



NSAI
Standards

Irish Standard
I.S. EN 15004-2:2020

Fixed firefighting systems - Gas
extinguishing systems - Part 2: Physical
properties and system design of gas
extinguishing systems for FK-5-1-12
extinguishant (ISO 14520-5:2019, modified)

I.S. EN 15004-2:2020

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 15004-2:2020

Published:

2020-10-07

*This document was published
under the authority of the NSAI
and comes into effect on:*

2020-10-26

ICS number:

13.220.20

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 15004-2:2020 is the adopted Irish version of the European Document EN 15004-2:2020, Fixed firefighting systems - Gas extinguishing systems - Part 2: Physical properties and system design of gas extinguishing systems for FK-5-1-12 extinguishant (ISO 14520-5:2019, modified)

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

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 15004-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2020

ICS 13.220.20

Supersedes EN 15004-2:2008

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
14520-5:2019, 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
14520-5:2019, modifiée)

Ortsfeste Brandbekämpfungsanlagen - Löschanlagen
mit gasförmigen Löschmitteln - Teil 2: Physikalische
Eigenschaften und Anlagenauslegung für
Feuerlöschmittel FK-5-1-12 (ISO 14520-5:2019,
modifiziert)

This European Standard was approved by CEN on 17 August 2020.

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, Turkey 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	10
6.1 Fill density	10
6.2 Superpressurization	11
6.3 Extinguishant quantity	11
6.4 Other fill density and superpressurization levels	15
7 Environmental properties	16

European foreword

This document (EN 15004-2:2020) 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 April 2021, and conflicting national standards shall be withdrawn at the latest by April 2021.

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 15004-2:2008.

The main changes in EN 15004-2:2020 compared to EN 15004-2:2008 are the following:

- European foreword: Part 3 was removed from the list;
- Foreword of ISO 14520-5 was removed;
- Scope: Nominal pressure level 34,5 bar and 50 bar were added;
- Table 1: Purity requirement was updated;
- 6.1, Fill density: 34,5 bar and 50 bar storage container were added;
- 6.4, Other fill density and superpressurization levels: new sub-clause added;
- Clause 7, Environmental properties: new clause added.

The text of the International Standard ISO 14520-5:2019 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*;

EN 15004-2:2020 (E)

- 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, 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, Turkey 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 covers only systems operating at nominal pressures of 25 bar, 34,5 bar, 42 bar and 50 bar 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 15004-1:2019, *Fixed firefighting systems — Gas extinguishing systems — Part 1: Design, installation and maintenance (ISO 14520-1:2015, 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 terminological databases for use in standardization at the following addresses:

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

4 Characteristics and uses

4.1 General

Extinguishant FK-5-1-12 shall comply with the specification 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 means, but also by some chemical means.

Table 1 — Specification for FK-5-1-12

Property	Requirement
Purity	99,0 % mol/mol min.
Acidity	3×10^{-6} by mass, max.
Water content	0,001 % by mass, max.
Non-volatile residue	0,03 % by mass, max.
Suspended matter or sediment	None visible

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-