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PROJEKTEERIMINE KUSTUTUSGAASILE IG-541

Fixed firefighting systems - Gas extinguishing systems -
Part 10: Physical properties and system design of gas
extinguishing systems for IG-541 (ISO 14520-15:2015,
modified)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15004-10:2017 sisaldab Euroopa standardi EN 15004-10:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 15004-10:2017 consists of the English text of the European standard EN 15004-10:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 13.12.2017.	Date of Availability of the European standard is 13.12.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

Fixed firefighting systems - Gas extinguishing systems -
Part 10: Physical properties and system design of gas
extinguishing systems for IG-541 (ISO 14520-15:2015,
modified)

Installations fixes de lutte contre l'incendie -
Installations d'extinction à gaz - Partie 10 : Propriétés
physiques et conception des systèmes pour agent
extincteur IG-541 (ISO 14520-15:2015, modifiée)

Ortsfeste Brandbekämpfungsanlagen - Löschanlagen
mit gasförmigen Löschmitteln - Teil 10: Physikalische
Eigenschaften und Anlagenauslegung für Löschmittel
IG-541 (ISO 14520-15:2015, modifiziert)

This European Standard was approved by CEN on 25 September 2017.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 15004-10:2017) 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 15004-10:2008.

The text of the International Standard ISO 14520-15:2015 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.

1 Scope

1.1 This document specifies requirements for gaseous fire-extinguishing systems, with respect to the IG-541 extinguishant. It includes details of physical properties, specification, usage and safety aspects.

1.2 This document is applicable for systems operating at nominal pressures of 150 bar, 200 bar 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-541 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 52 % nitrogen, 40 % argon and 8 % carbon dioxide. The mixture specification for IG-541 (based on 8 % carbon dioxide with tolerance of ± 5 %) is as follows:

- a) carbon dioxide percentage range 7,6 % to 8,4 %;
- b) argon percentage range 37,2 % to 42,8 %;
- c) nitrogen percentage range 48,8 % to 55,2 %.

Individual container or batch analysis is based on carbon dioxide measurement only.

Extinguishant IG-541 shall comply with the specification shown in Table 1.

The physical properties are shown in Table 2.

IG-541 extinguishes fires mainly by a reduction of oxygen concentration in the atmosphere of the hazard enclosure.