AS/NZS ISO 817:2016
ISO 817:2014

AS/NZS ISO 817:2016

Australian/New Zealand Standard™

Refrigerants—Designation and safety classification

STANDARDS Australia

STANDARDS NEW ZEALAND
PAEREWA AOTEAROA

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-006, Refrigeration. It was approved on behalf of the Council of Standards Australia on 7 September 2016 and by the New Zealand Standards Approval Board on 28 September 2016.
This Standard was published on 19 October 2016.

The following are represented on Committee ME-006:

Air Conditioning and Refrigeration Equipment Manufacturers Association of Australia
Air Conditioning and Refrigeration Wholesalers Association
Australian Industry Group
Australian Institute of Refrigeration, Air Conditioning and Heating
Australian National Retailers Association
Australian Refrigeration Council
Climate Control Companies Association, New Zealand
Consumer Electronics Suppliers Association
Department of Environment
Department of Natural Resources and Mines, Qld
Environmental Protection Authority, New Zealand
Green Cooling Association
Institute of Refrigeration Heating and Air Conditioning Engineers of New Zealand
Metropolitan Fire and Emergency Services Board, Vic.
Ministry of Business, Innovation and Employment, New Zealand
New Zealand Electrotechnical Committee
Refrigerants Australia
Workplace Health and Safety Queensland
WorkSafe New Zealand
WorkSafe Victoria

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com or Standards New Zealand web site at www.standards.govt.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS ISO 817:2015.

Australian/New Zealand Standard™

Refrigerants—Designation and safety classification

Originated in Australia as AS CB3—1933.
Originated in New Zealand as NZS 1653:1962.
Previous and first joint edition AS/NZS 1677.1:1998.
Jointly revised and redesignated as AS/NZS ISO 817:2016.

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 1473, Wellington 6011.

ISBN 978 1 76035 581 4

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-006 Refrigeration, to supersede AS/NZS 1677.1:1998 *Refrigerating systems*, Part 1: *Refrigerant classification.*

The objective of this Standard is to provide an unambiguous system for assigning designations to refrigerants. It also establishes a system for assigning a safety classification to refrigerants based on toxicity and flammability data.

This Standard does not address the hazards caused by products of combustion or decomposition of refrigerants. These products may include (but are not limited to) hydrogen fluoride. Exposure to these products can be harmful.

Lubricants and associated hazards are also not covered by this Standard. Lubricants can present significant health and environmental hazards.

This Standard is identical with, and has been reproduced from ISO 817:2014, *Refrigerants—Designation and safety classification.* This Standard is to be read in conjunction with the relevant legislation, regulation and national Refrigeration Industry Codes of Practice.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text ‘this International Standard’ should read ‘this Australian/New Zealand Standard’.

(b) A full point substitutes for a comma when referring to a decimal marker.

None of the normative references in the source document have been adopted as Australian or Australian/New Zealand Standards.

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

CONTENTS

INTRODUCTION

This third edition has been technically revised by the addition of new refrigerant designations and a safety classification system based on toxicity and flammability data.

The safety classifications in this International Standard do not consider decomposition products or by-products of combustion. Product and system safety standards (e.g. ISO 5149, IEC 60335-2-24, IEC 60335-2-34, IEC 60335-2-40 and IEC 60335-2-89) address the prevention of ignition of refrigerant based on the characteristics provided in this International Standard.

AUSTRALIAN/NEW ZEALAND STANDARD

Refrigerants—Designation and safety classification

1 Scope

This International Standard provides an unambiguous system for assigning designations to refrigerants. It also establishes a system for assigning a safety classification to refrigerants based on toxicity and flammability data, and provides a means of determining the refrigerant concentration limit. Tables listing the refrigerant designations, safety classifications and the refrigerant concentration limits are included based on data made available.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI/ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants*

ASTM E681, *Standard Test Method for Concentration Limits of Flammability of Chemicals (Vapours and Gases)*

3 Terms, definitions, abbreviated terms and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
acute toxicity
adverse health effect(s) from a single, short-term exposure

3.1.2
acute-toxicity exposure limit
ATEL
maximum recommended refrigerant concentration determined in accordance with the established systems and intended to reduce the risks of acute toxicity hazards to humans in the event of a refrigerant release

Note 1 to entry: The systems are specified in this International Standard.

3.1.3
anaesthetic effect
impairment of the ability to perceive pain and other sensory stimulation

3.1.4
approximate lethal concentration
ALC
concentration of a refrigerant that is lethal to even a single test animal but to less than 50 % of the animals in that group when tested by the same conditions as for an LC_{50} test

3.1.5
azeotrope
blend composed of two or more refrigerants whose equilibrium vapour and liquid phase compositions are the same at a specific pressure, but may be different at other conditions