

AS 1940—1993

Australian Standard[®]

**The storage and handling of
flammable and combustible liquids**

This Australian Standard was prepared by Committee ME/17, Flammable Combustible Liquids. It was approved on behalf of the Council of Standards Australia on 18 August 1993 and published on 11 October 1993.

The following interests are represented on Committee ME/17:

Association of Australian Port and Marine Authorities
Australian Chamber of Commerce and Industry
Australian Fire Authorities Council
Australian Institute of Petroleum
Australian Paint Manufacturers Federation
Australian Steel Underground Tank Technical Association
Department of Defence, Australia
Department of Housing and Local Government, Qld
Department of Labour, S.A.
Occupational Health and Safety Authority, Vic.
Department of Mines, Western Australia
Department of Mines, Tas.
Department of Urban Services, A.C.T.
Insurance Council of Australia
Metal Trades Industry Association of Australia
Railways of Australia Committee
The WorkCover Authority, N.S.W.
United Trades and Labor Council of South Australia

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

AS 1940—1993

Australian Standard®

**The storage and handling of
flammable and combustible liquids**

First published as part of AS CB5—1942.
Second edition 1957.
Third edition 1969.
Revised and redesignated in part as AS 1940—1976.
Second edition 1982.
Third edition 1988.
Fourth edition 1993.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 8545 5

PREFACE

This Standard was prepared by the Standards Australia Committee on Flammable and Combustible Liquids to supersede AS 1940—1988. This new edition is the result of a comprehensive review of the Standard from cover to cover. Aside from minor editorial changes and clarifications of intent, the principal areas of change from the previous edition are as follows:

- (a) The overall structure of the Standard has been changed slightly by the rearrangement of the Sections. Certain requirements are common to various types of installation, i.e. package stores, tank depots, service stations and the like. Some of these had been grouped in Section 1 where they often went unnoticed, while others were scattered repetitively through the various Sections. To rationalize, a new Section 3 has been introduced. Substantial rearrangements and the consolidation of the general requirements of Sections 7, 8, and 9 are described later in this Preface.
- (b) The scope, and particularly the exclusions, have been adjusted in detail. The exclusion of processing plant remains under debate. Obviously major refining process plant has no place in this Standard, being designed under specific controls. Industrial processes that consume or use flammables under less expert control, while technically subject to analysis of hazardous zones, are to be a subject for future consideration.
- (c) The definitions of classes of flammable or combustible liquids have been reviewed in detail. The decimal numerical system of subdividing Class 3 liquids could not be retained, because of difficulties in achieving alignment with national and international classification systems. Some thought was given to returning to the original A, B, C and D system on the grounds of simplicity and independence, but the ultimate decision was to align the flammable classes with the packaging-group system of the Australian Dangerous Goods Code. Since combustible liquids are not part of that system, they have an independent class identification, but this has advantages in that it becomes easier to highlight the lower level of hazards and to make special provisions for them.
- (d) The definitions of liquids and of manufactured products have been altered to cater more clearly for viscous liquids and pastes.
- (e) All previous editions have made a distinction between protected works, which are mainly off-site uninhabited buildings, and those on-site facilities which include offices, workshops and the like associated with the activity. To minimize misunderstanding, the distinction has been clarified by the use of two specifically-defined terms, i.e. 'protected works', and 'on-site facilities'.
- (f) Minor storage has been thoroughly reviewed, and the quantities in Table 2.1 have been adjusted substantially. In addition, manufactured products are treated as a separate class of goods.
- (g) Section 4 has been totally rewritten. Much of this exercise has been editorial, i.e. an attempt to express more clearly the principles already established. However, there are a number of changes to detail, and illustrations have been introduced to clarify the intent of separation distances.
- (h) The control of access, general site security and the provision of warning and exclusion notices, have been refined, with some attention being given to the distinction between the restriction of the public on one hand and the control of one's own staff activities on the other. As a consequence, security fences feature prominently in separation distance considerations.
- (i) A very large number of adjustments have been made throughout the Section on tank installations to such things as height of firewalls, capacity of compounds, sub-divisions within compounds, drainage, and the use of tank chambers. Of particular note, previous editions had permitted a reduction of the catchment volume of a compound where only combustible liquids were stored. This concession has been withdrawn, so that all liquids, even those of low combustibility, require full bunding.

- (j) Section 7, Systems for Piping, Valves, Pumps and Tank Heating has been modernized and now incorporates a former separate Section that dealt with the heating of liquids, and which has been substantially trimmed of redundancies.
- (k) Section 8 now deals with the loading of flammable liquids into tankers, a subject which was not treated in sufficient detail in previous editions.
- (l) Section 9, Operations, has been totally restructured following a review of basic philosophy which has led to a fresh approach. Procedures are seen as the key to all operations; it is essential to formulate them, to promulgate them, to train to them, to enforce and police them, and finally to ensure that they are kept up-to-date.
- (m) The Fire Protection Section has been significantly revised.

It is foreshadowed that the next revision of this Standard will—

- (i) broaden the coverage to include potable liquids in containers over 20 L and with a strength exceeding 24% V/V ethanol. Organizations planning construction or expansion activities should take due cognizance of this proposal;
- (ii) increase the water supply duration of Clause 10.11.7 for cooling and hydrant water from 1.5 to 4 h; and
- (iii) consider limitations on tank farm layouts, including cluster tanks, to two rows from an access road.

This Standard, as amended from time to time, reflects changes in technology, and incorporates improvements which are derived from operational experience and the lessons of accidents and near misses. It also reflects control philosophies which have evolved and been proven in the intervening period since the last edition.

Users of this Standard should recognize that it represents a significant improvement in loss control over past editions and is intended to be applied in its entirety to new facilities built after the Standard's publication date.

The Committee encourages users of this Standard to critically reassess their sites, equipment and procedures whenever a new edition is published and supports initiatives by users to adopt and implement those parts which are practicable and which can improve overall site safety.

The Committee does not suggest that any of the provisions of this Standard are retrospective; however, users should check with the relevant statutory authority where this Standard has been adopted through legislation.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-