

Australian Standard™

Gaseous fire extinguishing systems

This Australian Standard was prepared by Committee FP-011, Gaseous Fire Protection. It was approved on behalf of the Council of Standards Australia on 28 August 2002. This Standard was published on 13 November 2002.

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Australian Government Analytical Laboratories, Scientific Services Laboratory
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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, Gaseous Fire Extinguishing Systems, to supersede AS 4214—1995, *Gaseous fire extinguishing systems—General requirements*.

This Standard incorporates Amendment No. 1 (May 2005). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

This revision is based on ISO 14520.1 and NFPA 12, *Carbon dioxide extinguishing systems*. The Committee has introduced higher levels of safety and security. Additionally, this revision includes a section dedicated to marine application. Appendices cover gaseous agents including an appendix for carbon dioxide.

It is essential that gaseous fire extinguishing systems be maintained to ensure instant readiness when required. The importance of maintenance cannot be too highly emphasized. Maintenance requirements for gaseous systems are detailed in AS 1851.12 (see Clause 1.4).

Gas containers manufactured for use in Australia are required to meet the design criteria set out in AS 2030.1, *The approval, filling, inspection, testing and maintenance of containers for the storage and transport of compressed gases, Part 1: Containers for compressed gases other than acetylene*.

Attention is drawn to AS 2030.1, as it requires containers to be designed for a pressure developed at the nominated maximum temperature of 65°C. This is some 10°C higher than that nominated in overseas codes. Accordingly, this aspect should be kept in mind for any imported containers.

It is a basic assumption in all technical standards work that each Standard be used only by persons competent in the field of application. This is of particular importance in fire protection work. Accordingly, it is emphasized that only trained and experienced designers interpret the design requirements contained herein.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of this Standard.

This Standard incorporates a 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 compliance with the Standard.

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FOREWORD

Gaseous fire extinguishing systems covered in this Standard are intended to extinguish, suppress or inert fires.

Several different extinguishing agents have been developed in recent years, and there is a need for dissemination of information on systems and the design methods required for their extinguishing agents. This Standard has been prepared to meet this need.

Gaseous fire extinguishing systems utilizing extinguishing agents that have been supported by the presentation of full technical data to the Committee have been included in the appendices. These data include relevant details on the health and safety aspects, environmental acceptability and the system design methods, hardware and software.

In addition, alternative requirements to the release of extinguishing agents during testing and commissioning procedures have been 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 Committee 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.

This Standard has been prepared on the basis that personnel with the appropriate levels of skill, training and practical experience would undertake the functions associated with the design, installation, testing and commissioning of gaseous fire extinguishing systems, to provide safe and satisfactory performance, including exercising a duty of care to avoid unnecessary release of extinguishing agent.

It is important that the protection of a structure, building or plant be considered on a holistic approach basis. Gaseous fire extinguishing systems form only a 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 fire extinguishing systems have for many years been recognized as effective for extinguishing flammable liquid fires and fires in the presence of electrical and ordinary Class A hazards. However, when planning systems, designers should be aware that there may be hazards for which these agents are not suitable, or that in certain circumstances or situations there may be dangers in their use, which will require special precautions.

Advice on these matters can be obtained from the manufacturers of gaseous fire extinguishing systems. Additional information can also be sought from fire authorities, health and safety authorities, insurers and the authority having jurisdiction.

Gaseous fire extinguishing systems need to be maintained to ensure readiness when required. The importance of maintenance cannot be too highly emphasized.

STANDARDS AUSTRALIA

Australian Standard

Gaseous fire extinguishing systems

S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

A1 | This Standard sets out requirements for design, installation, testing and commissioning of gaseous fire extinguishing systems for both total flooding and local application types. It applies to central and distributed supply systems.

This Standard does not apply to explosion suppression.

This Standard deals with systems utilizing electrically non-conducting extinguishing agents that do not leave a residue after discharge and for which there is sufficient data currently available to enable validation of performance characteristics by an internationally recognized fire protection test and approval body (see Clause 1.9). It is not intended to indicate approval by the authorities having jurisdiction of the systems utilizing the agents included in Table 1.1. It is essential that this Standard be used in conjunction with its separate, specific extinguishing agent contained in the appendices of this Standard.

The characteristics of extinguishing agents and their suitability for classes of fire are also considered.

NOTES:

- 1 This Standard should be read in conjunction with AS 1851.12, which covers inspection, testing and maintenance of gaseous fire extinguishing systems.
- 2 Gas pressures have been expressed in bars with the SI units (MPa, kPa) shown in brackets immediately following.
- 3 Where values have been obtained from sources such as NFPA, they have been conservatively rounded.
- A1 | 4 For the purposes of this Standard, fire extinguishing includes inerting.



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