AS 2022—1983

Australian Standard®

SAA ANHYDROUS AMMONIA CODE

This Australian standard was prepared by Committee ME/32, Anhydrous Ammonia. It was approved on behalf of the Council of the Standards Association of Australia on 7 July 1983 and published on 5 September 1983.

The following interests are represented on Committee ME/32:

Australian Road Transport Federation

Board of Fire Commissioners, N.S.W.

Confederation of Australian Industry

Department of Employment and Labour Relations, Qld

Department of Health, N.S.W.

Department of Industrial Affairs and Employment, S.A.

Department of Industrial Relations, N.S.W.

Department of Labour and Industry, W.A.

Department of Minerals and Energy, Vic.

Department of Mines, W.A.

Metropolitan Fire Brigades Board, Melbourne

Railways of Australia Committee

Australian Standard®

ANHYDROUS AMMONIA – STORAGE AND HANDLING

known as the

SAA ANHYDROUS AMMONIA CODE

First published (as AS CB23) 1969
Revised and issued as AS 2022 1978
Second edition 1983

Incorporating:
Amdt. 1–1985

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

ISBN 0 7262 3103 7

PREFACE

This edition of this standard was prepared by the Association's Committee on Anhydrous Ammonia to supersede AS 2022–1978.

The most significant technical difference in this edition is that the design pressure has been adjusted to correct value for ammonia, i.e. 1.73 MPa. The previous edition had specified that the design pressure be that for propane, i.e. 1.75 MPa, the intention being to provide for those cases where tanks might be switched from one usage to another. It has now been decided that, to be technically correct, the standard must specify the exact minimum acceptable design pressure, and that the matter of changing cargoes should be covered by a warning note.

The testing and inspection periods for tanks and tank components have been reviewed, and adjusted where necessary. The requirement for the number of people in attendance during transfer has been reviewed, and the point of change from one attendant to two has been altered.

The terminology used in relation to sizes of tanks and cylinders, previously expressed variously in terms of volume, water capacity, or ammonia tonnage, has been rationalized and is now based on a concept similar to that adopted in AS 1596, SAA LP Gas Code and AS 1940, ASS Flammable and Combustible Liquids Code, i.e. the internal capacity of the container expressed as a volume.

The only other adjustments are editorial, the most significant of which concern the updating of the list of referenced standards, now transferred to an annex.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
ANHYDROUS AMMONIA — STORAGE AND HANDLING

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard sets out requirements for the design, construction and operation of equipment and installations for the storage and handling of anhydrous ammonia, and for its transport by road and rail. It does not deal with any plant or equipment in which ammonia is processed, or with any vessels that form an integral part of that processing equipment.

1.2 APPLICATION. The requirements of this standard may be read in conjunction with any Statutory Regulations that may apply in any area.

NOTE: It should be noted than 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 form authorities interested in building construction, hazardous materials, factory or machinery safety, electricity, gas, health, environment, water supply, sewerage and drainage, or the training and licensing of personnel.

1.3 NEW DESIGNS AND INNOVATIONS. Any novel materials, designs, methods of assembly, procedures, etc which do not comply with the specific requirements of this standard, or are not mentioned in it, but which give equivalent results to those specified are not necessarily prohibited. The responsible committee, ME/32, Anhydrous Ammonia, can act in an advisory capacity concerning equivalent suitability, but specific approval remains the prerogative of the Statutory Authority.

1.4 INTERPRETATIONS. Questions concerning the clarity, meaning, application or effect of any part of this standard may be referred to SAA Committee ME/32 for explanation. The authority of the committee is limited to matters of interpretations, and it will not adjudicate in disputes.

1.5 REFERENCED DOCUMENTS. A list with titles of the documents referred to in this standard is given in the Annex.

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

1.6.1 Anhydrous ammonia - ammonia gas in compressed and/or liquefied form.

1.6.2 'Approved' or 'approval' - approved by, or approval of, the Statutory Authorities concerned.

1.6.3 Authorized person - a person specifically appointed by an anhydrous ammonia distributor or the distributor's agent to perform the duties of that position.

1.6.4 Capacity (of a tank or cylinder) - the total volume of the space enclosed within the tank or cylinder, expressed in litres or cubic metres.

NOTE: This is synonymous with and numerically equal to water capacity.

1.6.5 Consumer - a person who purchases anhydrous ammonia for his own use and not for resale.

1.6.6 Container - a cylinder or tank specifically designed and constructed for the storage and/or transport of anhydrous ammonia.

1.6.7 Cylinder - a container specifically designed and constructed in accordance with Clause 2.2.1 and used in the manner prescribed in this standard.

1.6.8 Design pressure - the maximum allowable working pressure in a container or pipeline.

1.6.9 Design temperature - the allowable metal temperature of a container or pipe in accordance with the relevant design code.

1.6.10 Excess-flow valve - a valve normally in the open position which closes automatically when the flow in the direction for which the valve was designed exceeds a predetermined limit specified by the manufacturer. The valve will re-open or can be re-opened when the conditions which resulted in closure are no longer present.

1.6.11 Filler - a person authorized to fill containers with anhydrous ammonia.

1.6.12 Mass filling ratio - the ratio between the greatest mass of anhydrous ammonia permitted in a tank and the mass of water at 15°C which would completely fill the tank.

1.6.13 Fixed storage system - a stationary anhydrous ammonia storage system, including the tank or tanks, tank fittings and the ancillary equipment essential for the safe operation of the system. It also includes portable tanks as defined in Clause 1.6.24(d) or (e) if such tanks are installed an used in a fixed storage system.

1.6.14 Fusible plug, fusible link - a safety device consisting of a suitable low melting point material which is intended to yield or melt at a predetermined temperature.

1.6.15 Internal quick-closing remotely controlled shut-off valve - a valve designed to close both automatically on the operation of one or more fusible links or fusible plugs and manually from a remote position by the release of the means of holding the valve open.

1.6.16 Non-return valve - a valve which is normally closed and which permits flow in one direction only.

1.6.17 Pressure vessel - a container constructed in accordance with Clause 2.2.1 or Clause 2.2.2 and used in the manner prescribed in this standard.