



DPC: 25/30498918 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 16 January 2025

Origin: European

Latest date for receipt of comments: 11 March 2025

Project No. 2024/02334

Responsible committee: FSH/18/6 Gaseous Extinguishing Media and Systems

Interested committees:

Title: Draft BS EN 15004-2 BS Fixed firefighting systems - Gas extinguishing systems. Part 2: Physical properties and system design of gas extinguishing systems for FK-5-1-12 extinguishant (ISO 14520-5:2024, modified).

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 11 March 2025

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop <http://shop.bsigroup.com> or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from <https://standardsdevelopment.bsigroup.com/>.

Responsible Committee Secretary: Mrs Susan Revell (BSI)

Direct tel: 020 8996 7195

E-mail: susan.revell@bsigroup.com

Full document details: 25/30498918 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
------------------	------------------------

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

English Version

Fixed firefighting systems - Gas extinguishing systems -
Part 2: Physical properties and system design of gas
extinguishing systems for FK-5-1-12 extinguishant (ISO
14520-5:2024, modified)

Installations fixes de lutte contre l'incendie -
Installations d'extinction à gaz - Partie 2 : Propriétés
physiques et conception des systèmes des installations
d'extinction à gaz pour agent extincteur FK-5-1-12 (ISO
14520-5:2024, modifiée)

Ortsfeste Brandbekämpfungsanlagen - Löschanlagen
mit gasförmigen Löschmitteln - Teil 2: Physikalische
Eigenschaften und Anlagenauslegung für
Feuerlöschmittel FK-5-1-12 (ISO 14520-5:2024,
modifiziert)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 191.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents		Page
European foreword		3
1	Scope.....	4
2	Normative references.....	4
3	Terms and definitions	4
4	Characteristics and uses.....	4
4.1	General.....	4
4.2	Use of FK-5-1-12 systems.....	5
5	Safety of personnel.....	8
6	System design.....	8
6.1	Fill density	8
6.2	Superpressurization	10
6.3	Extinguishant quantity	10
6.4	Other fill density and superpressurization levels	13
7	Environmental properties.....	13
Bibliography		15

European foreword

This document (prEN 15004-2:2025) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15004-2:2020.

prEN 15004-2:2025 includes the following significant technical changes with respect to EN 15004-2:2020:

- new specifications for dimers have been added to Table 1;
- Scope: Nominal pressure level 70 bar and 50 bar was added;
- 6.1, Fill density: 70 bar storage containers were added.

The text of the International Standard ISO 14520-5:2024 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.

EN 15004 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 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*;
- Part 11: *Physical properties and systems design of gas extinguishing systems for Halocarbon Blend 55 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.

1 Scope

This document specifies requirements for gaseous fire-extinguishing systems, with respect to FK-5-1-12 extinguishant. It includes details of physical properties, specification, usage and safety aspects.

This document is applicable only to systems operating at nominal pressures of 25 bar, 34,5 bar, 42 bar, 50 bar and 70 bar¹ with nitrogen propellant. This does not preclude the use of other systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15004-1:2024, *Fixed firefighting systems — Gas extinguishing systems — Part 1: Design, installation and maintenance (ISO 14520-1:2023, modified)*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Characteristics and uses

4.1 General

Extinguishant FK-5-1-12 shall conform to the specifications shown in Table 1.

FK-5-1-12 is a clear, colourless, almost odourless, electrically non-conductive gas with a density approximately 11 times that of air.

The physical properties are shown in Table 2.

FK-5-1-12 extinguishes fires mainly by physical mechanism, but also by chemical mechanism to a limited extent due to noncatalytic flame inhibition.

¹ 1 bar = 0,1 MPa = 10⁵ Pa; 1 MPa = 1 N/mm².