SLOVENSKI STANDARD
SIST EN 615:2009

01-julij-2009

Nadomeġļa:
SIST EN 615:1994/A1:2001
SIST EN 615:1997
SIST EN 615:1997/AC:2006

Poġarna zaġļita - Gasila - Specifikacije za praġke (razen za praġke razreda D)

Fire protection - Fire extinguishing media - Specifications for powders (other than class D powders)

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Brandschutz - Löschmittel - Anforderungen an Löschpulver (nicht für Löschpulver der Brandklasse D)

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Protection contre l'incendie - Agent extincteurs - Prescriptions pour les poudres (autres que les poudres pour classe D)

Ta slovenski standard je istoveten z: **EN 615:2009**

ICS:

13.220.20 Poġarna zaġļita Fire protection

SIST EN 615:2009 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 615

April 2009

ICS 13.220.10

Supersedes EN 615:1994

English Version

Fire protection - Fire extinguishing media - Specifications for powders (other than class D powders)

Protection contre l'incendie - Agent extincteurs - Prescriptions pour les poudres (autres que les poudres pour classe D)

Brandschutz - Löschmittel - Anforderungen an Löschpulver (nicht für Löschpulver der Brandklasse D)

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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 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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Foreword

This document (EN 615:2009) 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 615:1994.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard is applicable to fire extinguishing powders for fire classes A, B and C. It specifies, by means of defined test methods, minimum requirements for the chemical and physical properties and minimum extinguishing capabilities. Requirements are also specified for the information and data to be given by the supplier.

This European Standard is not applicable to powders for class D fires.

NOTE 1 The classification of fires is given in EN 2 [1].

NOTE 2 Some countries have national standards for class D powders.

2 Normative references

The following referenced documents are indispensable for the application 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 3 (all parts), *Portable fire extinguishers*

EN ISO 4788, *Laboratory glassware - Graduated measuring cylinders (ISO 4788:2005)*

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

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3 Definitions

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3.1
(extinguishing) powder
extinguishing medium composed of finely divided solid chemical products consisting of one or more principal components which are combined with additives to improve its characteristics

NOTE 1 In North America and some other countries, the term "dry powder" is used to denote special metal fire extinguishing agents and the term "dry chemical extinguishing agent" is used to denote the extinguishing medium specified in the European Standard.

NOTE 2 When it is useful to indicate the class of fire for which a powder is designed, capital letters may be added before the term. The letters used in this European Standard are those defined in EN 2 [1].

EXAMPLE BC powder is designed to extinguish class B (liquids or liquefiable solids) and class C (gases) fires; ABC powder is designed to extinguish class A (solids which form glowing embers), class B and class C fires.

3.2
batch
single charge of powder in the processing equipment that has been made homogeneous by subjection to the same unit and physical processing

3.3
lot
one or more batches, but not more than 25 t of powder, manufactured to the same formulation by the same manufacturing process and under the same environmental conditions

NOTE Any substantial change in manufacturing process, source of raw materials, or change in environmental conditions may justify identifying the material as a different lot.

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3.4
characteristic value
value declared by the supplier for the chemical and physical properties of the powder

3.5
supplier
party e.g. manufacturer, distributor, importer, responsible for the powder and able to ensure that quality assurance is exercised

4 Sampling

4.1 Samples for testing shall be taken using a method which will provide a representative sample. In order to avoid any risk of condensation, it is essential that the temperature of the powder in its original container is not lower than the ambient air temperature when the sample is being taken.

4.2 Samples shall be stored in individual, clean, dry, airtight, non-reactive and suitably identified containers.

4.3 Sample containers should not be opened until temperature equilibrium with the laboratory has been reached.

NOTE 1 One suitable method of sampling is suggested in Annex F.

NOTE 2 Unless otherwise specified, all tests on samples are carried out at (20 ± 5) ºC.

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5 Bulk density

The bulk density shall be within ± 0,07 g/ml of the characteristic value when tested in accordance with Annex A.

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6 Sieve analysis

The cumulative percentages oversize on the 40 µm sieve and on the 63 µm sieve shall not differ from the characteristic values by more than ± 8 % of the total mass of the sample, and the cumulative percentage oversize on the 125 µm sieve shall not differ from the characteristic value by more than ± 5 % of the total mass of the sample when the powder is tested in accordance with one of the methods of Annex B.

NOTE 1 Annex G describes one of the methods of analysis technique which gives more detailed information on particle size.

NOTE 2 The two methods described in Annex B may give differing results. The method used should therefore be given in the results.

7 Chemical content

Characteristic values for chemical content shall be expressed as percentages (*m*/*m*) of the total content.

The characteristic values for chemical content shall include all constituents present in the powder at a concentration representing 10 % or more of the total content. The sum of the characteristic values for chemical content shall be 90 % or more of the total content.

Each constituent given a characteristic value shall be identified by its chemical name, or as the reaction product of a chemical process between reactants identified by their chemical names. In the latter case, the chemical process shall be specified, for example by reference to a published patent.

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The content of a declared constituent shall be as follows:

a) within ± 1,0 % of the total chemical content for constituents of characteristic value more than 10 % but not more than 15 %;

b) within ± 1,5 % of the total chemical content for constituents of characteristic value more than 15 % but not more than 25 %;

c) within ± 2,0 % of the total chemical content for constituents of characteristic value more than 25 % but not more than 65 %;

d) within ± 3,0 % of the total chemical content for constituents of characteristic value more than 65 % and above.

NOTE 1 For example, a constituent with a characteristic value of 20 % has tolerance limits of 18,5 % and 21,5 % and a constituent with a characteristic value of 80 % has tolerance limits of 77 % and 83 %.

NOTE 2 WARNING It is important that under normal conditions of use the various materials and additives used to produce powders be generally recognized as being non-toxic to humans. In some countries there may be a legal obligation to disclose to designated authorities the complete chemical content, and any proposed changes of chemical content, with documented details of non-toxicity.

NOTE 3 The compatibility of the powder with foam (see Annex H) depends on chemical content. The test described in Annex K may allow a determination of foam/powder compatibility to be made.

NOTE 4 WARNING The mixing of different types of powder (ABC and BC) may result in caking, and the production of gas which will increase pressure in the container to an unsafe level. Such increases in pressure have been known to cause containers to rupture, and to cause bodily injury and damage.

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NOTE 5 WARNING Recovered powder may have been previously contaminated, and may have absorbed moisture. If it is then recycled, the powder may eventually become lumpy, and interrupt the flow of powder when used on a fire.

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8 Fire test performance

8.1 General

A 6 kg or 9 kg stored pressure or cartridge extinguisher may be used to test conformity to this clause, but the same model of extinguisher shall be used for class A rating (if applicable), class B rating and to test conformity with Clause 9.

NOTE Clauses 8.2 and 8.3 specify minimum performance requirements, Annex I gives information on the suitability and equivalence of extinguishing powders in the equipment, and Annex J gives information on the importance of other performance testing.

8.2 Class A powders

A powder claimed by the supplier to be suitable for class A fires when tested using either a 6 kg or 9 kg extinguisher recommended by the supplier, shall conform to the fire performance requirements of EN 3.

8.3 Class B powders

A powder claimed by the supplier to be suitable for class B fires when tested using either a 6 kg or 9 kg extinguisher recommended by the supplier, shall conform to the fire performance requirements of EN 3.

8.4 Class C powders

A powder claimed by the supplier to be suitable for class C fires shall conform to 8.3.

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9 Residual mass after discharge

When tested in the 6 kg or 9 kg extinguisher model recommended by the powder supplier and used to test conformity to Clause 8, the residual mass shall conform to the requirements of EN 3.

NOTE Annex J describes a technique for conducting discharge performance tests which give more detailed information than that necessary to establish conformity to EN 3.

10 Resistance to caking and lumping

Any lumps formed shall not be retained on the 425 µm sieve when the powder is tested in accordance with Annex C.

11 Water repellency

There shall be no COMPLETE absorption of the water droplets when the powder is tested in accordance with Annex D.

12 Moisture content

The moisture content shall not exceed 0,25 % (*m*/*m*) when determined in accordance with Annex E.

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13 Marking and packaging

NOTE Extinguishing powders should be packaged in containers which are essentially moisture resistant. The supplier should ensure that every consignment is packed in such a way as to preserve its essential characteristics when stored and handled in accordance with the supplier's recommendations.

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Each separate package, or a label firmly attached to the package, shall be marked in a language required by the purchaser with the following information:

a) the commercial name of the product followed by the words "Fire extinguishing powder";

b) the classes of fire for which the powder is claimed to be suitable;

c) the year of manufacture, and the batch or lot number;

d) any essential recommendations regarding conditions of storage;

e) the name and address of the supplier;

f) the warning statement "Ensure compatibility between this product and the equipment in use";

g) the words "See supplier's data sheet for precautions in handling";

h) the number and date of this European Standard, i.e. EN 615:2009 [1].

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[1] Marking EN 615:2009 on or in relation to a product represents a supplier's declaration of conformity, i.e. a claim by or on behalf of the supplier that the product meets the requirements of this standard. The accuracy of the claim is therefore solely the responsibility of the person making the claim. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

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14 Supplier's data sheet

If requested by the purchaser, the supplier shall provide a data sheet giving precautions in handling, a declaration of conformity with this European Standard, the characteristics value for bulk density and, with descriptions of the test methods used, the characteristic values for sieve analysis and chemical content (see Clauses 5, 6 and 7).

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Annex A
(normative)

Test method for determination of bulk density

NOTE See Clause 5.

A.1 Apparatus

Clean dry 250 ml stoppered glass measuring cylinder, conforming to EN ISO 4788, having an approximate height of 320 mm and an approximate internal diameter of 40 mm.

A.2 Procedure

Place (100 ± 0,1) g of the powder in the cylinder. Secure the stopper in the cylinder. Rotate the cylinder end over end for 10 complete revolutions, at approximately 1 revolution every 2 s. Immediately after the 10 revolutions have been completed, set the cylinder upright on a level surface and allow the powder to settle for (180 ± 10) s. Read off the volume occupied by the powder. Calculate the bulk density, Q_b from the equation:

$$Q_b = \frac{m}{v}$$

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where

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m is the mass of the powder (in g);

v is the volume occupied by the powder (in ml).

NOTE 1 Electrostatic phenomena may cause difficulty in testing powders containing stearates. The problem is reduced by prior testing of a siliconized powder.

NOTE 2 After long-term storage the bulk density may increase.