CONSTRUCTION	6
2.3 VALVES AND FITTINGS.....	7
2.4 ADDITIONAL REQUIREMENTS FOR HIGHER HAZARDOUS	8
SECTION 3 TANKS OF TYPES 4 AND 5	
3.1 APPLICATION	9
3.2 MATERIALS.....	9
3.3 TANK DESIGN AND CONSTRUCTION	9
3.4 MANHOLES, VALVES AND VENTS	15
3.5 PIPEWORK AND PIPE FITTINGS	16
3.6 PUMPS	16
3.7 PUMP DRIVES	17
3.8 ELECTRIC CABLES AND ELECTRICAL FITTINGS	17
3.9 TESTING.....	17
3.10 MARKING	18
SECTION 4 TANK TESTING AND MAINTENANCE PROCEDURES	
4.1 GENERAL PRECAUTIONS.....	19
4.2 ENTRY INTO TANK	19
4.3 PURGING OPERATIONS	19
4.4 TANK REPAIR OR MODIFICATION	20
4.5 REGULAR TESTING AND MAINTENANCE	20

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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 cargo which is normally liquid, and which is toxic or corrosive. It is complementary to AS 2809.1.

NOTE: Five alternative types of cargo tanks are described. The ADG Code will specify which of them must be used for a particular cargo. 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.

1.2 APPLICATION

Tankers for the transport of toxic or corrosive liquids shall comply with Part 1 of AS 2809 and this Standard. Where any requirement of this Part differs from a similar requirement in Part 1, this Part 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. The Standards Australia Committee ME-057 Road Tankers for Hazardous Liquids and Gases can act in an advisory capacity concerning equivalent suitability, but the specific approval remains the prerogative of the Authority.

1.4 INTERPRETATIONS

Questions concerning the meaning, application, or effect of any part of this Standard may be referred to Standards Australia Committee ME-057, Road Tankers for Hazardous Liquids and Gases for explanation. The authority of the Committee is limited to matters of interpretation and it will not adjudicate in disputes.

1.5 REFERENCED DOCUMENTS

The following Standards are referred to in this Standard:

AS	
1210	Pressure vessels
1271	Safety valves, other valves, liquid level gauges and other fittings for boilers and unfired pressure vessels