



# SLOVENSKI STANDARD

## SIST EN 14190:2014

01-september-2014

Nadomešča:  
SIST EN 14190:2005

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### Mavčne plošče iz reciklaže - Definicije, zahteve in preskusne metode

Gypsum plasterboard products from processing - Definitions, requirements and test methods

Gipsplatten-Produkte aus der Weiterverarbeitung - Begriffe, Anforderungen und Prüfverfahren

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Produits de transformation secondaire de plaques de plâtre - Définitions, exigences et méthodes d'essai

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**Ta slovenski standard je istoveten z: EN 14190:2014**

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#### **ICS:**

01.040.91	Gradbeni materiali in gradnja (Slovarji)	Construction materials and building (Vocabularies)
91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar

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EUROPEAN STANDARD

EN 14190

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2014

ICS 01.040.91; 91.100.10

Supersedes EN 14190:2005

English Version

## Gypsum board products from reprocessing - Definitions, requirements and test methods

Produits de transformation secondaire de plaques de plâtre  
- Définitions, spécifications et méthodes d'essai

Gipsplatten-Produkte aus der Weiterverarbeitung - Begriffe,  
Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 22 May 2014.

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<b>Contents</b>	<b>Page</b>
Foreword.....	4
<b>1 Scope .....</b>	<b>5</b>
<b>2 Normative references .....</b>	<b>5</b>
<b>3 Terms and definitions, symbols and abbreviations.....</b>	<b>6</b>
3.1 Terms and definitions .....	6
3.2 Symbols and abbreviations .....	7
<b>4 Requirements .....</b>	<b>7</b>
4.1 Mechanical characteristics .....	7
4.1.1 Flexural strength (expressed as flexural breaking load).....	7
4.1.2 Stability of ceiling elements .....	7
4.1.3 Shear strength (strength of board/substructure connection).....	7
4.1.4 Impact resistance.....	7
4.2 Fire behaviour .....	8
4.2.1 Reaction to fire.....	8
4.2.2 Resistance to fire .....	8
4.3 Water vapour permeability (expressed as water vapour resistance factor).....	8
4.4 Acoustic properties .....	8
4.4.1 Direct airborne sound insulation .....	8
4.4.2 Acoustic absorption .....	8
4.4.3 Impact sound insulation .....	8
4.5 Thermal resistance (expressed as thermal conductivity).....	9
4.6 Dangerous substances .....	9
4.7 Dimensions and tolerances .....	9
4.8 Thermal emissivity.....	9
4.9 X-ray protection .....	9
<b>5 Test methods.....</b>	<b>9</b>
5.1 Sampling.....	9
5.2 Stability determination .....	10
5.2.1 Principle.....	10
5.2.2 Apparatus .....	10
5.2.3 Procedure .....	10
5.2.4 Expression of results .....	10
5.3 Determination of thermal emissivity.....	10
5.3.1 Principle.....	10
5.3.2 Apparatus .....	10
5.3.3 Procedure .....	11
5.3.4 Expression of results .....	11
<b>6 Assessment and verification of constancy of performance - AVCP .....</b>	<b>11</b>
6.1 General.....	11
6.2 Type testing.....	12
6.2.1 General.....	12
6.2.2 Determination of the product type .....	12
6.2.3 Further type testing .....	12
6.3 Factory production control (FPC) .....	12
6.3.1 General.....	12
6.3.2 Personnel.....	13
6.3.3 Equipment .....	13

6.3.4	Raw materials and components .....	13
6.3.5	Product testing and evaluation .....	13
6.3.6	Traceability and marking .....	13
6.3.7	Non-complying products .....	13
6.3.8	Corrective action .....	14
6.3.9	Other test methods .....	14
7	Designation of gypsum board products from reprocessing .....	14
8	Marking, labelling and packaging .....	14
Annex A (informative)	Sampling procedure for testing .....	15
A.1	General .....	15
A.2	Sampling procedure .....	15
A.2.1	General .....	15
A.2.2	Random sampling .....	15
A.2.3	Representative sampling .....	15
A.2.3.1	General .....	15
A.2.3.2	Sampling from a stack .....	15
A.2.3.3	Sampling from a consignment formed of banded or wrapped packs .....	16
Annex B (informative)	Reprocessing operations .....	17
Annex C (normative)	Mounting and fixing in the test according to EN 13823 (SBI test) and related information .....	18
C.1	General .....	18
C.2	Products which have only been changed by mechanical processes to alter their shape or dimensions .....	18
C.3	Products which are formed by adhesion of another material (or board) to the surface of the board .....	18
C.4	Mounting and fixing for products which are formed by operations other than those listed in C.2 and C.3 above .....	18
Annex ZA (informative)	Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation .....	21
ZA.1	Scope and relevant characteristics .....	21
ZA.2	Procedure for AVCP of gypsum board products from reprocessing .....	22
ZA.2.1	Systems of AVCP .....	22
ZA.2.2	Declaration of performance (DoP) .....	26
ZA.2.2.1	General .....	26
ZA.2.2.2	Content .....	26
ZA.2.2.3	Example of DoP .....	27
ZA.3	CE marking and labelling .....	29
Bibliography	.....	31

**EN 14190:2014 (E)****Foreword**

This document (EN 14190:2014) 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 2015 and conflicting national standards shall be withdrawn at the latest by April 2016.

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 14190:2005.

The main technical changes that have been made in this new edition of EN 14190 are the following:

- a) Normative references have been updated;
- b) scope has been enlarged to include boards according to EN 520, EN 15283-1 and EN 15283-2;
- c) 3.2 “Symbols and abbreviations” has been introduced;
- d) Annex C (SBI test) and related information concerning the methods for processing have been supplemented;
- e) Annex ZA and Clause 6 have been revised to be in line with the Construction Products Regulation (CPR)
- f) document has been editorially revised.

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.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## 1 Scope

This European Standard specifies the characteristics and performance of products which have been produced by reprocessing gypsum boards manufactured according to EN 520, EN 15283-1 and EN 15283-2. Reprocessing may include cutting, perforating, edge profiling, decorating and laminating membranes of other materials for functional or decorative purposes, attaching fixings including supports e.g. for partitions. Examples of reprocessing operations are given in Annex B.

The products are intended for use in wall, ceiling and floor applications, where they may be fixed directly to the background, or they are used in systems assembled in conjunction with the structure to form separate or suspended linings. The products can be customized to fit the intended application offering a wide range of aesthetic, functional and decorative solutions of modular or non-modular design.

This European Standard does not cover gypsum board thermal/acoustic insulation composite panels according to EN 13950 and prefabricated gypsum board panels with a cellular paperboard core according to EN 13915.

## 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 520:2004+A1:2009, *Gypsum plasterboards — Definitions, requirements and test methods*

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* <https://standards.iteh.ai/catalog/standards/sist/785da4be-ab0b-4026-ab41-9c54bd7e5705/sist-en-14190-2014>

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test 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 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 15283-1: 2008+A1:2009, *Gypsum boards with fibrous reinforcement — Definitions, requirements and test methods — Part 1: Gypsum boards with mat reinforcement*

EN 15283-2: 2008+A1:2009, *Gypsum boards with fibrous reinforcement — Definitions, requirements and test methods — Part 2: Gypsum fibre boards*

EN 61331-1, *Protective devices against diagnostic medical X-radiation — Part 1: Determination of attenuation properties of materials (IEC 61331-1)*

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

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

EN ISO 10140 (all parts), *Acoustics — Laboratory measurement of sound insulation of building elements (ISO 10140)*

**EN 14190:2014 (E)**

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties (ISO 12572)*

ISO 7892, *Vertical building elements — Impact resistance tests — Impact bodies and general test procedures*

**3 Terms and definitions, symbols and abbreviations****3.1 Terms and definitions**

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

**3.1.1****face**

surface intended to be exposed

**3.1.2****back**

surface intended to be concealed

**3.1.3****perforations**

holes of constant or varying shape and size

**3.1.4****thin laminations**

material applied to one or more surfaces to impart decoration or functional properties

**3.1.5****floor elements**

construction of 2 or more boards stuck together to provide profiled edges. Suitable single boards of adequate thickness and edge configuration may also comply

Note 1 to entry: Floor elements may include thermal and impact sound insulation.

**3.1.6****foldable elements**

elements formed from boards, that have previously been milled to provide inclined channels through their thickness, to allow them to be folded

**3.1.7****arch elements**

board preformed into curved elements, having a range of radii, size and shape, in single boards and multi-layer laminates

Note 1 to entry: The edges may be flush or staggered, inside or outside, to requirements.

**3.1.8****integral fixing**

component attached, usually to the back of the unit, to provide support

Note 1 to entry: Alternatively, the edges of the unit may be profiled.

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### 3.2 Symbols and abbreviations

Table 1 — Symbols and abbreviations

Requirement	Sub-clause	Symbol or abbreviation
Flexural strength	4.1.1	F
Stability of ceiling elements	4.1.2	↓
Shear strength per fastener	4.1.3	↑↓
Reaction to fire	4.2.1	R2F
Water vapour resistance factor	4.3	μ
Impact resistance	4.1.4	→I
Airborne sound insulation	4.4.1	R
Acoustic absorption	4.4.2	α
Thermal conductivity	4.5	λ
Dangerous substances	4.6	DS
See manufacturer's literature		<a href="http://www.manufacturers_internet_address.com">www.manufacturers_internet_address.com</a>

## 4 Requirements

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### 4.1 Mechanical characteristics

#### 4.1.1 Flexural strength (expressed as flexural breaking load)

All gypsum boards used to manufacture the products described in this document shall meet the breaking load requirements given in the relevant standards.

#### 4.1.2 Stability of ceiling elements

When the products from reprocessing are self-supported elements, incorporating integral fixings the load supported by the product shall be at least 5 times the dead load of the product.

All three samples shall pass the test in accordance with 5.2.

#### 4.1.3 Shear strength (strength of board/substructure connection)

When the intended use of the products from reprocessing is stiffening timber framed building assemblies (i.e. walls, roof truss structures etc.) the conventional shear strength of the product shall be determined in accordance with the test method described in the relevant standards EN 520, EN 15283-1 and EN 15283-2.

When the secondary processing does not lead to a loss of strength, the shear strength of the gypsum board provided by the manufacturer may be used.

#### 4.1.4 Impact resistance

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

When required, the impact resistance of a system including gypsum board shall be determined in accordance with ISO 7892.

**EN 14190:2014 (E)****4.2 Fire behaviour****4.2.1 Reaction to fire**

When the intended use of products from reprocessing is for fire exposed situations in building construction works, the reaction to fire classification determined in accordance with 4.2 of EN 520:2004+A1:2009, 4.2 of EN 15283-1:2008+A1:2009 and 4.2 of EN 15283-2:2008+A1:2009 may be used providing there is no deterioration in the reaction to fire characteristics as the result of reprocessing (see Annex C for more information).

In those cases where the reprocessing is likely to lead to a change of the reaction to fire, or the mounting and fixing conditions of EN 520, EN 15283-1 and EN 15283-2 do not apply, the product shall be tested and classified according to EN 13501-1.

Products tested according to EN 13823 (SBI test) shall be mounted and fixed in accordance with Annex C or when the manufacturer wishes to claim performance for a specific intended use, the mounting and fixing shall be representative of that intended use.

**4.2.2 Resistance to fire**

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

When required, the resistance to fire of a system including products from reprocessing shall be classified in accordance with EN 13501-2.

**4.3 Water vapour permeability (expressed as water vapour resistance factor)**

Where the intended use of the products from reprocessing is moisture diffusion control, tabulated design values of water vapour resistance factor for gypsum boards given in EN ISO 10456 may be used providing it does not change as the result of secondary manufacturing.

In other cases the water vapour resistance factor shall be determined using the method given in EN ISO 12572.

**4.4 Acoustic properties****4.4.1 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 a system including products from reprocessing shall be determined in accordance with EN ISO 10140.

**4.4.2 Acoustic absorption**

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

When required, acoustic absorption shall be measured according to EN ISO 354.

**4.4.3 Impact sound insulation**

NOTE Impact sound insulation is a property of an assembled system and not of the product itself.

When required, the impact sound insulation of a system including products from reprocessing shall be determined in accordance with EN ISO 10140-3.

#### 4.5 Thermal resistance (expressed as thermal conductivity)

When the intended use of products from reprocessing is to contribute to the thermal resistance in building construction works (walls, partition, ceilings and floors) the design values of thermal conductivity for gypsum boards given in EN ISO 10456 may be used.

Alternatively, thermal conductivity shall be calculated according to EN ISO 6946 for the board and those products which may be combined as a result of the secondary processing operation.

When required, thermal conductivity shall be determined in accordance with EN 12664.

#### 4.6 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 Construction website on EUROPA accessed through:

<http://ec.europa.eu/enterprise/construction/cpd-ds/>

#### 4.7 Dimensions and tolerances

The dimensions and tolerances for products from reprocessing, including any edge profile where relevant, shall be stated by the manufacturer. Where appropriate, measurements shall be made in accordance with the relevant standards EN 520, EN 15283-1, EN 15283-2. In the case of products intended for use in modular ceiling grids the tolerances shall be stated by the manufacturer to maintain compatibility.

#### 4.8 Thermal emissivity

When required, the emissivity value of the thin material to be laminated to the product shall be determined in accordance with 5.3 and declared by the manufacturer.

#### 4.9 X-ray protection

When the intended use of the products from reprocessing is X-ray protection by the lamination of lead the thickness of the lead sheet (expressed in millimetres) shall be declared.

The gamma-ray protection in mm/kV to its approved attenuation equivalent, shall be tested and/or calculated in accordance with EN 61331-1 and declared by the manufacturer.

### 5 Test methods

#### 5.1 Sampling

For testing, three units of each type are required.

**EN 14190:2014 (E)****5.2 Stability determination****5.2.1 Principle**

The self-supporting product shall be subjected to uniform incremental loading up to a value of 5 times its weight.

**5.2.2 Apparatus**

- a) a rigid test frame which is sufficiently stiff and will not deflect under the loads to be applied, of a size capable of supporting the product in the same manner as when they are in use;
- b) weights capable of being laid on the sample.

**5.2.3 Procedure**

Condition the sample to a constant mass<sup>1)</sup> in a climate of  $(23 \pm 2)$  °C and  $(50 \pm 5)$  % of relative humidity. Start the test as soon as possible after removal from the conditioning climate and complete it within 2 h. Set up the frame square and level. The product to be tested is mounted in the same way as in its intended end use.

Load the sample, as quickly as possible, with the weight distributed uniformly to a total weight, 5 times the dead weight of the sample. The applied load is kept steady and retained for 5 min. Examine the sample and fixings for signs of cracking or deterioration. Repeat with the remaining two samples.

**5.2.4 Expression of results**

Report the applied load in  $\text{N/m}^2$ , the type of product, the type and method of attachment of the fixing, its centres in relation to the board dimensions. If no deterioration is observed the sample shall be satisfactory and reported as passing the test.

**5.3 Determination of thermal emissivity****5.3.1 Principle**

The emissivity of a surface for thermal radiation is defined as the ratio of the radiation from unit area of the surface to the radiation from unit area of a full radiator (i.e. a "black body" for which emissivity = 1).

A sample of the thin material to be laminated shall be taken and heated. Resultant radiation is measured and compared with that from a black body.

**5.3.2 Apparatus**

- a) a cylindrical copper or brass bath about 150 mm in diameter and 380 mm high fitted with a thermostatic heater/stirrer unit;
- b) a thermopile and stand;
- c) a potentiometer sensitive to  $1 \mu\text{V}$ , connected so as to measure the thermopile output.

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<sup>1)</sup> Constant mass is defined as two successive weighings 24 h apart, differing by less than 0,1 %.