AS 2809.4:2022

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Road tank vehicles for dangerous goods

Part 4: Road tank vehicles for toxic, corrosive or ammonium nitrate emulsion, suspension or gel cargoes

AS 2809.4:2022

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Australasian Convenience and Petroleum Marketers Association
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Australia New Zealand Industrial Gas Association
Australian Industry Group
Australian Institute of Petroleum
Australian Trucking Association
Chemistry Australia
Commercial Vehicle Industry Association of Australia
Department of Transport and Main Roads Qld
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Gas Energy Australia
Heavy Vehicle Industry Australia
National Bulk Tanker Association
National Heavy Vehicle Regulator
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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 2809.4:2017, *Road tank vehicles for dangerous goods, Part 4: Tankers for toxic and corrosive cargoes.* It is complementary to AS 2809.1, *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.

The objective of this document is to provide requirements for the design, construction, inspection and testing of road tank vehicles for the transport of Class 5.1, 6.1 or 8 as defined in the The Australian Dangerous Goods Code (ADG Code) covering oxidising, toxic or corrosive cargo, also defined in the ADG Code.

The major changes in this edition are as follows —

(a) Inclusion of a table to define tank types based on ADG instruction and cargo properties.

(b) Inclusion of a new tank type 6 for ammonium nitrate emulsion, suspension, or gel cargoes.

(c) Provision of tanks constructed from composite materials for tank type 6.

(d) Reorganization of sections with Section 2 for pressure tanks of Types 1, 2 and 3, Section 3 for tanks of Type 4 and 5, and Section 4 for tank type 6.

(e) Removal of specific materials requirements clauses for tank types 1, 2 and 3 as this is now covered by reference to AS 1210.

(f) Removal of tank shell and minimum plate thickness tables that are now included in AS 2809.2.

(g) Removal of tank testing and maintenance procedures as they are included in AS 2809.1.

Contents

Introduction

This document deals with all the substances covered by Classes 5.1, 6.1 and 8 of the Australian Dangerous Goods Code (ADG Code).

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

(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 document 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 document relating to vents represent an attempt to give general guidance on this complex and difficult matter, as it is impracticable to treat the individual needs of each dangerous substance. Specific agreements between the owner, the manufacturer, and the authority will often be necessary.

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Section 1 Scope and general

1.1 Scope

This document specifies requirements for the design, construction, inspection and testing of road tank vehicles for the transport of Class 5.1, 6.1 or 8 as defined in the ADG Code covering oxidising, toxic or corrosive cargo, as defined in the ADG Code. This document is complementary to AS 2809.1. For cargo which is a compressed liquefied gas, refer to AS 2809.3 in addition to this document.

1.2 Application

Road tank vehicles for the transport of toxic, corrosive or ammonium nitrate emulsion, suspension or gel cargoes shall conform to AS 2809.1. Where any requirement of this document differs from a similar requirement in AS 2809.1, this document shall take precedence.

1.3 New designs and innovations

This document does not prevent the use of designs, materials, methods of assembly, procedures and the like that do not conform with the specific requirements of this document, or are not mentioned in it, provided the performance requirements specified herein are met.

1.4 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 1210, *Pressure vessels*

AS 1594, *Hot-rolled steel flat products*

AS 2634, *Chemical plant equipment made from glass-fibre reinforced plastics (GRP) based on thermosetting resins*

AS 2809.1, *Road tank vehicles for dangerous goods, Part 1: General requirements for all road tank vehicles*

AS 2809.2, *Road tank vehicles for dangerous goods, Part 2: Road tank vehicles for flammable liquids*

AS 2865, *Confined spaces*

AS 3597, *Structural and pressure vessel steel — Quenched and tempered plate*

AS/NZS 1734, *Aluminium and aluminium alloys — Flat sheet, coiled sheet and plate*

AS/NZS 1866, *Aluminium and aluminium alloys — Extruded rod, bar, solid and hollow shapes*

AS/NZS 3678, *Structural steel — Hot-rolled plates, floorplates and slabs*

AS/NZS 3679.1, *Structural steel, Part 1: Hot-rolled bars and sections*