SLOVENSKI STANDARD
SIST EN 12860:2002

01-april-2002

Lepila na osnovi mavca za bloke iz mavca - Definicije, zahteve in metode preskušanja

Gypsum based adhesives for gypsum blocks - Definitions, requirements and test methods

Gipskleber für Gips-Wandbauplatten - Begriffe, Anforderungen und Prüfverfahren

Liants-colles a base de plâtre pour carreaux de plâtre - Définitions, spécifications et méthodes d'essai

Ta slovenski standard je istoveten z: EN 12860:2001

ICS:

83.180	Lepila	Adhesives
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EUROPEAN STANDARD

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English version

Gypsum based adhesives for gypsum blocks - Definitions, requirements and test methods

Liants-colles à base de plâtre pour carreaux de plâtre - Définitions, spécifications et méthodes d'essai

Gipskleber für Gips-Wandbauplatten - Definitionen, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 16 April 2001.

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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 Management Centre has the same status as the official versions.

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

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Contents

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of an identical text or by endorsement, at the latest by December 2001, and conflicting national standards shall be withdrawn at the latest by March 2003.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.

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.

Intoduction

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

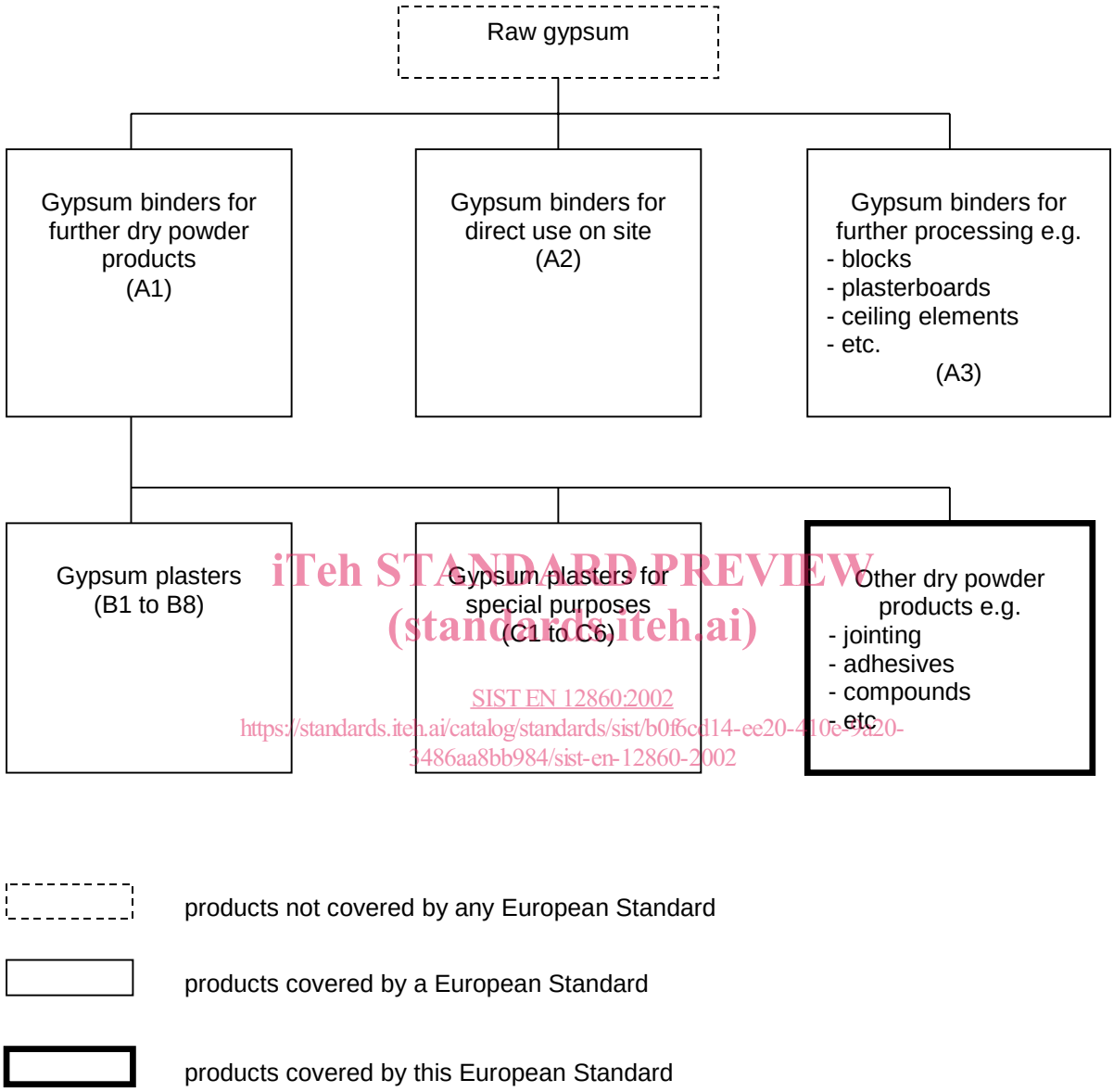

Figure 1 - Family of gypsum binders and gypsum products

1 Scope

This European Standard specifies the characteristics and performance of gypsum based adhesives used for assembling gypsum blocks or other gypsum units. It covers the following performance characteristics related to the essential requirements :

— reaction to fire ;

— release of dangerous substances ;

measured according to the corresponding European test methods.

It defines the reference tests for technical specifications.

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

This European Standard covers also additional technical characteristics that are of importance for the use and acceptance of the product by the Building Industry :

— direct airborne sound insulation ;

— bond strength ;

— thermal resistance calculated with thermal conductivity values from the Table 1 (see 5.3.2).

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.*

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).*

prEN 12859 : 2000, *Gypsum blocks – Definitions, requirements and test methods.*

prEN 13279-2 : 1998, *Gypsum and gypsum based building plasters – Part 2 : Test methods.*

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

EN ISO 10456, *Building materials and products — Procedure for determining declared and design thermal values. (ISO 10456:1999)*

3 Terms and definitions

For the purposes of this European Standard, the following term and definition apply :

3.1
gypsum based adhesive
mixture of calcium sulphate and additives in which the calcium sulphate is the main component

4 Symbols and abbreviations

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

— ρ gross dry density in kilograms per cubic metre (kg/m^3);

— λ thermal conductivity in Watts per metre per kelvin (W/m.K);

— $\lambda_{23\text{-}50}$ 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).

5 Requirements

5.1 Fire behaviour

5.1.1 Reaction to fire

Gypsum based adhesives for gypsum blocks are classified in Euroclass A1 (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 the products contain more than 1 % by weight or volume of organic material, they shall be determined and classified in accordance with prEN 13501-1 : 2000.

5.1.2 Fire resistance

Gypsum based adhesives (a mixture of calcium sulphate and additives in small quantities) for gypsum blocks do not modify the fire resistance of the work in which it is used.

5.2 Direct airborne sound insulation

When relevant, the direct airborne sound insulation of partitions or wall linings assembled using gypsum based adhesives shall be determined according to EN ISO 140-3 and EN ISO 717-1.

5.3 Thermal properties

5.3.1 Thermal resistance

When required, the thermal resistance of elements of construction is calculated using the formula given in EN ISO 6946. For adhesives, the values of thermal conductivity necessary for this calculation are given in 5.3.2.

5.3.2 Thermal conductivity

Design values of the thermal conductivity of gypsum plaster used in the manufacture of gypsum based adhesives are given in Table 1. The same values can be used for adhesives.

Table 1 — Design values of thermal conductivity of gypsum plaster

ρ in kg/m^3	$\lambda_{23\text{-}50}$ in 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	0,54

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

5.4 Release of dangerous substances

NOTE For CE marking purposes, see Annex ZA.

5.5 Maximum particle size

The residue on a 200 µm sieve shall not be greater than 10 % by weight when determined in accordance with 3.2 of prEN 13279-2 : 1998.

No residue shall be left on a 400 µm sieve.

5.6 Sulphur trioxide (SO_3) content

The SO_3 content of the powder shall not be less than 30 % when tested in accordance with 3.3 of prEN 13279-2 : 1998.

5.7 Initial setting time

The initial setting time shall be determined in accordance with 4.2 of prEN 13279-2 : 1998. The initial setting time shall be greater than 45 min.

5.8 Bond strength

The bond strength of the adhesive, when determined as described in 6.7, shall be such that failure occurs in the gypsum block, in at least three of the four tests.

5.9 pH

The pH of the product after hydration, when determined in accordance with 6.8 shall be :

$6{,}5 \leq pH \leq 10{,}5$.