# Australian/New Zealand Standard<sup>™</sup>

## **Refrigerating systems**

Part 2: Safety requirements for fixed applications





#### AS/NZS 1677.2:1998

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME/6, Refrigeration. It was approved on behalf of the Council of Standards Australia on 14 November 1997 and on behalf of the Council of Standards New Zealand on 3 November 1997. It was published on 5 January 1998.

The following interests are represented on CommitteeME/6:

Air Conditioning and Refrigeration Wholesalers Association, Australia Air-conditioning and Refrigeration Equipment Manufacturers Association of Australia Association of Fluorocarbons Consumers and Manufacturers, Australia Australasian Railway Association Australian Chamber of Commerce and Industry Australian Institute of Refrigeration Air Conditioning and Heating Australian Liquefied Petroleum Gas Association Australian Retailers Association Commercial Refrigeration Manufacturers Association of Australia Institution of Engineers Australia Institution of Refrigeration Heating and Air Conditioning Engineers, New Zealand Metal Trades Industry Association of Australia Ministry of Commerce, New Zealand Motor Vehicle Repair Industry Council, Australia Office of Fair Trading and Business Affairs, Victoria Refrigeration & Air Conditioning Companies Association, New Zealand Vehicle Air Conditioning Specialists of Australia WorkCover New South Wales

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#### PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME/6, Refrigeration. This Standard supersedes (in part) AS 1677—1986, Refrigerating systems and NZS 5235, Code of practice for safety in mechanical refrigeration (Refrigeration code), Part 1:1991, Refrigerating systems with a total refrigeration effect in excess of 30 kW and Part 2:1988, Refrigerating systems with a total refrigeration effect less than 30 kW.

This Standard incorporates Amendment No. 1, (June 1999) and Amendment No. 2, (December 2000). The changes required by the Amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure, or part thereof affected.

The objective of this document is to provide standardized minimum requirements to address the fundamental safety aspects of refrigerating systems for use by designers, installers, manufacturers, operators and regulators of these systems.

This Standard forms Part 2 of a three-part series of Standards to address refrigerating systems. Part 1 of the series covers refrigerant classification and Part 3 addresses safety requirements for mobile applications. This Standard is based on BS 4434:1995, Safety and environmental aspects in the design, construction and installation of refrigerating appliances and systems, ANSI/ASHRAE 15:1992, Safety code for mechanical refrigeration and ISO 5149:1993, Mechanical refrigerating systems used for cooling and heating—Safety requirements.

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.

This Standard has undergone a considerable number of changes and revisions. Details of the publishing history can be obtained from Standards Australia or Standards New Zealand Information Centre.

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## Australian/New Zealand Standard Refrigerating systems

Part 2: Safety requirements for fixed applications

SECTION 1 SCOPE AND GENERAL

## 1.1 SCOPE

This Standard specifies requirements for the safety aspects, in terms of the design, construction, installation and inspection, of refrigerating appliances, systems and ancillary equipment intended for use or installation in institutional, public assembly, residential, commercial and industrial occupancies. It includes heat pumps and reverse cycle airconditioning systems.

It applies to new refrigerating systems, to extensions and modifications of existing systems and to used systems on being reinstalled and operated at another site. It also applies in the case of the conversion of a system for use with another refrigerant.

It does not apply to specific requirements detailed in the following:

- (a) Household refrigerators covered by AS/NZS 4474.1.
- (b) Refrigerated room airconditioners covered by AS 1861.
- (c) Electrical approval and test specifications such as AS/NZS 3179, AS 3303, AS 3305 or NZS 6324.

NOTES:

- 1 This Standard is limited to fundamental safety requirements and does not purport to provide detailed design guidance.
- 2 The requirements of this Standard are based on the assumption that refrigerating systems are designed, constructed, installed, inspected and maintained by competent personnel.
- 3 The introduction of new refrigerants and techniques make it critical to ensure that the equipment to be installed or converted is suitable for use with the refrigerant to be used. Failure to observe appropriate precautions could lead to system failure resulting in injury or death.

## **1.2 PERFORMANCE REQUIREMENTS**

The basis of the prescriptive approach to refrigerating system safety specified in this document is that the total charge of refrigerant and the volume of space in which a system is located are chosen so as to ensure that the practical limit requirements of this Standard can not be exceeded.

A performance based approach may be used for system design. Such systems shall be as safe as that specified in the prescriptive approach. The safety of such systems shall be assessed and verified by a competent person. Such systems shall be approved by the relevant regulatory authorities.

#### **1.3 REFERENCED DOCUMENTS**

A list of documents referred to in this Standard is provided in Appendix A.



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