

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)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 15004-2:2025 sisaldab Euroopa standardi EN 15004-2:2025 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 17.09.2025.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN 15004-2:2025 consists of the English text of the European standard EN 15004-2:2025.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 17.09.2025.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
--	---

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.220.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele. Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation: Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

EUROPEAN STANDARD

EN 15004-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2025

ICS 13.220.20

Supersedes EN 15004-2:2020

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 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 European Standard was approved by CEN on 20 June 2025.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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.



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	5
2	Normative references	5
3	Terms and definitions	5
4	Characteristics and uses	5
4.1	General	5
4.2	Use of FK-5-1-12 systems	6
5	Safety of personnel	9
6	System design	9
6.1	Fill density	9
6.2	Superpressurization	11
6.3	Extinguishant quantity	11
6.4	Other fill density and superpressurization levels	14
7	Environmental properties	14
Bibliography		16

European foreword

This document (EN 15004-2:2025) 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 March 2026, and conflicting national standards shall be withdrawn at the latest by March 2026.

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 15004-2:2020.

EN 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.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, 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 the United Kingdom.

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.