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Gypsum binders and gypsum plasters - Part 1: Definitions and requirements

Gipsbinder und Gips-Trockenmörtel - Teil 1: Begriffe und Anforderungen

Liants-plâtres et enduits à base de plâtre - Partie 1 : Définitions et exigences

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Gypsum binders and gypsum plasters - Part 1: Definitions and requirements

Liants-plâtres et enduits à base de plâtre - Partie 1 : Définitions et exigences

Gipsbinder und Gips-Trockenmörtel - Teil 1: Begriffe und Anforderungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 241.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 13279-1:2017) has been prepared by Technical Committee CEN/TC 241 “Gypsum and gypsum based products”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13279-1:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of Regulation (EU) No. 305/2011.

For relationship with Regulation (EU) No. 305/2011, see informative Annex ZA, which is an integral part of this document.

The main technical changes that have been made in this new edition of EN 13279-1 are the following:

a) Introduction and Figure 1 deleted;

b) normative references updated;

c) Clause 6 and Annex ZA updated in line with the CPR;

d) deletion of fineness in Table 4;

e) designation of gypsum binders and gypsum plasters.

This European Standard on gypsum binders and gypsum plasters consists of two parts:

— *Part 1: Definitions and requirements*;

— *Part 2: Test methods*.

1 Scope

This European Standard specifies the characteristics and performance of powder products based on gypsum binder for building purposes. This includes premixed gypsum building plasters for plastering of walls and ceilings inside buildings where they are applied as a finishing material which can be decorated. These products are specially formulated to meet their application requirements by the use of additives/admixtures, aggregates and other binders. Gypsum and gypsum based building plasters for manual and mechanical applications are included.

This European Standard also applies to gypsum binders both for direct use on site and for further processing into gypsum blocks, gypsum plasterboards, gypsum boards with fibrous reinforcement, gypsum fibrous plasterwork and gypsum ceiling elements. Gypsum mortar for internal not load bearing partitions not exposed to water is also included.

Calcium sulfate used as binder for floor screeds is not covered by this European Standard.

This European Standard defines the reference tests for technical characteristics and provides for the evaluation of conformity of the products covered by this European Standard.

Building lime, as calcium hydroxide, can be used as an additional binder together with gypsum binder. If gypsum binder is the principle active binding component in a plaster then this plaster is covered by this European Standard. If building lime is the principle active binding component in a plaster then the plaster is covered by EN 998-1.

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 12664:2001, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Dry and moist products of medium and low thermal resistance*

EN 13279-2:2014, *Gypsum binders and gypsum plasters — Part 2: Test methods*

EN 13501-1:2007+A1:2009, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 13501-2:2016, *Fire classification of construction products and building elements — Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN ISO 354:2003, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 717-1:2013, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1:2013)*

prEN ISO 6946:2015, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO/DIS 6946:2015)*

EN ISO 10140-3:2010, *Acoustics — Laboratory measurement of sound insulation of building elements — Part 3: Measurement of impact sound insulation (ISO 10140-3:2010)*

EN ISO 10456:2007, *Building materials and products — Hygrothermal properties —Tabulated design values and procedures for determining declared and design thermal values (ISO 10456:2007)*

3 Terms and definitions

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

3.1
gypsum binder
binder consisting of calcium sulfate in its various hydration phases

EXAMPLE Hemihydrate ($CaSO_4 \cdot 0{,}5\ H_2O$) and anhydrite ($CaSO_4$).

Note 1 to entry: Gypsum binder can be obtained by calcination of calcium sulfate dihydrate ($CaSO_4 \cdot 2H_2O$).

Note 2 to entry: When mixed with water, gypsum binder is used to hold solid particles together in a coherent mass by a setting process.

3.2
gypsum plaster (premixed gypsum building plaster)
all kinds of gypsum building plaster, gypsum based building plaster and gypsum-lime building plaster used in buildings

3.3
gypsum building plaster
gypsum plaster consisting of at least 50 % calcium sulfate as the principle active binding component and not more than 5 % lime (calcium hydroxide)

Note 1 to entry: Additives and aggregates can be added by the manufacturer.

3.4
gypsum based building plaster

gypsum plaster consisting of less than 50 % calcium sulfate as the principle active binding component and not more than 5 % lime (calcium hydroxide)

Note 1 to entry: Additives and aggregates can be added by the manufacturer.

3.5
gypsum-lime plaster
gypsum building plaster according to 3.3 or gypsum based building plaster according to 3.4 with more than 5 % building lime (calcium hydroxide)

Note 1 to entry: Additives and aggregates can be added by the manufacturer.

3.6
lightweight gypsum building plaster
gypsum plasters in accordance with gypsum building plaster, gypsum based building plaster and gypsum-lime plaster that incorporate either lightweight inorganic aggregates, such as expanded perlite or vermiculite, or lightweight organic aggregates

Note 1 to entry: Additives and aggregates can be added by the manufacturer.

3.7
gypsum building plaster with enhanced surface hardness
gypsum plaster specially formulated to satisfy requirements for plasterwork with enhanced surface hardness

3.8
gypsum plaster for fibrous plasterwork
specially manufactured plaster for production and assembly of fibrous gypsum casts

3.9
gypsum mortar
specially formulated plaster used for production of gypsum mortar to assemble bricks for non-load bearing walls and partitions not exposed to water

3.10
gypsum acoustic plaster
specially manufactured plaster for sound absorption purposes

3.11
gypsum thermal insulation plaster
specially manufactured plaster for thermal insulation purposes

3.12
gypsum fire protection plaster
specially manufactured plaster for fire exposed situations

3.13
gypsum thin coat plaster
specially manufactured plaster usually applied to thicknesses of 3 mm to 6 mm

3.14
additives and admixtures
materials (not aggregates or binders), such as fillers, fibres, pigments, building lime (< 5 %), retarders, air entraining, water retaining and plasticizing agents added to gypsum plaster to improve its properties or to achieve particular properties

3.15
aggregates
natural, synthetic or recycled materials suitable for use in buildings, e. g. lightweight aggregates such as perlite or vermiculite or aggregates such as siliceous sand or calcareous crushed stone sand

3.16
lightweight aggregates
aggregates with a bulk density lower than 800 kg/m^3

3.17
manual gypsum plaster
gypsum plaster formulated for manual application, batch mixed with water and applied manually to the background

3.18
projection gypsum plaster
gypsum plaster formulated for mechanical application, mixed with water to the required consistency and applied by projection machine to the background

3.19
one coat plaster system
gypsum plaster applied in one coat which fulfils all the functions of an undercoat and a final coat

3.20
multi-coat plaster system
plaster system requiring at least two layers of plaster including final coat

3.21
undercoat
lower plaster layer(s) of a plastering system which needs a final coat

3.22
final coat
upper (last) layer in a multi-coat plastering system

3.23
finishing compound
gypsum finishing product for final application with thicknesses of 0,1 mm to 3,0 mm, to obtain a smooth surface

4 Types of gypsum binders and gypsum plasters

The designation of the gypsum binders and gypsum plasters shall be in accordance with Table 1.

Table 1 — Types of gypsum binders and gypsum plasters

Designation	Notation
Gypsum binders e.g.:	A
gypsum binders for direct use or further processing (dry powder products)	A1
gypsum binders for direct use on site	A2
gypsum binders for further processing (e.g. for gypsum blocks, gypsum plasterboards, gypsum elements for suspended ceilings, gypsum boards with fibrous reinforcement)	A3
Gypsum plaster:	B
gypsum building plaster	B1
gypsum based building plaster	B2
gypsum-lime building plaster	B3
lightweight gypsum building plaster	B4
lightweight gypsum based building plaster	B5
lightweight gypsum-lime building plaster	B6
gypsum building plaster with enhanced surface hardness	B7
Gypsum plaster for special purposes:	C
gypsum plaster for fibrous plasterwork	C1
gypsum mortar	C2
acoustic plaster	C3
thermal insulation plaster	C4
fire protection plaster	C5
thin coat plaster	C6
finishing compound	C7

5 Requirements

5.1 Requirements linked to the end use conditions

5.1.1 Reaction to fire

Gypsum binders and gypsum plasters are classified as reaction to fire Class A1 (no contribution to the development of a fire) without testing, when they contain ≤ 1 % by weight or volume (whichever is the more onerous) of organic material.

NOTE See the Commission Decision 96/603/EC as amended.

If the products contain > 1 % by weight or volume of organic material, they shall be tested and then classified in accordance with EN 13501-1.

5.1.2 Fire resistance

NOTE Fire resistance is a characteristic dependent on an assembled system and not of the product in isolation.

In end use conditions, gypsum and gypsum based building plasters provide specific levels of fire resistance. Where relevant, (especially fire protection plaster) they shall be tested and then classified in accordance with EN 13501-2.

5.1.3 Acoustic performance

5.1.3.1 Direct airborne sound insulation

NOTE Direct airborne sound insulation is a characteristic dependent on an assembled system and not of the product in isolation.

When required, the direct airborne sound insulation of an installed system including gypsum plaster and/or binder shall be determined according to EN ISO 10140-3 and EN ISO 717-1 as appropriate.

5.1.3.2 Acoustic absorption

NOTE Acoustic absorption is a characteristic dependent on an assembled system and not of the product in isolation.

When required, (especially acoustic plaster) the manufacturer shall declare the sound absorption performance in the end-use condition as tested according to EN ISO 354.

5.1.4 Thermal resistance

When required, (especially thermal insulation plaster) the thermal resistance of the assembled system of gypsum binders and gypsum plasters in the end use condition shall be calculated using the formula given in prEN ISO 6946:2015, 6.7.1.2.

The design values of thermal conductivity required for this calculation may be used as given Table 2.

For gypsum plasters and gypsum binders where the quantity of aggregates is sufficient to cause a significant deviation from the values given in Table 2, the thermal conductivity shall be determined according to EN 12664.