



SLOVENSKI STANDARD
SIST EN 14016-1:2004
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Binders for magnesite screeds - Caustic magnesia and magnesium chloride - Part 1:
Definitions, requirements

Bindemittel für Magnesiaestriche - Kaustische Magnesia und Magnesiumchlorid - Teil 1:
Begriffe und Anforderungen

STANDARD PREVIEW

Liants pour chapes a base de magnésie - Magnésie caustique et chlorure de magnésium
- Partie 1: Définitions, exigences

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ICS 01.040.91; 91.100.50

English version

Binders for magnesite screeds - Caustic magnesia and magnesium chloride - Part 1: Definitions, requirements

Liants pour chapes à base de magnésie - Magnésie caustique et chlorure de magnésium - Partie 1: Définitions, exigences

Bindemittel für Magnesiaestriche - Kaustische Magnesia und Magnesiumchlorid - Teil 1: Begriffe und Anforderungen

This European Standard was approved by CEN on 15 September 2003.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This document (EN 14016-1:2004) has been prepared by Technical Committee CEN/TC 303, "Floor screeds and in-situ floorings in buildings", 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 July 2004, and conflicting national standards shall be withdrawn at the latest by October 2005.

This document belongs to a series of standards for screed material and floor screeds within building constructions.

No existing European Standard is superseded.

This document has been prepared under Mandate M 132 "Floorings" given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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1 Scope

This European Standard specifies requirements for caustic magnesia and magnesium chloride, which will be used for magnesite screed material and magnesite screeds as specified in EN 13813.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 196-1, *Methods of testing cement — Part 1: Determination of strength*.

EN 13318:2000, *Screed materials and floor screeds — Definitions*.

EN 14016-2, *Binders for magnesite screeds — Caustic magnesia and magnesium chloride — Part 2: Test methods*.

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests*.

EN ISO 9001, *Quality management systems - Requirements (ISO 9001:2000)*.

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3 Terms and definitions

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For the purposes of this European Standard, the terms and definitions given in EN 13318:2000 and the following apply.

3.1

magnesium chloride

compound (magnesium chloride ($MgCl_2$)) which may contain water insoluble substances, e.g. ferrous oxide (Fe_2O_3) and magnesium oxide (MgO), as well as water-soluble substances, e.g. sodium chloride ($NaCl$), potassium chloride (KCl), calcium chloride ($CaCl_2$) and magnesium sulfate ($MgSO_4$); it is traded as solid salt or aqueous solution

3.2

caustic magnesia

a finely ground binder, which is burned out of naturally occurring magnesium carbonate $MgCO_3$ or other magnesium compounds; the main constituent of the caustic magnesia is magnesium oxide (MgO); sub-constituents may be carbonate (CO_3), silicic oxide (SiO_2), aluminium oxide (Al_2O_3), ferric oxide (Fe_2O_3), calcium oxide (CaO) and sulfate (SO_4)

4 Requirements

4.1 Magnesium chloride

Magnesium chloride shall conform to the requirements by composition given in Table 1:

Table 1 — Requirements for magnesium chloride

Trade form	Main constituent mass MgCl ₂ (%)	Water insoluble substances mass (%)	Sub ingredients			pH-value
			Water-soluble substances	NaCl + KCl mass (%)	MgSO ₄ mass (%)	
Aqueous solution	≥ 20	≤ 0,05	≤ 1	≤ 0,5	≤ 0,5	≥ 6
Solid salt	≥ 46	≤ 0,1	≤ 2	≤ 1	≤ 1	

4.2 Caustic magnesia

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4.2.1 Homogeneity

Charges shall be homogenous and show the same colour by visual inspection.

4.2.2 Chemical composition

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The chemical composition shall fulfil the following requirements:

- a) magnesium oxide MgO ≥ 80 % by mass
- b) hydrochloric-acid-insoluble residues + sesquioxides ≤ 14 % by mass
- c) calcium oxide CaO¹⁾ ≤ 4 % by mass
- d) ignition loss ≤ 8 % by mass

4.2.3 Loose density

The loose density shall not be more than 1 000 kg/m³.

4.2.4 Fineness of grind

By testing the fineness of the grind the residues in the sieves shall not exceed the value in Table 2.

1) A higher total amount of CaO is allowed, if the free CaO content is lower then 1 % by mass.

Table 2 — Fineness of grind

Sieve mesh width (mm)	Mass of residues (%)
0,09	30

4.2.5 Setting time

The setting process of the magnesia paste shall begin 30 minutes after mixing at the earliest and end 5 h after mixing at the latest.

4.2.6 Flexural and compressive strength

The magnesia test mortar, consisting of caustic magnesia, magnesium chloride and CEN-standard sand according to EN 196-1 (see EN 14016-2) shall have at least the strength characteristics given in Table 3.

Table 3 — Flexural and compressive strength

Age days	Flexural strength N/mm ²	Compressive strength N/mm ²
28	≥ 9	≥ 60

NOTE When tested at the age of 3 days, a flexural strength of about 8 N/mm² and a compressive strength of approximately 50 N/mm² should be obtained.

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4.3 Reaction to fire

Binders for magnesite screed materials which do not contain more than 1 % of organic material by mass or volume (whichever is the more onerous) are classified A1_{fi} without the need for testing²⁾. All other materials shall be tested and classified in accordance with EN 13501-1.

5 Testing

Testing, except for reaction to fire, shall be carried out as specified in EN 14016-2.

6 Evaluation of conformity

6.1 General

Evaluation of conformity is carried out by declaring conformity of binders for magnesite screeds, caustic magnesia and magnesium chloride, with the requirements of this standard on the basis of:

- Initial type testing (ITT);
- Factory production control (FPC).

The conformity criteria and assessment procedure are given in clause 9.

2) See Commission Decision 96/603/EC, as amended.

6.2 Initial type testing (ITT)

An initial type testing shall be carried out to show conformity of the product to this standard. Additionally, an initial type testing shall be carried out at the beginning of production of a new product type. Before starting production and introduction of the product into the market, suitable initial type testing shall be carried out to confirm that the predicted product properties conform to the requirements in this standard and correspond to the declared values.

Initial type tests shall also be carried out if the specification for the binders or the manufacturing method have been changed.

Tests previously performed in accordance with the provisions of this standard may be taken into account provided that product characteristic(s), test method, sampling procedure and system of attestation of conformity are identical.

6.3 Factory production control (FPC)

Factory production control means the permanent internal control of production exercised by the manufacturer or his agent under the responsibility of the manufacturer himself.

The purpose of the factory production control is to ensure that binders for magnesite screeds placed on the market conform to their technical specifications given in clause 4. Sampling and tests shall be carried out as described in EN 14016-2, except as provided for in 6.4.

The manufacturer shall record the results of production control (manufacturer's record). These records shall include at least the following:

- identification of the product tested; **iTeh STANDARD PREVIEW**
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- date of sampling;
- test methods used; [SIST EN 14016-1:2004](https://standards.iteh.ai/catalog/standards/sist/5962eca0-7d9f-4b27-b357-6d179efab5aa/sist-en-14016-1-2004)
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- test and inspection results;
- date of tests;
- identification of the person responsible for the tests;
- calibration records.

An FPC system conforming to the requirements in EN ISO 9001 and corresponding to the requirements in this standard is considered as a system which fulfils the requirements mentioned above.

6.4 Technical specifications for binders for magnesite screed

The technical specifications and properties specified in this standard are defined in terms of reference test methods (see EN 14016-2), which shall be used to demonstrate the conformity of the products to this European Standard. For factory production control, other test methods may be used provided that:

- a) they can show a relationship to exist between the results from the CEN reference test and those from the alternative test;
- b) the information on which the relationship is based is available for inspection.

7 Designation

Binders for magnesite screeds to be used for the manufacture of floor screeds shall be designated by at least the type and reference to this standard.