



SLOVENSKI STANDARD

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

Gipsbinder und Gipstrochenmörtel - Teil 1: Begriffe und Anforderungen

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

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

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Anforderungen

This European Standard was approved by CEN on 11 July 2008.

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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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Foreword

This document (EN 13279-1:2008) has been prepared by Technical Committee CEN/CENELEC/TC 241 "Gypsum and gypsum based products", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by February 2009, and conflicting national standards shall be withdrawn at the latest by February 2009.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 13279-1:2005.

This standard differs from EN 13279-1:2005 as follows:

- a) definitions 3.1, 3.2, 3.9, 3.20 revised;
- b) definition and requirements for finishing products included.

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 EU Directive(s).

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

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

- *Part 1: Definitions and requirements;*
- *Part 2: Test methods.*

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.

Introduction

Figure 1 shows the family of gypsum binders and gypsum plasters (see also Table 1):

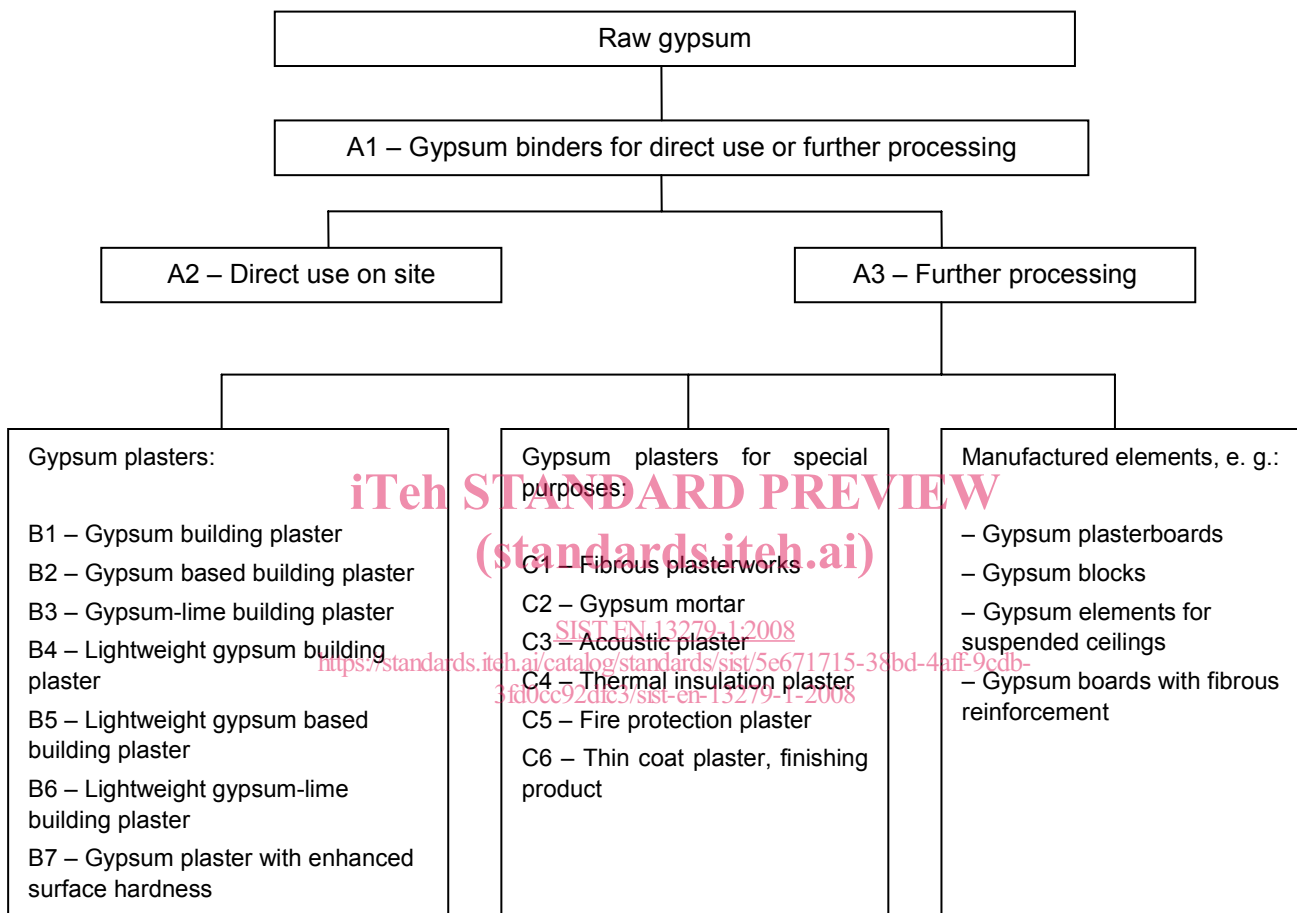


Figure 1 — Family of gypsum binders and gypsum plasters

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 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.

SIST EN 13279-1:2008

EN 12664, *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 13279-2:2004, *Gypsum binders and gypsum plasters — Part 2: Test methods*

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

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

EN ISO 140-3, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3: Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995)*

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

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1:1996)*

EN ISO 6946:2007, *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method (ISO 6946:2007)*

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

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

ISO 3049, *Gypsum plasters — Determination of physical properties of powder*

EN 13279-1:2008 (E)**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, for example hemihydrate ($\text{CaSO}_4 \cdot 0,5 \text{H}_2\text{O}$) and anhydrite (CaSO_4)

NOTE 1 Gypsum binder may be obtained by calcination of calcium sulfate dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$).

NOTE 2 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 Additives and aggregates may 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 Additives and aggregates may 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 % lime (calcium hydroxide)

NOTE Additives and aggregates may be added by the manufacturer.

3.6**lightweight gypsum building plaster**

gypsum plasters in accordance with 3.3, 3.4 and 3.5 that incorporate either lightweight inorganic aggregates, such as expanded perlite or vermiculite, or lightweight organic aggregates

NOTE Additives and aggregates may be added by the manufacturer.

3.7**gypsum building plaster for plasterwork 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**

specialty manufactured plaster for sound absorption purposes

3.11**gypsum thermal insulation plaster**

specialty manufactured plaster for thermal insulation purposes

3.12**gypsum fire protection plaster**

specialty manufactured plaster for fire exposed situations

3.13**gypsum thin coat plaster**

specialty 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/m³

3.17**manual gypsum plaster**

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

NOTE

Some plasters are mixed to form a paste, others are mixed to form a fluid consistency.

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 product**

gypsum finishing compound 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 plaster for plasterwork 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, finishing product;	C6
— finishing product.	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 less than 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 % or more by weight or volume of organic material, they shall be tested and then classified in accordance with EN 13501-1.

If the determination of organic material is by volume, the method of determination of non-compacted bulk density given in ISO 3049 shall be used.

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, 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 140-3 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, 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, the thermal resistance of the assembled system of gypsum binders and gypsum plasters in the end use condition shall be calculated using the equation given in 6.1 of EN ISO 6946:2007.

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.

Table 2 — Design values of thermal conductivity of hardened gypsum binders and gypsum plasters

Density kg/m ³	Thermal conductivity at 23 °C and 50 % of relative humidity W/(m·K)
600	0,18
700	0,22
800	0,26
900	0,30
1 000	0,34
1 100	0,39
1 200	0,43
1 300	0,47
1 400	0,51
1 500	0,56

The values given in Table 2 are taken from EN 12524. The reference values concern dry material used inside. When the material is wet, these values shall be adjusted using EN ISO 10456.