SLOVENSKI STANDARD
SIST EN 14496:2017

01-september-2017

Nadomešča:
SIST EN 14496:2006

Lepila na osnovi mavca za toplotno/zvočno izolacijo kompozitnih panelov in mavčne plošče - Definicije, zahteve in preskusne metode

Gypsum based adhesives for thermal/acoustic insulation composite panels and gypsum boards - Definitions, requirements and test methods

Kleber auf Gipsbasis für Verbundplatten zur Wärme- und Schalldämmung und Gipsplatten - Begriffe, Anforderungen und Prüfverfahren

Adhésifs à base de plâtre pour complexes d’isolation thermique/acoustique en plaques de plâtre et isolant - Définitions, exigences et méthodes d’essai

Ta slovenski standard je istoveten z: **EN 14496:2017**

ICS:

83.180	Lepila	Adhesives
91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar
91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials

SIST EN 14496:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14496

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ICS 91.100.10; 91.120.10; 91.120.20

Supersedes EN 14496:2005

English Version

Gypsum based adhesives for thermal/acoustic insulation composite panels and gypsum boards - Definitions, requirements and test methods

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This European Standard was approved by CEN on 29 July 2016.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 14496:2017) 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 January 2018, and conflicting national standards shall be withdrawn at the latest by April 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14496:2005.

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 14496 are the following:

a) normative references have been updated;

b) new clause symbols and abbreviations has been introduced;

c) Annex ZA and Clause 6 have been revised to be in line with the Construction Products Regulation (CPR);

d) document has been editorially revised.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the characteristics and performances of gypsum based adhesives which are composed of gypsum plasters defined in EN 13279-1 and of additives. These adhesives are used for fixing to walls and partitions, gypsum board thermal/acoustic insulation composite panels according to EN 13950, gypsum plasterboard linings according to EN 520, gypsum boards with mat reinforcement according to EN 15283-1, gypsum fibre boards according to EN 15283-2 and other suitable products as reprocessed boards according to EN 14190 and cornices according to EN 14209. They assist in the construction of systems which provide thermal and acoustic performance.

It covers the following performance characteristics: reaction to fire, fire resistance and bond strength to be measured according to the corresponding European test methods.

It provides the assessment and verification of constancy of performance of the products."

This standard covers also additional technical characteristics that are of importance for the use and acceptance of the product by the construction Industry and the reference tests for these characteristics.

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 196-1:2016, *Methods of testing cement - Part 1: Determination of strength*

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 13823:2010+A1:2014, *Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item*

3 Symbols and abbreviations

3.1 Symbols and abbreviations

Table 1 — Symbols and abbreviations

Requirement	Sub-clause	Symbol or abbreviation
Reaction to fire	4.1	R2F
Bond strength	4.2	F
Dangerous substances	4.3	DS

4 Requirements

4.1 Fire behaviour

4.1.1 Reaction to fire

Gypsum building plaster is the main component of gypsum based adhesives. Therefore, gypsum based adhesives are classified 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 (Commission Decision 96/603/EEC as amended).

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

When testing in EN 13823 is required, gypsum based adhesives shall be tested in their end use conditions.

4.1.2 Fire resistance

NOTE Resistance to fire is a characteristic dependant on an assembled system and not of the product in isolation.

When required, the fire resistance of a system including gypsum based adhesives for thermal/acoustic insulation composite panels shall be determined and classified according to EN 13501-2.

4.2 Bond strength

The bond strength of the adhesive determined as described in 5.6 shall not be less than 0,06 MPa.

4.3 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Growth website on EUROPA accessed through: https://ec.europa.eu/growth/tools-databases/cp-ds

4.4 Calcium sulfate content

The calcium sulfate content of the powder as a percentage by mass of the product shall not be less than 30 % when calculated from the result of the test carried out in accordance with 5.2.

4.5 End of utilization time

The end of utilization time is determined as described in 5.5 shall be greater than the time declared by the producer.

5 Test methods

5.1 General

This standard describes the specific test methods for gypsum based adhesives for thermal/acoustic insulation composite panels and gypsum boards.

General conditions of tests as well as test method which are common to gypsum plaster and gypsum based adhesives are described in EN 13279-2.

Those test methods which enable the requirements of this European Standard to be evaluated are given below; test methods for other properties, for example particle size, may be used by agreement.

5.2 Determination of the calcium sulfate content

Test method is described in 4.2 of EN 13279-2:2014.

5.3 Determination of the water/adhesive ratio

Test method is described in EN 13279-2:2014, 4.3.2.

5.4 Preparation of the paste for the tests

The paste used for the tests and for the preparation of test pieces is prepared as described in EN 13279-2:2014, 4.3.2.

5.5 Determination of the end of utilization time

5.5.1 Principle

The depth of penetration of the conical penetrator (cone) into a gypsum based adhesive/water paste as the set progresses shall be measured.

5.5.2 Apparatus

a) Vicat apparatus: see EN 13279-2:2014, Figures 2 and 3;

b) conical penetrator (cone): see EN 13279-2:2014, Figure 4;

c) glass plate: about 150 mm long and 150 mm wide;

d) Vicat ring: see EN 13279-2:2014, 4.3.2.3 item b);

e) straight edge:140 mm length;

f) chronometer;

g) mixer and paddle: see EN 196-1:2016, 4.4 (description in Annex A).

5.5.3 Procedure

The Vicat ring shall be placed on the glass plate with the larger opening in contact with the glass plate. The gypsum based adhesive shall be mixed with the amount of water determined according to 5.3. The time at which the adhesive is first added to the water is noted t_0. An excess of adhesive shall be transferred to the ring. Using a sawing motion the vertically held straight edge is used to strike off the excess material. Lower the cone to the surface of the adhesive using the spring plate of the release mechanism.

The guide bar shall be opened for testing using the release mechanism. The time between successive cone penetration should be not greater than 1/20 of the utilization time. The cone shall be cleaned and dried between each penetration and there should be at least 12 mm between each penetration mark. The time at which the depth of penetration achieved (35 ± 2) mm above the glass plate shall be noted t_1.

5.5.4 Expression of results

The end of utilization time t is given by the following formula:

$$t = (t_1 - t_0) \times 0{,}8$$

where

t_1 is the time at which the depth of penetration (35 ± 2) mm above the glass plate is achieved, in minutes

t_0 is the time at which the adhesive is first added to the water, in minutes

5.6 Determination of the bond strength

5.6.1 Principle

The bond strength of an adhesive pad shall be measured by applying a force perpendicularly to the adhesion interface.

NOTE Polystyrene is used as background as a typical insulating product.

5.6.2 Apparatus

a) Two blocks (gauges) 20 mm thickness, 200 mm length, 20 mm width;

b) five supports (racks) 150 mm × 150 mm × 60 mm (see Figure 1);

c) a non absorbent plate (e.g. PVC...);

d) five pieces of expanded moulded polystyrene 100 mm × 100 mm × 40 mm without surface treatment or cut expanded polystyrene with similar surface (cohesion ≥ 0,14 MPa). Five pieces are required for each adhesive tested;

e) a taping knife (width ≥ 150 mm);

f) bowl, balance, stirrer, etc. for gauging;

g) a ventilated oven at (40 ± 2) °C;

h) five metal plates 100 mm × 100 mm × 10 mm;

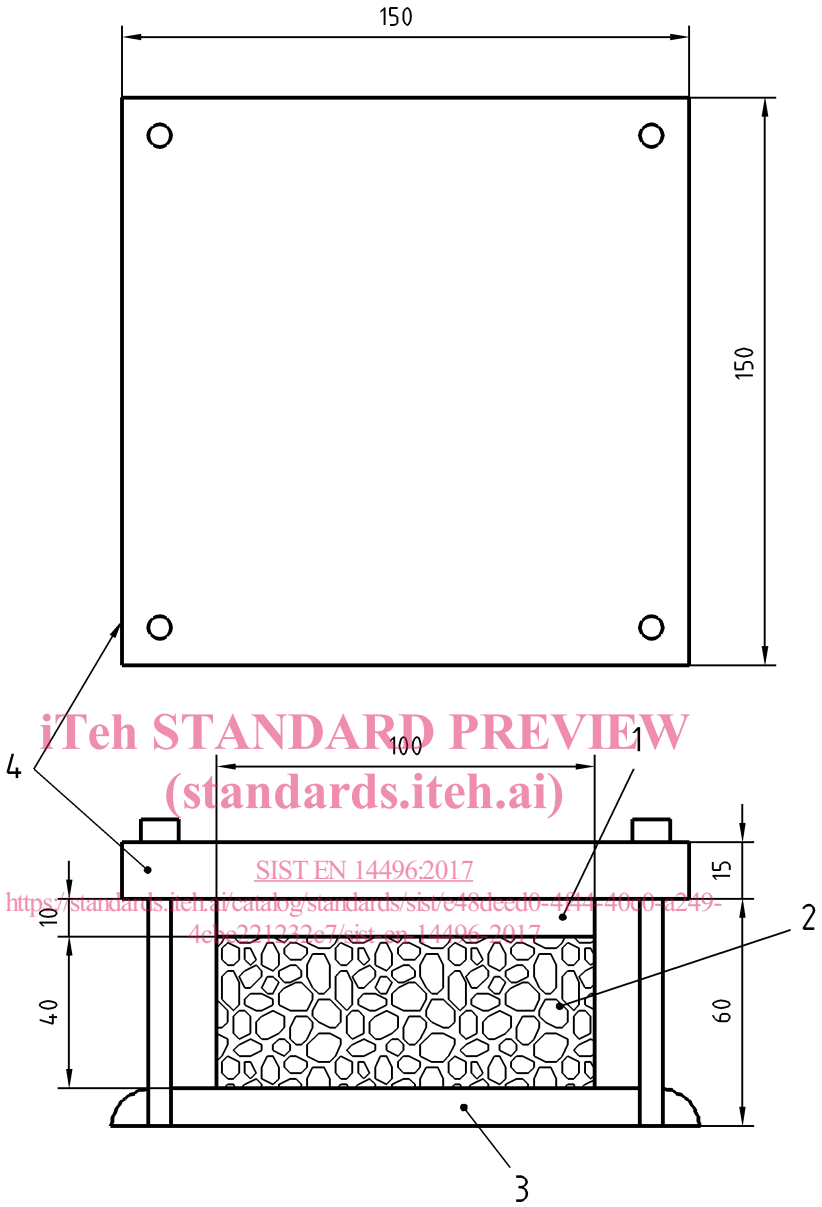
i) double face adhesive tape (adhesion ≥ 0,15 MPa);

j) hot-melt adhesive (adhesion ≥ 0,15 MPa);

k) a dynamometer or an appropriate device to apply a convenient tensile force permitting readings to 10 N and having a self-centring clamp (see Figure 2);

l) testing plate.

Dimensions in millimetres



Key

1 metal plate
2 polystyrene
3 adhesive
4 support (rack)

Figure 1 — Support (rack) for preparing specimens for adhesion strength test