

SLOVENSKI STANDARD

SIST EN 15283-1:2008+A1:2009

01-december-2009

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Gypsum boards with fibrous reinforcement - Definitions, requirements and test methods -
Part 1: Gypsum boards with mat reinforcement

Faserverstärkte Gipsplatten - Begriffe, Anforderungen und Prüfverfahren - Teil 1:
Gipsplatten mit Vliesarmierung

Plaques de plâtre armées de fibres - Définitions, spécifications et méthodes d'essai -
Partie 1: Plaques de plâtre armées d'un tissu

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Ta slovenski standard je istoveten z: EN 15283-1:2008+A1:2009

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 |

SIST EN 15283-1:2008+A1:2009 **en,fr,de**

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 15283-1:2008+A1

August 2009

ICS 01.040.91; 91.100.10

Supersedes EN 15283-1:2008

English Version

**Gypsum boards with fibrous reinforcement - Definitions,
requirements and test methods - Part 1: Gypsum boards with
mat reinforcement**

Plaques de plâtre armées de fibres - Définitions,
spécifications et méthodes d'essai - Partie 1: Plaques de
plâtre armées d'un tissu

Faserverstärkte Gipsplatten - Begriffe, Anforderungen und
Prüfverfahren - Teil 1: Gipsplatten mit Vliesarmierung

This European Standard was approved by CEN on 28 December 2007 and includes Amendment 1 approved by CEN on 20 July 2009.

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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 15283-1:2008+A1:2009) 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of an identical text or by endorsement, at the latest by February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

This document includes Amendment 1, approved by CEN on 2009-08-19.

This document supersedes EN 15283-1:2008.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\langle A_1 \rangle$.

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 standard includes two parts:

— *Part 1: Gypsum boards with mat reinforcement*

— *Part 2: Gypsum fibre boards*

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 89/106.

For relationship with EU Directive (s) 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, 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.

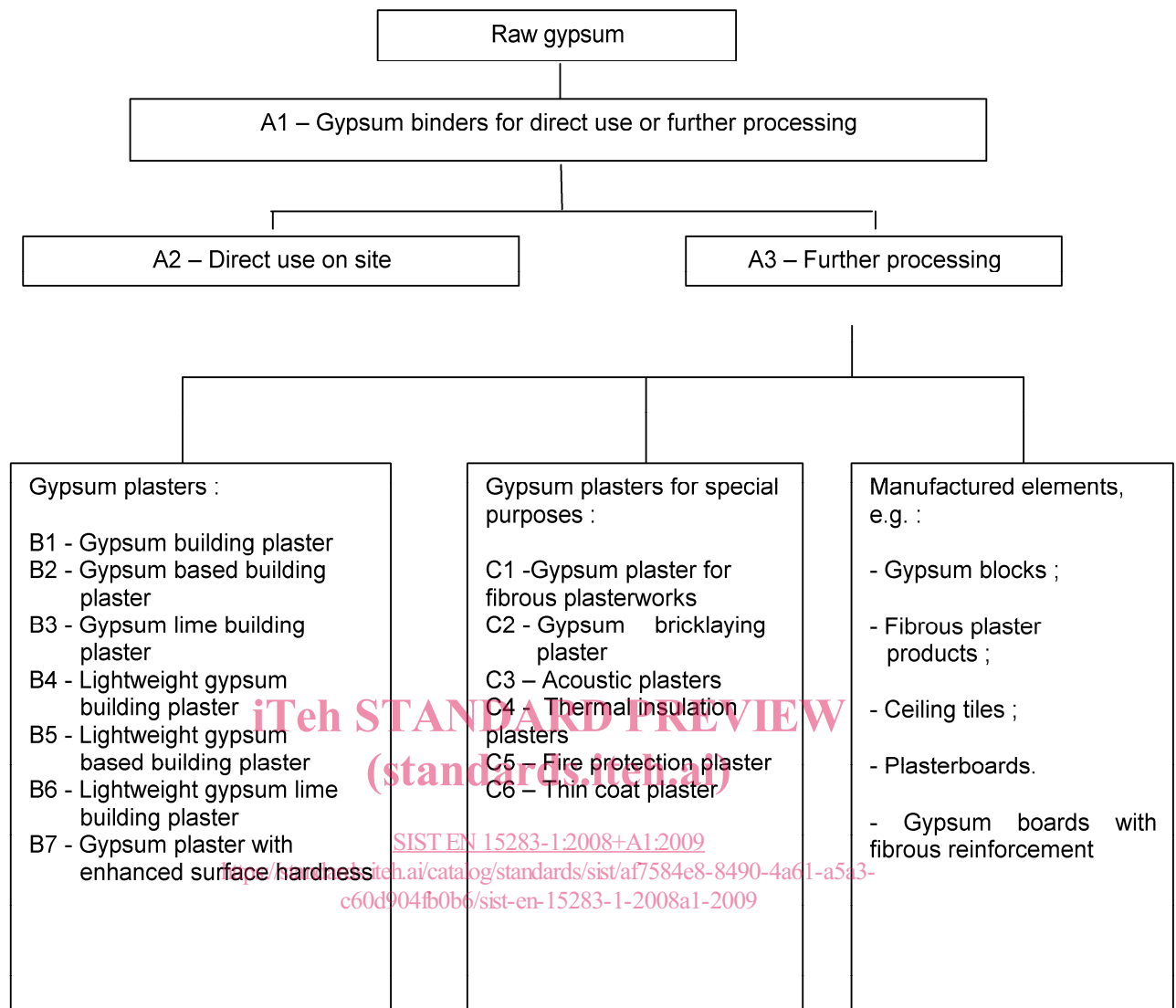
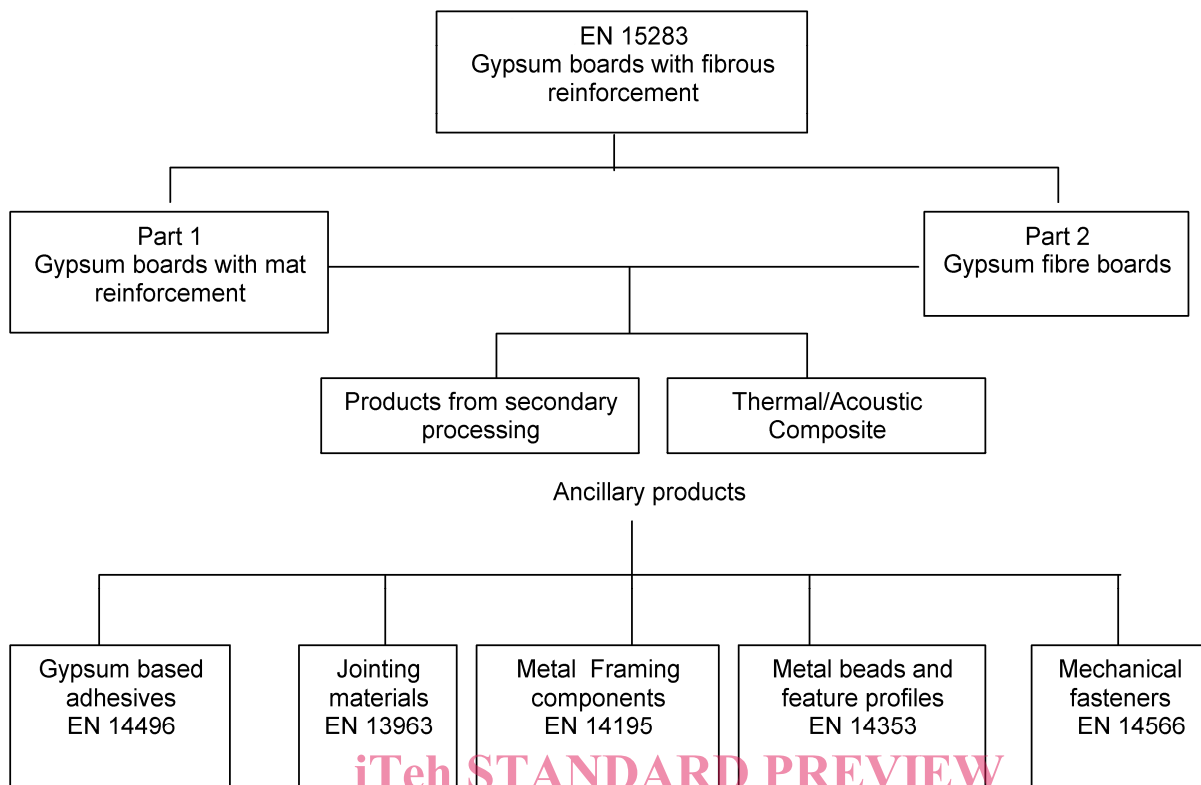


Diagram 1 — Families of gypsum products

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Diagram 2 – Family of ancillary products

Introduction

Gypsum boards with mat reinforcement are composed of set gypsum plaster core reinforced with fibres which may be inorganic and/or organic, and are arranged in a woven or non-woven mat to form flat rectangular boards. Admixtures, fillers and fibres dispersed in the core may also be present. They are usually continuously produced on an industrial scale.

The properties of gypsum boards with mat reinforcement make them particularly suitable for use in situation where there are requirements for fire protection, sound, thermal insulation or racking strength.

Gypsum boards with mat reinforcement can be fixed by various methods e.g. nailing, screwing, stapling or sticking with gypsum based or other adhesives. They can also be inserted in a suspended ceiling system or laid in floor constructions.

Gypsum boards with mat reinforcement can be finished with direct surface decoration or gypsum plaster.

They can be further processed into a range of other products.

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EN 15283-1:2008+A1:2009 (E)**1 Scope**

This European Standard specifies the characteristics and performance of gypsum boards with mat reinforcement intended to be used in building construction works including those intended for secondary manufacturing operations. It includes boards designed to receive either direct surface decoration or gypsum plaster.

Gypsum boards with mat reinforcement are selected for use according to their type, size, thickness and edge profile. The boards can be used for example to provide dry lining finishes to walls, to fixed and suspended ceilings, to partitions, or as cladding to structural columns and beams. Other uses can be for floors, ventilation and smoke extraction ducts, cable trays and sheathing applications.

This European Standard covers the following product performance characteristics: reaction to fire, water vapour permeability, flexural strength, and thermal resistance.

The following performance characteristics are linked to systems assembled with gypsum boards with mat reinforcement: shear strength, fire resistance, impact resistance, direct airborne sound insulation, acoustic absorption. If required, tests should be done according to the corresponding European test methods on assembled systems simulating the end use conditions.

This European Standard also covers additional technical characteristics that are of importance for the use and acceptance of the product and the reference tests for these characteristics. It provides for the evaluation of conformity of the product to this EN.

This European Standard does not cover gypsum boards with mat reinforcement which have been subject to any secondary manufacturing operations (e.g. insulating composite panels, boards with thin lamination etc.).

Products covered by EN 520 or EN 13815 are excluded.

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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.

EN 520:2004, *Gypsum plasterboards — Definitions, requirements and test methods*

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

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 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 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 13963, *Jointing materials for gypsum plasterboards — Definitions, requirements and test methods*

EN 14195, *Metal framing components for gypsum plasterboard systems — Definitions, requirements and test methods*

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

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties (ISO 12572:2001)*

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

3 Terms and definitions

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

3.1

gypsum boards with mat reinforcement

board composed of a gypsum core firmly bonded to a woven or non-woven sheet of inorganic or organic fibres located on or just below the surfaces. The sheet may consist of single or multiple layers and may be reinforced by filaments or webs of fibre strands. The surfaces may vary according to the use and the core can also contain fibres, additives and/or fillers to impart additional properties. Gypsum boards with fibrous mat reinforcement are usually continuously produced on an industrial scale.

The surfaces and edge profiles vary according to the use of the particular type of board.

For the purposes of identification these boards receive the designation GM

3.2

Additional features of gypsum fibre boards

3.2.1

additional features of gypsum boards with mat reinforcement

performance of the types of gypsum boards with mat reinforcement defined below can be combined in one board in which case the letter identifying each type of performance satisfied is given in the designation

3.2.2

gypsum boards with mat reinforcement with reduced water absorption rate

gypsum boards with mat reinforcement can have additives to reduce the water absorption rate which make them suitable for special applications in which reduced water absorption properties are required to improve the performance of the board. For the purpose of identification these boards are designated GM-H1, GM-H2 with different water absorption performance

3.2.3

gypsum boards with mat reinforcement with enhanced surface hardness

boards can have enhanced surface hardness for special applications. For the purpose of identification these boards receive the designation GM-I

3.2.4

gypsum boards with mat reinforcement with enhanced strength

boards can have enhanced strength for special applications. For the purpose of identification these boards receive the designation GM-R

EN 15283-1:2008+A1:2009 (E)**3.2.5****gypsum boards with mat reinforcement with improved core adhesion at high temperature**

these boards can have mineral fibres and/or other additives in the gypsum core to improve core cohesion at high temperatures. For the purpose of identification these boards receive the designation GM-F

3.3 General terms**3.3.1****edge**

longitudinal side of the board

3.3.2**end**

side transverse to the edges

3.3.3**face**

surface intended to be exposed in use

3.3.4**back**

surface opposite to the face

3.3.5**width**

shortest distance between the edges of the board

3.3.6**nominal width (w)**

width stated by the manufacturer

3.3.7**length**

shortest distance between the ends of the board

3.3.8**nominal length (l)**

length stated by the manufacturer

3.3.9**thickness**

distance between the face and the back, excluding edge profiles

3.3.10**nominal thickness (t)**

thickness stated by the manufacturer

3.3.11**squareness (s)**

rectangularity of the board

3.4 Edge and end profiles of gypsum boards with mat reinforcement

The edges may be square, tapered, bevelled, half-rounded, rounded, skewed or tongue and grooved, or a combination of each. Sketches of some common edge profiles are given in EN 520.


The ends of gypsum boards with mat reinforcement are usually square.

Other types of profile may be produced for special applications.

3.5 Symbols and abbreviations

For the purpose of simplification in product marking and performance information characteristics may be identified through the symbols and abbreviations given in Table 1.

Table 1 — Symbols and abbreviations

| Requirement | Sub-clause | Symbol or abbreviation |
|--------------------------------|------------|--|
| Reaction to fire | 4.2.1 | R2F |
| Shear strength | 4.1.3 | $\uparrow\downarrow$ |
| Water vapour resistance factor | 4.4 | μ |
| Thermal conductivity | 4.5 | λ |
| Fire resistance | 4.2.2 | FR |
| Impact resistance | 4.11 | $\rightarrow I$ |
| Flexural strength | 4.1.1 | F |
| Acoustic absorption | 4.3.2 | α |
| Sound insulation | 4.3.1 | R |
| See literature | |  www.company.com |



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4 Requirements

4.1 Mechanical characteristics

4.1.1 Flexural strength

The flexural strength shall be expressed as the breaking load in Newtons.

The flexural breaking load of gypsum boards with mat reinforcement determined in accordance with the test method described in 5.6 shall not be less than the values given below, where t is the thickness of the board in mm.

 **Table 2  — Flexural breaking load in Newtons**

| Type | Nominal board thickness mm | Flexural breaking load N | |
|------------------------------|-------------------------------|-----------------------------|------------------------|
| | | Transverse direction | Longitudinal direction |
| GM, GM-H1, GM-H2, GM-I, GM-F | t | $16,8 \cdot t$ | $43 \cdot t$ |
| GM-R | t | $24 \cdot t$ | $58 \cdot t$ |

Additionally, no individual result shall be more than 10 % below these values.

4.1.2 Deflection under load

When required and subject to regulatory requirements, the deflection under load shall be determined in accordance to the test method described in 5.7.