
Bloki iz mavca - Definicije, zahteve in metode preskušanja

Gypsum blocks - Definitions, requirements and test methods

Gips-Wandbauplatten - Begriffe, Anforderungen und Prüfverfahren

Carreaux de plâtre - Définitions, spécifications et méthodes d'essai

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English version

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This European Standard was approved by CEN on 7 January 2001.

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 Management Centre or to any CEN member.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/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of an identical text or by endorsement, at the latest by December 2001, and conflicting national standards shall be withdrawn at the latest by March 2003.

This European Standard 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 standard.

This European Standard includes :

- a normative annex concerning sampling for independent test ;
- an informative annex recommending requirements and test method for measuring surface hardness ;
- an infomative annex for a visual identification by coloration of gypsum blocks.

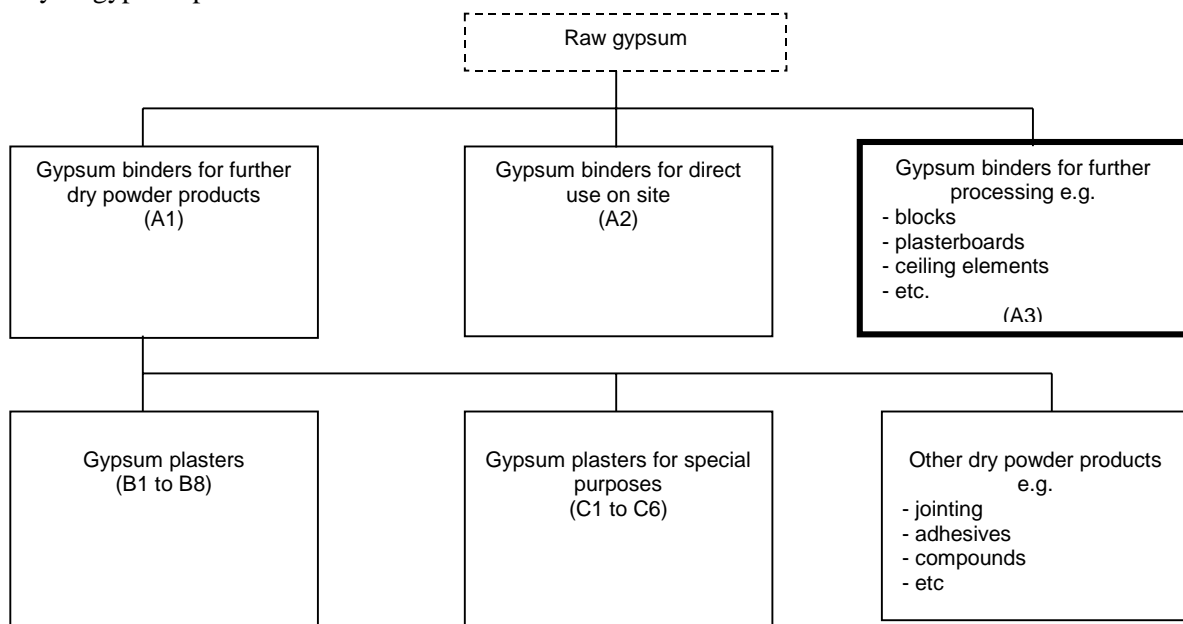
According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal,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

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Introduction

Diagram 1 shows the relationship between this standard and the package of standards prepared to support the family of gypsum products.



- products not covered by any European Standard
- products covered by a European Standard
- products covered by this European Standard

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Diagram 1 - Family of gypsum binders and gypsum products

1 Scope

This European Standard specifies the characteristics and performance of gypsum blocks with smooth faces for which the main intended uses are construction of non-load bearing partitions or independent wall linings and the fire protection of columns, lift shafts, etc. The gypsum blocks are not used to build ceilings.

It covers the following performance characteristics related to the essential requirements :

- reaction to fire ;
- resistance to fire ;
- direct airborne sound insulation ;
- release of dangerous substances ;

to be measured according to the corresponding european test methods, as well as :

- thermal resistance

to be calculated from the thermal conductivity values given in 4.3.2.

It describes the reference tests for technical specifications.

This European Standard covers also additional technical characteristics that are of importance for the use and acceptance of the product by the construction industry ;

- convenience class for density ; [SIST EN 12859:2002](https://www.iso.org/obp/ui/#iso:code:3965:02)
- convenience class for pH ; <https://www.iso.org/obp/ui/#iso:code:3965:02>
- surface hardness. <https://www.iso.org/obp/ui/#iso:code:3965:02>

It provides for the evaluation of conformity of the product to this European Standard.

This European Standard does not cover gypsum blocks of thickness less than 50 mm or gypsum storey height units.

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 12524, *Building materials and products - Hygrothermal properties - Tabulated design values*

prEN 13501-1:2000, *Fire classification of construction products and building elements - Part 1 : Classification using data from reaction to fire tests*

prEN 13501-2:1999, *Fire classification of construction products and building elements - Part 2 : Classification using data from fire resistance tests (excluding products for use in ventilation systems)*

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 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, *Building components and building elements - Thermal resistance and thermal transmittance - Calculation method (ISO 6946:1996)*

EN ISO 10456, *Building materials and products – Procedures for determining declared and design thermal values (ISO 10456:1999)*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply :

3.1.1

gypsum block

factory made building element produced from calcium sulphate and water. It may incorporate fibres, fillers, aggregates and other additives as far as they are not classified as dangerous substances in accordance with European regulations. It may be coloured by pigmentation.

NOTE The gypsum block is a rectangular parallelepiped with tongues and grooves on at least two of their opposite edges.

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3.1.2 <https://standards.iteh.ai/catalog/standards/sist/bc704c5d-a438-494b-95a9-c5ab7c457091/sist-en-12859-2002>

solid gypsum block

gypsum block manufactured without cavities.

3.1.3

cavity gypsum block

gypsum block which incorporate preformed cavities.

3.1.4

preformed cavity

formed cavity parallel to the faces which may or may not pass completely through the block. It may run parallel with the height or the length (see Figure 1).

3.1.5

face

plain and smooth surface intended to provide the finish of a partition (see Figure 1).

3.1.6

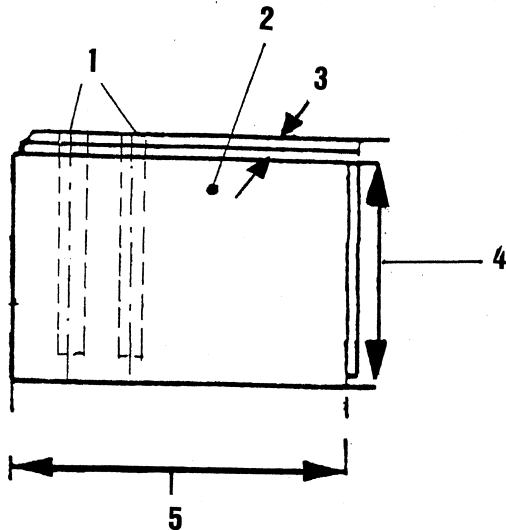
edge

extreme side of the gypsum block having tongues and grooves (see Figure 1).

3.1.7

thickness

distance between the two faces of a gypsum block (see Figure 1).



Key

- 1 Preformed cavities
- 2 Face
- 3 Thickness
- 4 Height
- 5 Length

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Figure 1 - Gypsum block

3.2 Symbols

For the purposes of this European Standard, the following symbols apply :

- ρ : gross dry density, in kilograms per cubic metre (kg/m³) ;
- λ : thermal conductivity, in Watts per metre per Kelvin (W/m·k) ;
- λ_{23-50} : thermal conductivity of the hardened plaster when in equilibrium at 23 °C and 50 % relative humidity, in Watts per metre per Kelvin (W/m·k) ;
- M : mass of the gypsum block in kilograms (kg).

4 Requirements

4.1 Fire behaviour

4.1.1 Reaction to fire

Gypsum blocks are classified in Euroclass A.1 (no contribution to fire) without testing when they contain less than 1 % by weight or volume (whichever is the more onerous) of organic material.

If they contain 1 % or more, by weight or volume of organic material, they shall be determined and classified in accordance with prEN 13501-1:2000.

4.1.2 Fire resistance

Resistance to fire is a property of an assembled system and not of the product itself.

When relevant, the fire resistance of a system including gypsum blocks assembled with adhesive for gypsum blocks shall be determined and classified in accordance with prEN 13501-2:1999.

4.2 Direct airborne sound insulation

Direct airborne sound insulation is a property of an assembled system and not of the product itself.

When relevant, the direct airborne sound insulation of a system including gypsum block assembled with adhesive for gypsum blocks shall be determined in accordance with EN ISO 140-3 and EN ISO 717-1.

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4.3 Thermal properties

4.3.1 Thermal resistance

When the intended use of gypsum blocks is to contribute to thermal resistance in building construction works, the thermal resistance is calculated using the formula given in EN ISO 6946.

The values of thermal conductivity necessary for this calculation are given in 4.3.2 and thickness values to be used shall be measured according to 5.3.1.

4.3.2 Thermal conductivity

Design values of the thermal conductivity of hardened gypsum plaster used in the manufacture of gypsum blocks are given in Table 1.

Table 1 - Design values of thermal conductivity of gypsum plaster

ρ in kg/m ³	λ_{23-50} in W/(m.K)
600	0,18
700	0,22
800	0,26
900	0,30
1000	0,34
1100	0,39
1200	0,43
1300	0,47
1400	0,51
1500	0,56

The values given in Table 1 are taken from EN 12524. Design values concern dry material used inside. When the material is wet, adjust these values using EN ISO 10456.

4.4 Types of gypsum blocks

Gypsum blocks are manufactured in three types of density (see 4.8). Some blocks can be hydrophobic (see 4.13)

Codes of coloration may be used to a visual identification between the different types of gypsum blocks (see annex C).

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4.5 Release of dangerous substances

NOTE For CE marking purposes, see annex ZA1 note.

4.6 Dimensions and tolerances

4.6.1 Dimensions

Gypsum block dimensions are determined by the thickness, the length, and the height.

The thickness shall be at least 50 mm and shall not exceed 150 mm.

The length shall not exceed 1000 mm.

The height shall be determined in conjunction with the length so that the surface area of a block is at least 0,20 m².

NOTE Preferred dimensions are for thickness : 50 mm, 60 mm, 70 mm, 80 mm, 100 mm, for length : 666 mm and for height : 500 mm.

In cavity gypsum blocks, the wall gypsum plaster shall be at least 15 mm thick through out the block. The total cavity volume shall not exceed 40 %.