AS 4214:2018

Gaseous fire-extinguishing systems

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The following are represented on Committee FP-011:

- Australasian Fire and Emergency Service Authorities Council
- Australian Chamber of Commerce and Industry
- Australian Industry Group
- CSIRO
- Engineers Australia
- Facility Management Association of Australia
- Fire Protection Association Australia
- National Fire Industry Association

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Australian Standard®

Gaseous fire-extinguishing systems

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PREFACE

This Standard was prepared by the Standards Australia Committee FP-011, Special Hazard Fire Protection Systems, to supersede AS ISO 14520, Parts 1 to 15—2009, *Gaseous fire extinguishing systems*.

This Standard is based on ISO 14520, series of Standards, *Gaseous media fire-extinguishing systems—Physical properties and system design*, Parts 1 to 15 (published in 2015 and 2016).

This Standard incorporates content with modification from the following ISO Standards in the parts of this Australian Standard as specified in the table below.

ISO Content	**Location of modified ISO content**
ISO 14520 (series) Gaseous fire-extinguishing systems— Physical properties and system design	AS 4214 Gaseous fire-extinguishing systems
Part 1: General requirements	Body
Part 2: CF3I extinguishant	Appendix D
Part 5: FK-5-1-12 extinguishant	Appendix E
Part 6: HCFC Blend A extinguishant	Appendix F
Part 8: HFC 125 extinguishant	Appendix G
Part 9: HFC 227ea extinguishant	Appendix H
Part 10: HFC 23 extinguishant	Appendix I
Part 11: HFC 236fa extinguishant	Appendix J
Part 12: IG-01 extinguishant	Appendix K
Part 13: IG-100 extinguishant	Appendix L
Part 14: IG-55 extinguishant	Appendix M
Part 15: IG-541 extinguishant	Appendix N

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With the exception of the marine systems as detailed in Appendix A, this Standard does not cover the requirements of CO_2 systems. The committee plans to transfer the requirements of CO_2 marine systems to AS 6183 as part of a future amendment.

The objective of this Standard is to provide designers and installers with minimum requirements for the design, installation, testing and commissioning of gaseous fire extinguishing systems for structures, buildings and plant.

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

This Standard incorporates Commentary on some clauses. The Commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a panel. The Commentary is for information only and does not need to be followed for conformance with the Standard.

Statements expressed in mandatory terms in Notes to Tables and Figures are deemed to be requirements of this Standard.

FOREWORD

Fire fighting systems covered in this Standard are designed to provide a supply of gaseous extinguishing medium for the extinction of fire.

Several different methods of supplying extinguishing agent to, and applying it at, the required point of discharge for fire extinction have been developed in recent years, and there is a need for dissemination of information on established systems and methods. This Standard has been prepared to meet this need.

In particular, new requirements to eliminate the need to release extinguishing agents during testing and commissioning procedures are included. These are linked to the inclusion of enclosure integrity testing.

The requirements of this Standard are made in the light of the best technical data known to the working group at the time of writing but, since a wide field is covered, it has been impracticable to consider every possible factor or circumstance that might affect implementation of the recommendations.

It has been assumed in the preparation of this Standard that the execution of its provisions is entrusted to people appropriately qualified and experienced in the specification, design, installation, testing, approval, inspection, operation and maintenance of systems and equipment. This Standard has been prepared for their guidance, and it is expected that a duty of care will be exercised to avoid unnecessary release of extinguishing agents.

Attention is drawn to the Montreal Protocol on substances that deplete the ozone layer.

It is important that the fire protection of a building or plant be considered as a whole. Gaseous extinguishing agent systems form only a part, though an important part, of the available facilities, but it should not be assumed that their adoption necessarily removes the need to consider supplementary measures, such as the provision of portable fire extinguishers or other mobile appliances for first aid or emergency use, or to deal with special hazards.

Gaseous extinguishing agents have for many years been a recognized effective medium for the extinction of flammable liquid fires and fires in the presence of electrical and ordinary Class A hazards, but it should not be forgotten, in the planning of comprehensive schemes, that there may be hazards for which these media are not suitable, or that in certain circumstances or situations there may be dangers in their use requiring special precautions.

Advice on these matters can be obtained from the appropriate manufacturer of the extinguishing agent or the extinguishing system. Information may also be sought from the appropriate fire authority, the health and safety authorities and insurers. In addition, reference should be made as necessary to other national Standards and statutory regulations of the particular country.

It is essential that fire fighting equipment be carefully maintained to ensure instant readiness when required. Routine maintenance is liable to be overlooked or given insufficient attention by the owner of the system. It is, however, neglected at peril to the lives of occupants of the premises and at the risk of crippling financial loss. The importance of maintenance cannot be too highly emphasized. Installation and maintenance should only be done by qualified personnel.

Inspection, preferably by a third party, should include an evaluation that the extinguishing system continues to provide adequate protection for the risk (protected zones as well as state of the art can change over time).

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1 SCOPE

This Standard specifies requirements and gives recommendations for the design, installation, testing, maintenance and safety of gaseous fire-extinguishing systems and the characteristics of the various extinguishing agents and types of fire for which they are a suitable extinguishing medium.

It covers total flooding systems utilizing electrically non-conducting gaseous fire extinguishing agents that do not leave a residue after discharge and for which there is sufficient data currently available to enable validation of performance and safety characteristics by an appropriate independent authority.

Explosion suppression or oxygen reduction fire prevention systems are not within the scope of this Standard.

This Standard is not intended to indicate approval of the extinguishing agents listed therein by the appropriate authorities, as other extinguishing agents may be equally acceptable.

With the exception of marine CO_2 fire extinguishing systems, specified in Appendix A, CO_2 systems are not covered by this Standard as they are covered by AS 6183.

This Standard is applicable to the extinguishing agents listed in Table 1. The physical properties and characteristics of each extinguishing agent are detailed in the relevant appendix of this Standard.