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BSI Standards Publication

Fixed firefighting systems – Gas extinguishing systems

Part 9: Physical properties and system design of gas extinguishing systems for IG-55 extinguishant (ISO 14520-14:2015, modified)

bsi.

National foreword

This British Standard is the UK implementation of EN 15004-9:2017. It is derived from ISO 14520-14:2015. It supersedes BS EN 15004-9:2008, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FSH/18/6, Gaseous Extinguishing Media and Systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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European foreword

This document (EN 15004-9:2017) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2018, and conflicting national standards shall be withdrawn at the latest by June 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15004-9:2008.

The text of the International Standard ISO 14520-14:2015 from Technical Committee ISO/TC 21 “Equipment for fire protection and firefighting” of the International Organization for Standardization (ISO) has been taken over as a European Standard by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI, with common modifications which are indicated by a straight line in the margin of the text.

This European Standard will consist of the following parts, under the general title *Fixed firefighting systems – Gas extinguishing systems*:

— *Part 1: Design, installation and maintenance;*

— *Part 2: Physical properties and system design of gas extinguishing systems for FK-5-1-12 extinguishant;*

— *Part 3: Physical properties and system design of gas extinguishing systems for HCFC Blend A extinguishant;*

— *Part 4: Physical properties and system design of gas extinguishing systems for HFC 125 extinguishant;*

— *Part 5: Physical properties and system design of gas extinguishing systems for HFC 227ea extinguishant;*

— *Part 6: Physical properties and system design of gas extinguishing systems for HFC 23 extinguishant;*

— *Part 7: Physical properties and system design of gas extinguishing systems for IG-01 extinguishant;*

— *Part 8: Physical properties and system design of gas extinguishing systems for IG-100 extinguishant;*

— *Part 9: Physical properties and system design of gas extinguishing systems for IG-55 extinguishant;*

— *Part 10: Physical properties and system design of gas extinguishing systems for IG-541 extinguishant.*

The International Standards ISO 14520-2 and ISO 14520-11, which dealt with CF3I and HFC 236fa extinguishants, respectively, have not been implemented by CEN, as CF3I is only valid for local application and HFC 236fa extinguishant is only applicable for portable fire extinguishers and local application, respectively, which is not covered by the scope.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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1 Scope

1.1 This document specifies requirements for gaseous fire-extinguishing systems, with respect to the IG-55 extinguishant. It includes details of physical properties, specification, usage and safety aspects.

1.2 This documents is applicable for systems operating at nominal pressures of 150 bar at 15 °C, 200 bar at 15 °C and 300 bar at 15 °C. This does not preclude the use of other systems, although design data for other pressures are not available at this time.

2 Normative references

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

EN 15004-1:2017, *Fixed firefighting systems — Gas extinguishing systems — Part 1: Design, installation and maintenance (ISO 14520-1:2006, modified)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15004-1 apply.

4 Characteristics and uses

4.1 General

IG-55 is a colourless, odourless, electrically non-conductive gas with a density approximately the same as that of air.

It is an inert gas mixture consisting nominally of 50 % argon and 50 % nitrogen. The mixture specification for IG-55 is as follows:

a) argon percentage range (50 ± 5) %

b) nitrogen percentage (50 ± 5) %

Extinguishant IG-55 shall comply with the specification shown in Table 1. The physical properties are shown in Table 2. IG-55 extinguishes fires by reduction of the oxygen concentration in the atmosphere of the hazard enclosure.

Table 1 — Specification for IG-55

Component	Argon	Nitrogen
Purity	> 99,9 %	> 99,9 %
Moisture	< 15 parts per million	< 10 parts per million
NOTE Only principal contaminants are shown. Other measurements can include hydrocarbons, CO, NO, NO_2, CO_2, O_2, etc. Most are < 20×10^{-6}.		

Table 2 — Physical properties of IG-55

Property	Units	Value
Molecular mass	—	33,98
Boiling point at 1,013 bar (absolute)	°C	—