

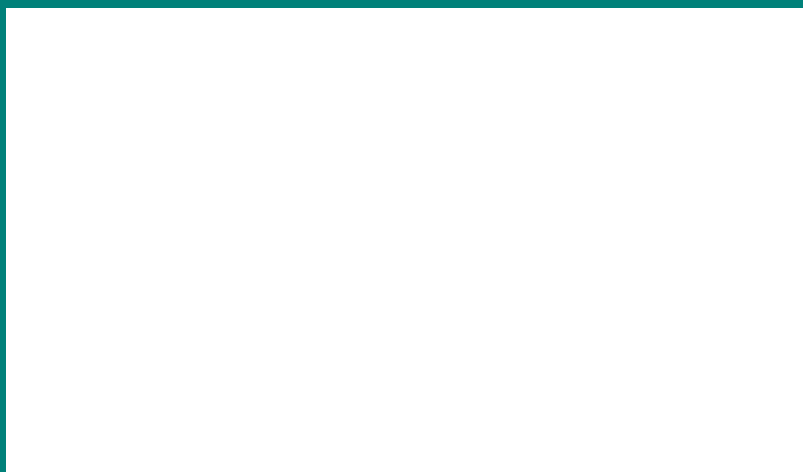
SVENSK STANDARD

SS-EN 615:2009

Fastställt/Approved: 2009-04-27
Publicerad/Published: 2009-05-20
Utgåva/Edition: 2
Språk/Language: engelska/English
ICS: 13.220.10

Brand och räddning – Släckmedel – Specifikationer för pulver

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



SWEDISH
STANDARDS
INSTITUTE

Hitta rätt produkt och ett leveranssätt som passar dig

Standarder

Genom att följa gällande standard både effektiviserar och säkrar du ditt arbete. Många standarder ingår dessutom ofta i paket.

Tjänster

Abonnemang är tjänsten där vi uppdaterar dig med aktuella standarder när förändringar sker på dem du valt att abonnera på.

På så sätt är du säker på att du alltid arbetar efter rätt utgåva.

e-nav är vår online-tjänst som ger dig och dina kollegor tillgång till standarder ni valt att abonnera på dygnet runt. Med e-nav kan samma standard användas av flera personer samtidigt.

Leveranssätt

Du väljer hur du vill ha dina standarder levererade. Vi kan erbjuda dig dem på papper och som pdf.

Andra produkter

Vi har böcker som underlättar arbetet att följa en standard. Med våra böcker får du ökad förståelse för hur standarder ska följas och vilka fördelar den ger dig i ditt arbete. Vi tar fram många egna publikationer och fungerar även som återförsäljare. Det gör att du hos oss kan hitta över 500 unika titlar. Vi har även tekniska rapporter, specifikationer och "workshop agreement".

Matriser är en översikt på standarder och handböcker som bör läsas tillsammans. De finns på sis.se och ger dig en bra bild över hur olika produkter hör ihop.

Standardiseringsprojekt

Du kan påverka innehållet i framtida standarder genom att delta i någon av SIS ca 400 Tekniska Kommittéer.

Find the right product and the type of delivery that suits you

Standards

By complying with current standards, you can make your work more efficient and ensure reliability. Also, several of the standards are often supplied in packages.

Services

Subscription is the service that keeps you up to date with current standards when changes occur in the ones you have chosen to subscribe to. This ensures that you are always working with the right edition.

e-nav is our online service that gives you and your colleagues access to the standards you subscribe to 24 hours a day. With e-nav, the same standards can be used by several people at once.

Type of delivery

You choose how you want your standards delivered. We can supply them both on paper and as PDF files.

Other products

We have books that facilitate standards compliance. They make it easier to understand how compliance works and how this benefits you in your operation. We produce many publications of our own, and also act as retailers. This means that we have more than 500 unique titles for you to choose from. We also have technical reports, specifications and workshop agreements.

Matrices, listed at sis.se, provide an overview of which publications belong together.

Standardisation project

You can influence the content of future standards by taking part in one or other of SIS's 400 or so Technical Committees.

Europastandarden EN 615:2009 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 615:2009.

Denna standard ersätter SS-EN 615, utgåva 1 och SS-EN 615/A1, utgåva 1 och SS-EN 615/AC:2006, utgåva 1.

The European Standard EN 615:2009 has the status of a Swedish Standard. This document contains the official English version of EN 615:2009.

This standard supersedes the Swedish Standard SS-EN 615, edition 1 and SS-EN 615/A1, edition 1 and SS-EN 615/AC:2006, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), tel +46 8 555 520 00.

Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

SIS Förlag AB, SE 118 80 Stockholm, Sweden. Tel: +46 8 555 523 10. Fax: +46 8 555 523 11.

E-mail: sis.sales@sis.se Internet: www.sis.se

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)

This European Standard was approved by CEN on 12 March 2009.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents	Page
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Definitions	5
4 Sampling	6
5 Bulk density	6
6 Sieve analysis	6
7 Chemical content	6
8 Fire test performance	7
8.1 General	7
8.2 Class A powders	7
8.3 Class B powders	7
8.4 Class C powders	7
9 Residual mass after discharge	8
10 Resistance to caking and lumping	8
11 Water repellency	8
12 Moisture content	8
13 Marking and packaging	8
14 Supplier's data sheet	9
Annex A (normative) Test method for determination of bulk density	10
A.1 Apparatus	10
A.2 Procedure	10
Annex B (normative) Test methods for sieve analysis	11
B.1 Method 1	11
B.2 Method 2	11
Annex C (normative) Test method for resistance to caking and lumping	13
C.1 Apparatus	13
C.2 Procedure	13
Annex D (normative) Test method for water repellency	14
D.1 Apparatus	14
D.2 Procedure	14
Annex E (normative) Test method for moisture content	15
E.1 Apparatus	15
E.2 Procedure	15
Annex F (informative) Suggested method of sampling	16
Annex G (informative) Laser diffraction particle size analysis	17
Annex H (informative) Compatibility between extinguishing powders and foams	18
Annex I (informative) Suitability and equivalence of extinguishing powders in equipment	19
Annex J (informative) Suggested test method for effective discharge time	20

J.1 Principle.....20

J.2 Apparatus20

J.3 Procedure20

J.4 Expression of results20

Annex K (informative) Suggested test method for testing the compatibility of powder with foam21

K.1 General21

K.2 Apparatus21

K.3 Test procedure.....22

Bibliography.....32

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.

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*

3 Definitions

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.

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) °C.

5 Bulk density

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

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.

The content of a declared constituent shall be as follows:

- a) within $\pm 1,0$ % of the total chemical content for constituents of characteristic value more than 10 % but not more than 15 %;
- b) within $\pm 1,5$ % of the total chemical content for constituents of characteristic value more than 15 % but not more than 25 %;
- c) within $\pm 2,0$ % of the total chemical content for constituents of characteristic value more than 25 % but not more than 65 %;
- d) within $\pm 3,0$ % 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.

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.

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.