TULEKUSTUTUSAINED. VAHUAINED. OSA 4: MADALKORDSED VAHUAINED VEEGA SEGUNEVATE PÕLEVVEDELIKE KUSTUTAMISEKS

Fire extinguishing media - Foam concentrates - Part 4: Specification for low expansion foam concentrates for surface application to water-miscible liquids

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1568-4:2018 sisaldab Euroopa standardi EN 1568-4:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 1568-4:2018 consists of the English text of the European standard EN 1568-4:2018.
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 28.02.2018.	Date of Availability of the European standard is 28.02.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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

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English Version

Fire extinguishing media - Foam concentrates - Part 4: Specification for low expansion foam concentrates for surface application to water-miscible liquids

Agents extincteurs - Émulseurs - Partie 4 : Spécifications pour les émulseurs bas foisonnement destinés à une application à la surface de liquides ayant une affinité pour l'eau

Feuerlöschmittel - Schaummittel - Teil 4: Anforderungen an Schaummittel zur Erzeugung von Schwerschaum zum Aufgeben auf mit Wasser mischbare Flüssigkeiten

This European Standard was approved by CEN on 18 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
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 1568-4:2018) 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 August 2018, and conflicting national standards shall be withdrawn at the latest by November 2019.

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 1568-4:2008.

In comparison with the previous edition, the following significant changes have been made:

— the interfacial tension and spreading coefficient test was removed;

— the freezing point test was introduced;

— the stability/separation test of foam concentrate was introduced;

— the occupational health and ecotoxicological testing was introduced;

— an example of technical data sheet was included; and

— setting-up procedures of foam nozzle for the determination of expansion and drainage times have been modified in the light of ISO 7203.

This document is Part 4 of EN 1568 which has the general title *Fire extinguishing media — Foam concentrates*. The other parts are:

— *Part 1: Specification for medium expansion foam concentrates for surface application to water-immiscible liquids*;

— *Part 2: Specification for high expansion foam concentrates for surface application to water-immiscible liquids*;

— *Part 3: Specification for low expansion foam concentrates for surface application to water-immiscible liquids*.

This European Standard is one of a series of standards specifying requirements for fire extinguishing media in common use. This series includes the following standards:

— EN ISO 5923, *Equipment for fire protection and fire fighting — Fire extinguishing media — Carbon dioxide (ISO 5923)*;

— EN 27201-1, *Fire protection — Fire extinguishing media — Halogenated hydrocarbons — Part 1: Specifications for halon 1211 and halon 1301 (ISO 7201-1:1989)*;

— EN 27201-2, *Fire protection — Fire extinguishing media — Halogenated hydrocarbons — Part 2: Code of practice for safe handling and transfer procedures (ISO 7201-2:1991)*;

— EN 615, *Fire protection — Fire extinguishing media — Specifications for powders (other than class D powders)*.

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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.

Introduction

As fire-fighting foams are chemical agents or chemical preparations, Commission Directive 2006/60/CE [1] and Regulations (EC) No 1272/2008 (CLP) [2] and No 1907/2006 (REACH) [3] apply and need to be taken into account.

Fire are classified in EN 2 [4] as follows:

— Class A: fires involving solid materials, usually of an organic nature, in which combustion normally takes place with the formation of glowing embers;

— Class B: fires involving liquids or liquefiable solids;

— Class C: fires involving gases;

— Class D: fires involving metals;

— Class F: fires involving cooking media (vegetable or animal oils and fats) in cooking appliances.

Fire-fighting foams are widely used to control and extinguish Class B fires and to inhibit re-ignition. These foams can also be used for prevention of ignition of flammable liquids and, in certain conditions, to extinguish Class A fires.

Foams can be used in combination with other extinguishing media, particularly gaseous media and powders, which are the subject of other European Standards (see the European foreword).

These specifications have been designed to ensure that fire extinguishing media have the minimum useful fire fighting capability. The user should ensure that the foam concentrates are used accurately at the concentration recommended by the manufacturer. Fire performances indicated by this standard cannot replicate practical fire situations.

Foam concentrates of different types and manufacture should not be mixed.

Some combinations of extinguishing powder and foam can lead to unacceptable loss of efficiency, caused by unfavourable interaction of the chosen media when applied simultaneously or successively to the fire.

It is extremely important that the foam concentrate after dilution with water to the recommended concentration does not in normal usage present a significant toxic hazard to life in relation to the environment. Commission Directive 2006/60/CE [1] and Regulations (EC) No 1272/2008 (CLP) [2] and No 1907/2006 (REACH) [3] apply when considering the testing of ecotoxicological properties and safety in the work environment.

Special quality characteristic is the type test conducted by an independent testing laboratory accredited to EN ISO/IEC 17025 [5].

1 Scope

This European Standard specifies requirements for chemical and physical properties, and minimum performance requirements of low expansion foams suitable for surface application to water-miscible liquids. Requirements are also specified for marking.

IMPORTANT — The fire performance is tested using acetone and isopropanol as the fuel, which also forms the basis for the performance classification. However, there are a large number of water-miscible liquids which have more or less different properties to acetone and isopropanol. It has been shown by tests using other fuels that the performance of various foams can differ considerably. Examples of such fuel is Methyl Ethyl Ketone (MEK). It is therefore essential that the user checks for any unfavourable or unacceptable loss of efficiency when the foam is used against fires in any other water-miscible fuels than acetone and isopropanol respectively. The fire test conditions and procedure given in H.2 can be used in order to achieve results comparative with acetone and isopropanol respectively and related requirements.

It is also essential for the user to note that other fuel depths and methods of application than those specified in H.2 can cause considerable loss of efficiency and these matters should be carefully considered by the user when assessing the suitability for particular applications.

WARNING — Any type approval according to this standard is invalidated by any change in composition of the approved product.

NOTE Some concentrates conforming to this part of the EN 1568 series can also conform to other parts and therefore can also be suitable for application as medium and/or high expansion foams.

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 ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity (ISO 3104)*

EN ISO 3219:1994, *Plastics — Polymers/resins in the liquid state or as emulsions or dispersions — Determination of viscosity using a rotational viscometer with defined shear rate (ISO 3219:1993)*

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

EN ISO 11348-2, *Water quality — Determination of the inhibitory effect of water samples on the light emission of Vibrio fischeri (Luminescent bacteria test) — Part 2: Method using liquid-dried bacteria (ISO 11348-2)*

EN ISO 23753-1, *Soil Quality — Determination of dehydrogenase activity in soil — Part 1: Method using triphenyltetrazolium chloride (TTC) (ISO 23753-1)*

ISO 304, *Surface active agents — Determination of surface tension by drawing up liquid films*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

OECD 201, *Test No. 201: Freshwater Alga and Cyanobacteria, Growth Inhibition Test*

OECD 202, *Test No. 202: Daphnia sp. Acute Immobilisation Test*

OECD 203, *Test No. 203: Fish, Acute Toxicity Test*

OECD 301, *Test No. 301: Ready Biodegradability*

OECD 404, *Test No. 404: Acute Dermal Irritation/Corrosion*

OECD 405, *Test No. 405: Acute Eye Irritation/Corrosion*

OECD 420, *Test No. 420: Acute Oral Toxicity – Fixed Dose Procedure*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1
25 %/50 % drainage time
time taken for 25 %/50 % of the volume of the original foam solution to drain out of the generated foam

3.2
Expansion (E)
expansion value
expansion ratio
ratio of the volume of foam to the volume of the foam solution from which it was made

3.3
low expansion foam
foam which has an expansion ratio less than 20

3.4
medium expansion foam
foam which has an expansion ratio greater than or equal to 20 but less than 200

3.5
high expansion foam
foam which has an expansion ratio greater than or equal to 200

3.6
fire-fighting foam
aggregate of air-filled bubbles formed from a foam solution used for fire fighting

3.7
foam concentrate
liquid which is diluted with water to produce foam solution

Note 1 to entry: Annex A gives information on grades of foam concentrate.

3.8
foam solution
solution of foam concentrate in water