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Australian Standard 2022–1978

SAA ANHYDROUS AMMONIA CODE

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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

Australian Road Transport Federation

Boards of Fire Commissioners

Confederation of Australian Industry

Department of Minerals and Energy

Departments of Labour and Industry

Departments of Mines

Health Commission of N.S.W.

Railways of Australia Committee

This standard, prepared by Committee ME/32, Anhydrous Ammonia, was approved on behalf of the Council of the Standards Association of Australia on 1 June 1978, and was published on 1 December 1978.

To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association are welcomed.

AUSTRALIAN STANDARD

RULES FOR THE STORAGE AND HANDLING OF ANHYDROUS AMMONIA

known as the

SAA ANHYDROUS AMMONIA CODE

AS 2022–1978

First published (as AS CB23)	1969
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PREFACE

This standard was prepared by the SAA Committee on Anhydrous Ammonia as the metrication and revision of AS CB23 — 1969, which it accordingly supersedes.

Most of the technical differences that have occurred are the normal result of the rounding-off of values inherent in a metric conversion. It was recognized that technical changes to a standard may cause difficulties particularly in the cases of plant under construction, and they have therefore been kept to a minimum. In any case, it is considered that real problems are unlikely, and can, if they occur, be settled by negotiation with the appropriate Statutory Authority.

In the revision there have been a number of editorial alterations which have changed the standard's appearance. Matters which relate to safe operating procedures as distinct from the design and manufacture of an installation have been grouped in a specific operating section. Certain advisory material has been moved to an appendix, and matters dealing with the design and construction of road tank vehicles have been deleted, to be treated by reference to a forthcoming standard being prepared by another committee. The design rules for tanks have also been reduced in content, since much of the earlier material is now covered in the reference standard AS 1210, SAA Unfired Pressure Vessels Code.

The rules for safety valve discharge capacity, and the associated appendix, have been modified to align editorially with other similar standards, and to align with AS 1210.

Rules dealing with materials have been updated, and a new appendix on stress-corrosion cracking has been introduced.

The requirements for safety valves, excess-flow and non-return valves, etc have been substantially rewritten while remaining technically much the same.

Separation distances between tanks have been modified, and clearances from boundaries, buildings, etc are qualified by advice as to possible concessions in specific circumstances.

This standard is intended to provide an authoritative source of fundamental requirements 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 specification for detailed equipment design. It has no legal authority in its own right, but may acquire legal standing in one or more of the following circumstances:

1. Adoption by a Statutory Authority having jurisdiction.
2. Adoption by a purchaser as a required standard of construction when placing a contract.
3. Adoption where a supplier or contractor states that an installation is in accordance with it.

This standard makes reference to the following standards:

AS 1200 SAA Boiler Code
AS 1210 SAA Unfired Pressure Vessels Code
AS 1216 Code of Practice for Safe Handling of Dangerous Goods
Part 1 — Classification and Class Labels for Dangerous Goods
AS 1271 Valves, Water Gauges and Other Fittings for Boilers and Unfired Pressure Vessels
AS 1337 Industrial Eye Protectors
AS 1345 Rules for the Identification of Piping, Conduits and Ducts
AS 1349 Bourdon Tube Pressure and Vacuum Gauges
AS 1677 SAA Refrigeration Code
AS 1678 Emergency Procedure Guides — Transport 2.2.001 — Anhydrous Ammonia
AS 1715 Code of Practice for Respiratory Protection
AS 1716 Respiratory Protective Devices
AS 1722 Pipe Threads of Whitworth Form
Part 1 — Sealing Pipe Threads
AS 1796 SAA Welding Certification Code
AS 1801 Industrial Safety Helmets
AS 1940 SAA Flammable and Combustible Liquids Code
AS 1942 Rules for the Identification of Refrigerant Gas Cylinders
AS 2030 SAA Gas Cylinders Code
AS 2090 Uninsulated Road Tankers for Compressed Liquefiable Gases
AS 2161 Industrial Safety Gloves and Mittens (Excluding Electrical and Medical Gloves)
AS 2210 Safety Footwear
AS 2212 Rubber Hose for Anhydrous Ammonia
AS 3000 SAA Wiring Rules
AS B240 Valve Fittings for Compressed Gas Cylinders
AS CB15 SAA Pipe Welding Code
Part III — Arc Welding of Ferritic Steel Piping
AS CB18 SAA Pressure Piping Code
Part 1 — Ferrous Piping
AS CB22 SAA Code for Gas Cylinder Test Stations
AS E38 Portable Warning Signs for Motor Vehicles
BS 1041 Code for Temperature Measurement
ANSI K61-1 Safety Requirements for the Storage and Handling of Anhydrous Ammonia
API 260 Recommended Rules for Design and Construction of Large, Welded, Low-pressure Storage Tanks

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Rules for THE STORAGE AND HANDLING OF ANHYDROUS AMMONIA

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. These Rules (hereinafter referred to as 'the Code' or 'this Code') apply to the design, construction and operation of equipment and installations for the storage and handling of anhydrous ammonia, and to its transport by road and rail. The Code 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.

1.2.1 Relationship with Regulations. The requirements of the Code may be read in conjunction with 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 building construction, hazardous materials, factory or machinery safety, electricity, gas, health, environment, water supply, sewerage and drainage, or the training and licensing of personnel.

1.2.2 New Designs and Innovations. Any novel materials, designs, methods of assembly, procedures, etc which do not comply with the specific requirements of the Code, 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.

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

1.3 DEFINITIONS. For the purpose of the Code the following definitions apply:

1.3.1 Anhydrous ammonia — ammonia gas in compressed and/or liquefied form.

1.3.2 'Approved' or 'approval' — approved by, or approval of, the Statutory Authorities concerned.

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

1.3.4 Consumer — a person who purchases anhydrous ammonia for his own use and not for resale.

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

1.3.6 Cylinder — a container specifically designed and constructed in accordance with Rule 2.2.1 and used in the manner prescribed in other relevant Rules of the Code.

1.3.7 Design pressure — the maximum allowable working pressure in a container or pipeline.

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

1.3.9 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.

1.3.10 Filler — a person authorized to fill containers with anhydrous ammonia.

1.3.11 Filling ratio — the ratio of the mass of anhydrous ammonia in a container to the mass of water the container will hold at 15°C.

1.3.12 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 Rule 1.3.23(b)(ii) or (c) if such tanks are installed and used in a fixed storage system.

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1.3.13 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.

1.3.14 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.

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