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Australian Standard 1940—1982

SAA FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Institute of Petroleum Limited

Confederation of Australian Industry

Department of the Capital Territory

Department of Defence

Department of Housing and Construction

Department of Employment and Labour Relations, Qld

Department of Industrial Affairs and Employment, S.A.

Department of Industrial Relations, N.S.W.

Departments of Labour and Industry, Vic.

Department of Minerals and Energy, Vic.

Departments of Mines

Department of Mines and Energy, N.T.

Electricity Supply Association of Australia

Insurance Council of Australia

Metal Trades Industry Association of Australia

Port of Melbourne Authority

Railways of Australia Committee

State Fires Services Council

This standard, prepared by Committee ME/17, Flammable and Combustible Liquids, was prepared on behalf of the Council of the Standards Association of Australia on 19 January 1982, and was published on 19 April 1982.

This standard was issued in draft form for public review as DR 80256.

STANDARDS ASSOCIATION OF AUSTRALIA

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AMENDMENT No. 1
to
AS 1940—1982
SAA FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE

CORRECTIONS

SUMMARY: These corrections apply to clauses 1.3.8, 1.3.14, 3.3.4(d), 9.9.11, 9.9.12 Note 7, Appendix B and Annex.

Published on 4 July 1983.

STANDARDS ASSOCIATION OF AUSTRALIA
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AMENDMENT No. 2
to
AS 1940—1982
THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

REVISED TEXT

SUMMARY: This amendment applies to Clauses 1.1, 1.3.2, 1.3.24, 1.3.32, 1.3.33, 1.4.2, 3.2.6, 4.4.3(c), 4.5.4(b), 4.8.2(a), 5.1, 5.3.2(d), 5.3.6, 5.6.1, 5.6.3, 6.1, 9.1, Paragraph D2.1(a), and Table 2.1.

Published on 9 August 1985.

AUSTRALIAN STANDARD

THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

known as the
SAA FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE

AS 1940—1982

First published 1976
Second edition 1982

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
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PREFACE

This edition of this standard was prepared by the Association's Committee on Flammable and Combustible Liquids, to supersede the 1976 edition. This edition incorporates published amendments and other alterations found necessary since the standard was first issued in 1976. The alterations are more in the nature of adjustments to detail than sweeping changes, and are the outcome of a general invitation to comment, issued late in 1979.

The standard was derived from AS CB5, Oil Fuel Installations, which was first issued in 1942. The issue of AS 1940 in 1976 marked a major change of direction, in that the scope was expanded beyond oil fuels to encompass any liquid that is flammable or combustible. Various requirements that had dealt with oil consuming appliances were dropped, now being covered by standards such as AS 1375*, AS 1692† and AS 1853.‡ The resulting standard was designed to be usable as a reference standard by State Statutory Authorities responsible for flammable liquids, and by Local Government bodies who supervised combustible liquid installations.

Amendment No 1 was issued in 1977 to incorporate the work of a special panel set up to improve the section on fire protection facilities. The most significant feature of this amendment was a new approach to the determination of cooling water requirements for multiple tank installations.

Amendment No 2 in 1978 made some adjustments to the section on service stations to make better provision for the then relatively new customer-operated self-service stations.

Amendment No 3 in 1979 was associated with a parallel amendment to AS 2106§ to clarify a problem in determining flashpoints in the border area between Class B and Class C liquids. Two methods of test were applicable, the Abel and the Pensky-Martens, there was a possibility of slightly differing results, so the flashpoint band in which each was used was altered to ensure that border line problems could not cause difficulties.

Having made these various adjustments as the need arose, the committee felt that a comprehensive review of the whole standard was desirable, so a general invitation for suggestions for improvement was issued. The results were circulated for public review late in 1980 and, after committee review, formed the basis of this revision.

This standard is intended to provide an authoritative source of fundamental safety principles for the planning, design and construction, and safe operation, of installations in which flammable or combustible liquids are stored or handled. It is intended for the use of responsible and competent persons or organizations, and must not be regarded as being either an instruction manual for untrained persons or a detailed design specification. It has no legal authority in its own right, but may acquire legal standing in one or more of the following circumstances:

—Adoption by a Statutory Authority having jurisdiction.

—Adoption by a purchaser as a required standard of construction when placing a contract.

—Adoption when a supplier or contractor states that an installation is in accordance with it.

This standard requires reference to a number of other standards, the titles of which are given in an Annex. Attention is also drawn to the individual guides issued under AS 1678, Emergency Procedure Guides—Transport, which set out emergency procedures to be adopted for road transport vehicles in an emergency involving fire, liquid spill or leak, or accident.

*AS 1375, SAA Industrial Fuel Fired Appliances Code
†AS 1692, Steel Tanks for the Storage of Flammable and Combustible Liquids
‡AS 1853, Rules for the Design and Construction of Single Automatic Oil and Gas Burners and their Application to Boilers.
§AS 2106, Methods for the Determination of the Flashpoint of Flammable Liquids (Closed Cup)

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard sets out requirements for the design, construction and operation of installations for the storage and handling of flammable and combustible liquids in locations that are generally industrial, commercial or rural in nature. This standard does not apply to the following:

(a) Shipboard installations.

(b) Residential type installations of a type dealt with in AS 1691.

(c) The transport of flammable or combustible liquids, dealt with in AS 2016 and AS 2017.

(d) Fuel tanks on any mobile vehicle or equipment.

(e) Any plant or equipment in which liquid is processed, together with any vessels which form an integral part of that processing equipment.

(f) Potable liquids.

(g) Bitumen and its mixtures prepared for road-making.

(h) Liquefied gases that are maintained in the liquid phase for storage by means of pressure or refrigeration.

NOTE :- SEE AMENDMENT 2

1.2 APPLICATION.

1.2.1 Relationship with Regulations. The requirements of this standard may be read in conjunction with, but do not take precedence over, any Statutory Regulations that may apply in any area.

NOTE: It should be noted that an installation may come under the jurisdiction of several authorities with differing areas of responsibility, and that an approval from one does not necessarily constitute an approval from others. Thus the construction of any plant may require separate approvals from authorities interested in flammable and combustible liquids, factory or machinery safety, electricity, gas, health, environment, water supply, sewerage and drainage, or the training and licensing of personnel.

1.2.2 New Designs, Innovations. Notwithstanding the specific requirements of this standard, any novel materials, designs, methods of assembly, etc which give equivalent results to those specified may be considered for acceptability. Such cases should be referred to SAA Committee ME/17 for determination of equivalent suitability.

1.2.3 Interpretations. Questions concerning the meaning, application or effect of any part of this standard may be referred to SAA Committee ME/17 for interpretation. The authority of this Committee is limited to matters of interpretation, and the Committee will not adjudicate in disputes.

1.3 DEFINITIONS. For the purpose of this standard, the following definitions apply:

1.3.1 Approved, Approval—with the approval of, acceptable to, and meeting the prescribed standards of, the authority having jurisdiction.

1.3.2 Authority, Authority having jurisdiction—the Authority having statutory (legal) control of the subject installation.

1.3.3 Boundary—the boundary of the whole of the site under the same occupancy as that on which the installation is included.

1.3.4 Bund—an embankment of earth, or a wall of brick, stone, concrete or other approved material which may form part or all of the perimeter of a compound.

1.3.5 Capacity (of a tank)—the total volume which the tank will accept without spilling or leaking.

NOTE: It is recognized that the available capacity of a tank will normally be less than the full capacity.

1.3.6 Category of tank—that category as classified in AS 1692.

1.3.7 Commercial building—any building that is partly or wholly used for offices, professional rooms, consulting rooms, and the like.

1.3.8 Combustible liquid—see Clause 1.3.4. 24 SEE AMENDMENT

1.3.9 Compound—an area bounded by natural ground contours or by a bund, and intended to retain spillage or leakage.

1.3.10 Confined space—any tank, pit, compound, pipe, flue, vessel or container which contains or has contained any harmful vapours or substances capable of producing them, or which contains or has contained or is made of or coated with any substance capable of causing the amount of oxygen present to be reduced to a dangerous extent.

1.3.11 Dwelling—any building or portion of a building that is used or is intended, adapted or designed for use for living purposes.

1.3.12 Dispenser—a measuring or metering unit used for the dispensing of liquids from a storage tank to the fuel tank of a vehicle, boat, or light aircraft.

1.3.13 Fire rating—the minimum fire resistance rating of a material or method of construction as determined by the method specified in AS 1530, Part 4.

1.3.14 Flammable liquid—see Clause 1.3.4.

1.3.15 Flashpoint—that flashpoint which has been determined as follows:

(a) For a liquid having a closed-cup flashpoint of 50°C or less—the Abel method as described in AS 2106, Part 1.

(b) For a liquid having a closed-cup flashpoint exceeding 50°C as determined by (a) above—the Pensky-Martens method as described in AS 2106, Part 2.