BRITISH STANDARD

BS EN
13815:2006

Fibrous gypsum plaster casts — Definitions, requirements and test methods

The European Standard EN 13815:2006 has the status of a British Standard

ICS 91.100.10

BSI
British Standards

National foreword

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A list of organizations represented on B/544/1 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Fibrous gypsum plaster casts - Definitions, requirements and test methods

Produits en staff - Définitions, prescriptions et méthodes d'essai

Formteile aus faserverstärktem Gips - Begriffe, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 19 June 2006.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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Foreword

This document (EN 13815:2006) 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of an identical text or by endorsement, at the latest by February 2007, and conflicting national standards shall be withdrawn at the latest by May 2008.

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(s).

For relationship with EU Directive(s), see informative annex ZA which is an integral part of this document.

This document replaces no existing European Standard.

This European Standard includes:

— an informative annex A concerning sampling procedure for testing;

— an normative annex B on the thermal conductivity of the gypsum plaster;

— an normative annex C concerning factory production control ;

— an informative annex D illustrating the scope of this standard with regard to the classification of the categories of production of the fibrous gypsum plaster casts and to the intended uses;

— an informative annex ZA : providing information for regularity marking.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 United Kingdom.

Introduction

This European Standard applies to fibrous gypsum plaster construction products, obtained by thin casting of a specific reinforced plaster and intended to be used in fibrous gypsum plaster structures.

The fibrous gypsum plaster structures are made by assembling these casts together and fastening them by sealed fixing or screwing to the substrate. They are then sealed and pointed to form continuous surfaces without any visible joint.

Fibrous gypsum plaster structures are suitable for finishing with direct surface decoration (e.g. paints).

The diagram below shows the family of gypsum products.

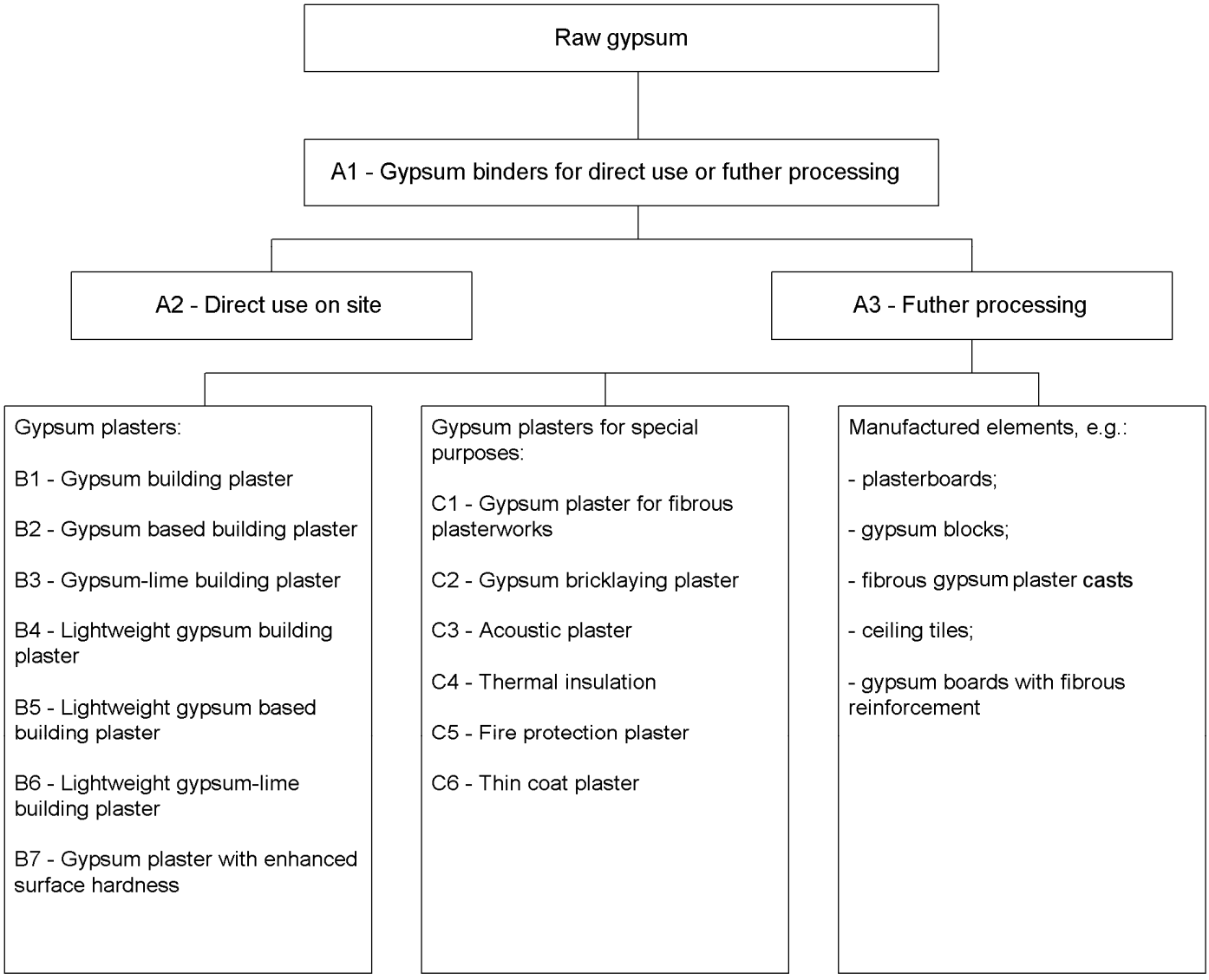


Diagram – Family of gypsum products

1 Scope

This European Standard specifies the characteristics and performance requirements for fibrous gypsum plaster cast-sections, rigid sheets, rigid tiles - made by various techniques in factories or workshops.

This European Standard is applicable to:

- conventional series produced products;
- series produced products with varying properties ;
- individual (and non-series) produced products, insofar required to be CE marked.

See 4.1 and annex D concerning the classification of the fibrous gypsum plaster casts.

This European Standard covers the following performance characteristics of the fibrous gypsum plaster casts : reaction to fire, thermal resistance, as well as resistance to impact by a hard steel ball and cohesion.

The following performance characteristics are linked to systems assembled with fibrous gypsum plaster casts : fire resistance, impact resistance, direct airborne sound insulation, acoustic absorption to be measured according to the corresponding European test methods. If required, tests have to be done on assembled systems simulating the end use conditions.

This European Standard defines the reference test methods for the technical specifications.

This European Standard also covers additional technical characteristics of fibrous gypsum plaster casts that are of importance for use and acceptance of the products by the building industry and the reference tests for these characteristics.

It provides for assessment of conformity of the products to this standard.

This standard does not apply to:

i) fibre reinforced gypsum sheet products (see pr EN 15283);

ii) gypsum elements for suspended ceilings (see EN 14246);

iii) solid casts;

iv) run fibre reinforced products;

v) plaster based stucco casts, carton pierre decors, resin decors;

vi) moulds, models and mock-ups made of fibrous gypsum plaster;

vii) fibrous gypsum plaster casts that, by nature, are not intended to be fastened in position;

viii) fibrous gypsum plaster casts for sets (theatre, cinema, TV);

ix) fibrous gypsum plaster casts and decors intended to be installed directly on existing partitions, walls and ceilings, for purely decorative applications.

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 635-3:1995, *Plywood — Classification by surface appearance. — Part 3: Softwood*.

EN 1611-1:1999, *Sawn timber —- Appearance grading of softwoods — Part 1: European spruces, firs, pines and Douglas firs.*

EN 10327, *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming — Technical delivery conditions.*

EN 10244-2, *Steel wire and wire products —- Non-ferrous metallic coatings on steel wire — Part 2: Zinc or zinc alloy coatings.*

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

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 20140-9, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 9: Laboratory measurements of room-to-room airborne sound insulation of a suspended ceiling with a plenum above it.*

EN 13279-1, *Gypsum binders and gypsum plasters — Part 1: Definitions and requirements*

EN 13658-1, *Metal lath and beads — Definitions, requirements and test methods — Part 1: Internal plastering.*

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 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).*

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

3 Terms, definitions, symbols and abbreviations

For the purposes of this standard, the following definitions apply.

3.1 General terms and definitions

3.1.1
fibrous gypsum plaster cast (or fibrous plaster cast)
product made by casting specific gypsum plaster mixed with water and reinforced with fibres, cloth, grilles, lathwork, laths or profiles. It may contain admixtures, fillers or aggregates as long as they will not contribute in any stage of the fire and they are not classified as dangerous substances in European regulations.

3.1.2
fibrous gypsum plaster interior architectural cast
cast of any shape and configuration, intended for interior architectural works such as volumetric ceilings, vaults, shaped wall linings, porticos.

3.1.3
fibrous gypsum plaster technical function cast
cast of any shape and configuration that have technical functions such as shafts for smoke extraction, metal structure fireproof casings.

3.1.4
fibrous gypsum plaster unit (or fibrous plaster slab)
flat rectangular fibrous gypsum plaster casts for works such as flat suspended ceilings

3.2 Technical terms and definitions

3.2.1
face
surface of the cast intended to be exposed when installed

3.2.2
back
surface of the cast intended to be concealed when installed

3.2.3
edge
boundary of the cast

NOTE Edges can be square or bevelled (see Figures 1and 2) and can include reinforced rims and/or rebates for surface jointing (see Figure 3)

3.2.4
thickness
distance between the face and the back of the cast

NOTE The thickness of the cast is generally constant but can show possible reinforced rim edges or complementary reinforcements.

3.2.5
minimum thickness
minimum thickness dimension required for the whole of a cast

3.2.6
nominal thickness
contractual thickness or thickness declared by the manufacturer and given in the designation of a cast

3.2.7
reinforcement
material incorporated in the product to provide overall cohesion and durability.
The reinforcement may be organic (e.g. jute), mineral (e.g. glass or rock) or metal (see Table 1) as long as it is not classified as a dangerous substance in European regulations.

NOTE There are two types of reinforcements defined by their functions:
- elementary reinforcements;
- complementary reinforcements.

3.2.8
elementary reinforcement
initial reinforcement distributed throughout and fully integrated into the cast (e.g. hessian)

3.2.9
complementary reinforcement
in some casts, additional reinforcements integrated into or on the product (e.g. lightweight steel sections)

3.2.10
prime layer (or fibrous plaster firstings)
face layer of plaster, without reinforcement

3.2.11
cavity
small hollow in plaster, caused by possible air bubbles

3.2.12
handling framework
separate component used to provide temporary rigidity and/or support to products during removal from its mould, handling and assembly, usually removed after use (see Figure 4)

3.2.13
wad (or fixing pad)
scrim comprising natural fibres usually jute or sisal fully impregnated and coated with plaster and extended to form a grip or handle (see Figure 4)

Glass fibres may be used (long fibres, weave or mat).

3.2.14
fibrous plaster rope
long scrim comprising natural fibres usually jute or sisal, or strip of hessian, fully impregnated and coated with plaster and extended to form a grip

Glass fibres may be used (long fibres, weave or mat).

3.2.15
developed area
total measured and/or calculated area of the cast face

3.2.16
surface mass
mass per square metre of developed area

3.2.17
GRG cast (glass fibre reinforced gypsum)
specific product made from plaster – calcium sulfate hemihydrate alpha based or specially modified beta based - mixed with water and in which the reinforcement is glass fibre

3.2.18
PMGRG cast (polymer modified glass fibre reinforced gypsum)
specific product made from plaster – calcium sulfate hemihydrate alpha based or specially modified beta based - mixed with water with the addition of resin and in which the reinforcement is glass fibre.

3.3 Symbols and abbreviations

For the purposes of this standard, the following symbols and abbreviations apply:

cpp indicates conventional series production (see 4.1a);

cppv indicates series production of products with varying properties (see 4.1b);

ipp indicates individual (and non-series) production (see 4.1c);

f reinforcement class - consecutive number indicates the type of elementary reinforcement (see Table 2);

m index which indicates presence of complementary reinforcement by lightweight steel sections, e.g. f 2m (see Table 1);

w index which indicates presence of complementary reinforcement by softwood lath, e.g. f 3w (see Table 2);

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

$\lambda_{23\text{-}50}$ thermal conductivity of the product when in equilibrium at 23 °C and 50 % relative humidity in Watts per metre per Kelvin (W/m.K);

M mass in kilograms;

M_c moisture content;

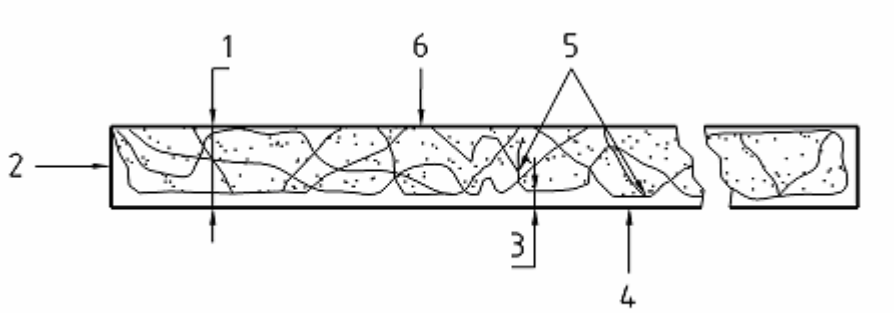
A_d developed area in square millimetres (m^2);

GRG see 3.2.17

PMGRG see 3.2.18.

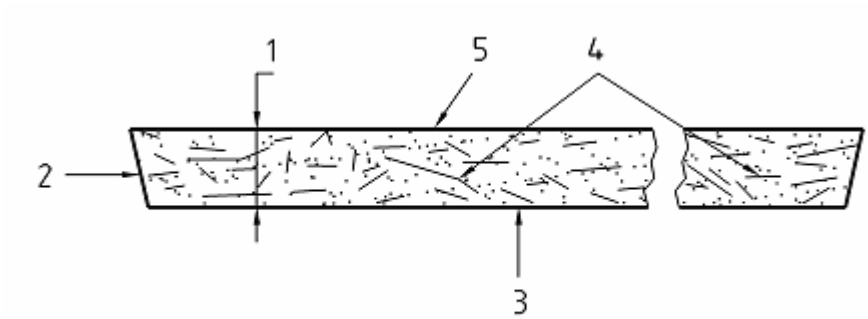
ITT initial type test

FPC factory production control



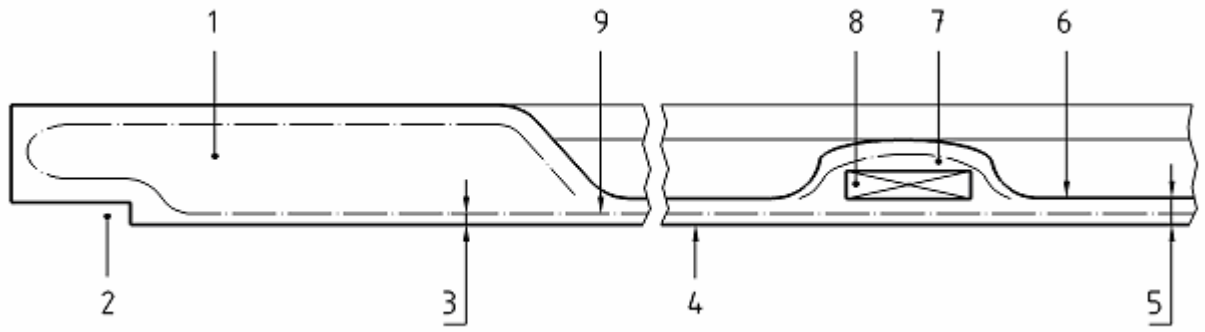
Key
1 Thickness
2 Square edge
3 Prime layer
4 Face
5 Elementary reinforcement
6 Back

Figure 1 - Cutaway drawing of a unit with square edges, reinforced with organic fibre (jute or sisal fibre)



Key
1 Thickness
2 Bevelled edge
3 Face
4 Elementary reinforcement
5 Back

Figure 2 - Cutaway drawing of a unit with bevelled edges, reinforced with chopped glass fibre roving



Key

1 Reinforcement rim edge
2 Rebate for surface jointing
3 Prime layer
4 Face
5 Thickness
6 Back
7 Fibrous plaster rope
8 Complementary reinforcement
9 Elementary reinforcement

Figure 3 - Cutaway drawing of a unit with rebated edges for surface jointing, reinforced with glass fibre tissue and complementary reinforcement by softwood laths

4 Classifications

4.1 Categories of production

There are three categories of production of fibrous gypsum plaster products defined by their manufacturing process and commercial destination (see annex D):

a) "cpp" Conventional series production

Concerns products placed on the market, manufactured in large volumes of the same product made over time.

b) "cppv" Series production of products with varying properties

Concerns products placed on the market, manufactured in series production with different performances (e.g. different size, shape, strength).

c) "ipp" Individual (and non-series) production (see scope),

Concerns products of individual design that are ordered for and installed in one and the same known work.

Under these conditions, "ipp" are :

- **individually** designed and manufactured, upon request and for specific purposes ; or
- custom-made for a specific order to obtain one or several end use performances different from products manufactured in series.

4.2 Product ranges

There are three ranges of fibrous gypsum plaster casts, defined by their principal functions, shapes and configurations :

a) casts for interior architecture (see 3.1.2)

b) casts for technical function (see 3.1.3)

c) units (see 3.1.4)

5 Requirements

5.1 Fire behaviour

5.1.1 Reaction to fire

When the intended use of fibrous gypsum plaster casts is for fire exposed situations for which there are regulatory requirements, and when the products contain less than 1 % by mass or volume of organic material (the higher level to be taken into account), fibrous gypsum plaster casts are classified A1 according to Decision 96/603/EC as amended (no contribution to fire) without testing.

Where subject to regulatory requirements, and the product contains more than 1 % by mass or volume, it shall be tested and classified according to EN 13501-1.

5.1.2 Fire resistance

NOTE Fire resistance is the property of an assembled system, not of the product itself.

Where the manufacturer wishes to declare the characteristic (e.g. when it is subject to regulatory requirements), the performances of a relevant system composed of fibrous gypsum plaster casts shall be determined and classified according to EN 13501-2.

5.2 Dangerous substances

Materials used in products shall not release any dangerous substances in excess of the maximum permitted levels specified in a relevant European Standard for the material or permitted in the national regulations of the member state of destination.

5.3 Impact resistance

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

Where the manufacturer wishes to declare the characteristic (e.g. when it is subject to regulatory requirements), the impact resistance of a system composed of fibrous gypsum plaster casts shall be determined according to ISO 7892.

5.4 Protection against noise

NOTE Airborne sound insulation is a characteristic dependent on an assembled system and not of the product in isolation.

5.4.1 Airborne sound insulation

5.4.1.1 Direct airborne sound insulation

Where the manufacturer wishes to declare the characteristic (e.g. when it is subject to regulatory requirements), the direct airborne sound insulation performance of a suitable system composed of fibrous gypsum plaster casts shall be determined according to EN ISO 140-3, with the sound rating (R) being determined according to EN ISO 717-1.

5.4.1.2 Insulation of a suspended ceiling with a plenum above it

Where the manufacturer wishes to declare the characteristic (e.g. when it is subject to regulatory requirements), the airborne sound insulation performance of a suitable system composed of fibrous gypsum plaster casts shall be determined according to EN 20140-9, with the sound rating ($D_{n,c}$) being determined according to EN ISO 717-1.

5.4.2 Acoustic absorption

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

Where the manufacturer wishes to declare the characteristic (e.g. when it is subject to regulatory requirements), the acoustic absorption performance of a fibrous gypsum plaster cast with an absorbent surface shall be measured according to EN ISO 354.

5.5 Energy economy and heat retention

5.5.1 Thermal resistance

When the intended use of fibrous gypsum plaster casts is to contribute to thermal resistance in building construction works, their thermal resistance shall be determined using the formula given in EN ISO 6946.

The values of thermal conductivity necessary for this calculation are indicated in 5.5.2 and the thickness values to be used shall be measured as described in 6.9 and 6.12.

5.5.2 Thermal conductivity

Design values of the thermal conductivity of gypsum plaster used in the fabrication of fibrous gypsum plaster casts shall be as annex B.

5.6 Constituents

5.6.1 Plasters

Gypsum casting plasters (class 1) - calcium sulfate hemihydrate – used for fibrous gypsum plaster shall be manufactured according to EN 13279-1.

5.6.2 Water

The mixing water shall be clean and free from contamination

Normal tap water may be used.

5.6.3 Reinforcements

The reinforcement shall generally comprise one or more (e.g. elementary reinforcement of hessian with complementary reinforcement made of lightweight steel sections) of the types defined in 5.6.3.1, 5.6.3.2. 5.6.3.3.

The reinforcements are classified according to their characteristics and their use, as described in Table 2.

5.6.3.1 Organic reinforcements

5.6.3.1.1 Jute and sisal fibres

Organic fibres consisting of jute (for example, *Corchorus olitorius* or *Corchorus apsularis*) and sisal (for example, *Agave sisalana perrine*) shall be in the form of new natural fibres, comprising long strands which are sound, combed or carded and free from impurities and foreign bodies.

5.6.3.1.2 Hessian (or woven jute fibre)

Jute cloth (*Corchorus olitorius* or *Corchorus apsularis*) or mix of hemp and jute cloth, shall be regular, plain, uniform and with no visible defects.

The nominal weight of common woven jute fibre is equal to 92 g/m², 96 g/m² or 125 g/m².

The structure of the weave shall permit bonding of two layers of the moulding plaster; the usual openings in the weave are between 4 mm and 10 mm.

5.6.3.1.3 Softwood lath

These are made of softwood and are used to provide complementary reinforcement; unlimited knots shall be permitted as long as the integrity of the piece is maintained, they shall either be of grade G2-4 (Table 1) or G4-4 (Table 2) as specified in EN 1611-1:1999.

If plywood is used, the inherent characteristics in the wood shall be permitted as long as they do not reduce the suitability for use as specified in EN 635-3.

NOTE The cross-sections normally used are: 25 mm x 3 mm, 25 mm x 6 mm, 24 mm x 9 mm, 27 mm x 7 mm.

5.6.3.2 Mineral reinforcements

5.6.3.2.1 Chopped glass fibres

Common glass fibres used are following types:

— non-twisted chopped glass fibre silionne EC, coated with a water soluble sizing agent; the lengths may be between 13 mm and 50 mm ;

— non-twisted multi-fibre glass roving (called Stratifil EC) ; these may be chopped when installed.

5.6.3.2.2 Glass fibre tissue

Glass fibre tissue shall comprise glass fibre silionne, coated with a water-soluble sizing agent.

The structure of the tissue shall permit bonding of two layers of the moulding gypsum plaster.

5.6.3.2.3 Glass fibre mat

Glass fibre mat shall comprise glass fibres silionne or verrane in multiple layers of random distribution and adhered with a binder. Their structure shall permit bonding of the two layers of moulding gypsum plaster.

5.6.3.3 Metal reinforcements

5.6.3.3.1 Metal mesh and cloth

These consist of mild steel wire, assembled to form a mesh and protected against corrosion. This protection is ensured by hot-dip galvanizing as specified in EN 10244-2.

Cotton scrim wrapped around galvanised mild steel wire may also be used.

A different method shall be used as long as it offers at least an equivalent degree of protection.

5.6.3.3.2 Metal lath

Expanded lath, ribbed lath and welded mesh lath shall conform to EN 13658-1.

Welded mesh lath shall be used without cardboard backing.

5.6.3.3.3 Lightweight steel sections

Lightweight steel sections of various profiles and sizes may be used to provide complementary reinforcement.

Steel sections shall be manufactured from mild steel strip having a protective coating in compliance with EN 10327. The protective coating shall comply with one of the following classes indicated in Table 1.

Table 1 — Protective coating classes

All classes Z	EN 10327
Class ZA130	EN 10327
Class ZA095	EN 10327
Class AZ 150	EN 10327
Class AZ 100	EN 10327
NOTE Z means zinc, ZA zinc/aluminium, AZ aluminium/zinc,. Number is the total weight of coating in g/m ^{2}.	

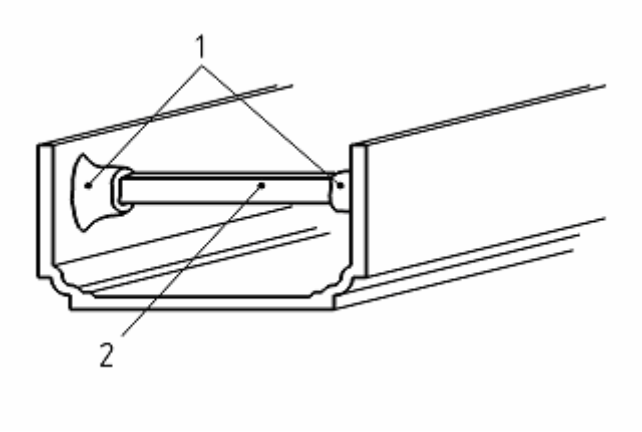
A different method may be used as long as it offers at least an equivalent degree of protection.

Table 2 — Classification of reinforcements used in fibrous gypsum plaster casts

Elementary reinforcements				Classes f		
				Casts with only elementary reinforcement	Casts with elementary and complementary reinforcement	
					Softwood lath (w)	Lightweight steel sections (m)
Configuration	**Origin**	**Designation**	**Reference clauses**		**5.6.3.1.3**	**5.6.3.3.3**
Random	Organic	Jute and sisal fibre	5.6.3.1.1	**f1**	f1w	f1m
	Mineral	Chopped glass fibres	5.6.3.2.1	**f2**	f2w	f2m
Sheet	Organic	Hessian	5.6.3.1.2	**f3**	**f3w**	**f3m**
	Mineral	Glass fibre tissue	5.6.3.2.2	**f4**	**f4w**	**f4m**
		Glass fibre mat	5.6.3.2.3			
	Metal	Metal mesh and cloth	5.6.3.3.1	**f5**		f5m
		Metal lath	5.6.3.3.2			

NOTE 1 Common classes of reinforcement are shown in bold type.

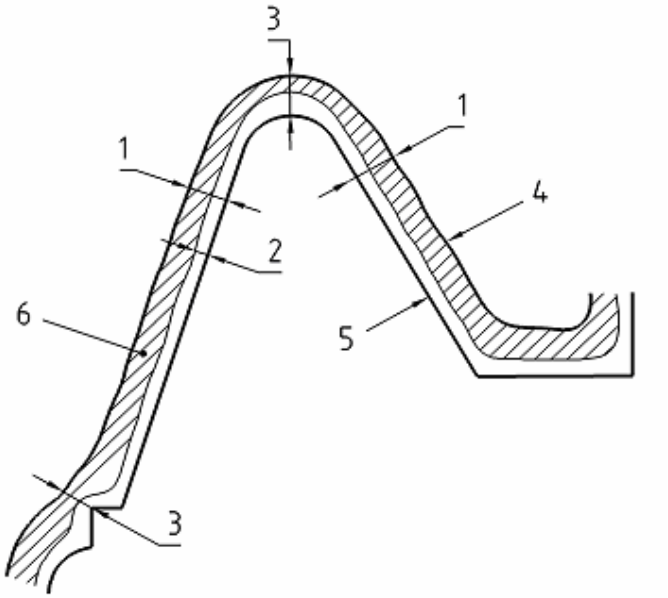
NOTE 2 Other possible reinforcement classes may be expressed by analogy (e.g. : elementary reinforcement by glass fibre mat and complementary reinforcement by softwood lath and lightweight steel sections = f4 wm).



Key

1 Wads
2 Handling framework

Figure 4 - Handling framework



Key

1 Nominal thickness
2 Prime layer
3 Thinner thicknesses
4 Back
5 Face
6 Reinforced plaster

Figure 5 - Thinner thicknesses at the bottom recessed points of relief of a cast

5.7 Appearances

5.7.1 Moulding definition of the face

The face of the fibrous gypsum plaster casts shall look good and shall be free from:

— fissures or cracks;

— mould release agent;

— oil or lubricant stains;

— efflorescences;

— inscriptions by coloured pencil or felt-tip;

— streaks;

— mould bubbles (small balls of plaster);

— cavities;

— lack of plaster on details;

— spalls and chips on sharp edges.

Tolerances :

Any three of the following small defects are allowed per m² of the developed area:

— individual streaks less than 500 mm long;

— mould bubbles;

— cavities or lack of plaster, when they can be circumscribed within a 3 mm edge square;

— spalls and chips on sharp edges.

Inspection of the face shall be carried out in accordance with 6.3.

5.7.2 Back

The back of the fibrous gypsum plaster casts may be smooth or rough depending on the installation system.

NOTE Where there is a handling framework, it is generally fixed to the back by wads or fibrous gypsum plaster ropes.

5.7.3 Edges

The edges of the fibrous gypsum plaster casts shall be free from spalls, chips and other imperfections. They are permissible when the edges are intended to be sealed and pointed.

Inspection of the edges shall be carried out in accordance with 6.3

5.7.4 Cut

A cut on a fibrous gypsum plaster cast shall have a continuous texture with no separation between the layers of plaster.

Inspection of a cut shall be carried out upon thickness checking 6.4 and 6.12

NOTE Casts for technical functions intended to be concealed in the completed works (eg. Shaft in suspended ceiling), are not concerned by 5.7.1 (except fissures) and 5.7.3.

5.8 Thickness of the prime layer (fibrous plaster firstings)

Normally, the thickness of the prime layer of the fibrous gypsum plaster casts shall not be less than the recommended dimensions stated in Table 3, defined by their reinforcement classes.

NOTE Casts reinforced with reinforcements class f2, f2w, f2m, do not include prime layer.

The thickness of the prime layer shall be measured in accordance with 6.4.

Lower thickness is allowed at recessed points of relief (see figure 5).

Table 3 — Recommended minimum thickness of the prime layer of fibrous gypsum plaster cast

Product	Reinforcement classes	Minimum thickness of the prime layer of the cast mm
Traditional fibrous gypsum plaster	f1, f1w, f1m f3, f3w, f3m f4, f4w, f4m	2
	f5, f5m	5
GRG and PMGRG	f4, f4w, f4m	1

5.9 Handling framework

The fibrous gypsum plaster casts can be reinforced by a framework of wood or metal (see 3.2.12 and figure 4).

To avoid corrosion during the drying period and setting, the steel sections in contact with fibrous gypsum plaster casts shall be protected by hot galvanising or by paint (single layer).

5.10 Resistance to impact by a hard steel ball and cohesion

When tested in accordance with 6.5, the steel ball shall not pass through the cast.

5.11 Moisture content

The moisture content specifications apply only to wrapped fibrous gypsum plaster casts of the "cpp" category.

When tested in accordance with 6.6, the moisture content M_c measured at the time of departure from the workshop shall not exceed the following values for products intended to be wrapped:

— a) with airtight wrapping (e.g. polyethylene) : $M_c \leq 4$ % ;

— b) with non-airtight wrapping : $M_c \leq 6$ %.

No individual value shall exceed:

— d) with airtight wrapping: 6 %;

— e) with non-airtight wrapping: 8 %

5.12 pH

When tested in accordance with 6.7, the surface pH of fibrous gypsum plaster casts shall be from 6,5 to 10,5.

5.13 Surface hardness

When tested in accordance with 6.8, the average surface hardness value of fibrous gypsum plaster casts shall be equal to or greater than 70 Shore C units.

Fibrous gypsum plaster casts intended for structures that have a fire resistance function (see 5.1.2) shall have a surface hardness values equal to or greater than 60 Shore C units.

5.14 Interior architectural casts or technical function casts - Additional requirements

In addition to the requirements described in 5.1 to 5.13, interior architectural and technical function casts shall meet the following requirements for thickness and tolerance.

The thickness of casts for interior architecture or technical function shall be measured in accordance with 6.9 and at no point shall be less than the minimum values given in Table 4 determined as a function of their reinforcement class.

The tolerance for the thickness declared by the manufacturer is + 2 mm /- 1 mm.

Table 4 — Minimum thicknesses of the interior architectural and technical function casts

Dimensions and tolerances in millimetres

Product	Reinforcement classes	Minimum thickness		Tolerance at recessed points of relief (see Figure 5 and 6.9.4)	
		Interior architectural casts out of reach	Other architectural casts and technical function casts	Low deviation	High deviation
Traditional fibrous gypsum plaster	f1w, f1m f3w, f3m f4w, f4m	5	5	- 1	Depending on the shapes and use of the casts, overthicknesses are permitted
	f1 f2w, f2m f3 f4	7	10	-2	
	f2	10	10		
	f5, f5m	15	15		
GRG and PMGRG	f2w, f2m f4w, f4m	3	5	- 1	
	f2, f4	5	5		

5.15 Units - Additional requirements

In addition to the specifications described in 5.1 to 5.13, fibrous gypsum plaster units shall meet the following requirements:

5.15.1 Dimensions of units and tolerances

The unit dimensions shall be defined by the length, the width and the thickness.

5.15.1.1 Length and width

The length shall be measured in accordance with 6.10 and the width shall be measured in accordance with 6.11.

NOTE The current nominal lengths are between 1000 mm and 2000 mm inclusive

The current nominal widths are between 800 mm and 1000 mm inclusive

The tolerances on the nominal dimensions – length and width – declared by the manufacturer are as follows:

a) for traditional fibrous gypsum plaster units: ± 5 mm ;

b) for GRG or PMGRG units:

— ± 2 mm for dimensions ≤ 2 m;

— ± 3 mm for dimensions > 2 m.

5.15.1.2 Thickness

The thickness shall be measured in accordance with 6.12 and at no point shall be less than the minimum values given in Table 5 determined as a function of the reinforcement class

The tolerance for the thickness declared by the producer shall be + 2 mm /- 1 mm.

NOTE The current nominal thicknesses are 5 mm, 10 mm, 12 mm, 15 mm, 20 mm for traditional fibrous gypsum plaster and 3 mm and 9 mm for GRG and PMGRG.

Table 5 — Minimum thickness of units

Product	Reinforcement classes	Minimum thickness mm
Traditional fibrous gypsum plaster	f1w, f1m, f3w, f3m, f4w, f4m	5
	f1, f2, f2w, f2m, f3, f4	10
	f5, f5m	15
GRG and PMGRG	f2w, f2m, f4w, f4m	3
	f2, f4	5

5.15.2 Squareness of units and tolerances

The angles of the units shall be square.

When measured in accordance with 6.13, deviations shall not be greater than:

a) 2 mm for traditional fibrous gypsum plaster;

b) 0,6 mm for GRG and PMGRG.

5.15.3 Flatness of the face of units and tolerances

The face of the unit shall be flat.

5.15.3.1 General flatness

When the test is carried out in the manufacturing plant, the general flatness of the face shall be measured on the mould base in accordance with 6.14.1.

NOTE The flexibility of the material and the possible presence of complementary reinforcement makes the testing of this requirement on the unit difficult.

Any deviation from general flatness shall not be greater than 1 mm in 1000 mm

5.15.3.2 Local flatness

When measured on the face in accordance with 6.14.2, any deviation from flatness for local areas shall not be greater than 0,6 mm in 300 mm.

5.15.4 Surface mass of units and tolerances

When tested as described in 6.15, the surface mass of traditional fibrous gypsum plaster units shall be at least of the following values :

a) 1 kg/m^2 per mm of thickness for units incorporating f1 or f3 reinforcement;

b) 0,9 kg/m^2 per mm of thickness for units incorporating f2 or f4 reinforcement.

NOTE This requirement is not applicable to units with reinforcements of classes f5 and f5m, nor to those containing aggregates.

For GRG and PMGRG units, the surface mass shall be at least 1,4 kg/m² per mm of thickness when tested as described in 6.15.

When determined in accordance with 6.15, the tolerance on the mass declared by the producer shall be : + 10 % /- 5 %

6 Test methods

6.1 Sampling

The following procedure shall be adopted:

A minimum of three samples of each type are required to carry out the physical, chemical and mechanical tests (6.3 to 6.15). Annex A provides a sampling procedure.

6.2 Conditioning of samples

Samples shall be conditioned as follows :

Weigh the selected samples (mass M_1) and then dry them to constant mass (mass M_2). They are then subjected to the different tests specified in this standard.

NOTE 1 Constant mass is attained when two successive weighings differ by less than 0,2 % in 24 h.

Drying to constant mass is carried out using one of the two following methods:

a) method A: storage in a ventilated room at 23 °C ± 2 °C and 50 % ± 5 % relative humidity ;

b) method B: storage in a drying cabinet at 40 °C ± 2 °C prior to cooling to room temperature.

NOTE 2 Constant mass is only necessary for tests 6.3.4 2.b), 6.5, 6.6, 6.7, 6.8, 6.14.2 and 6.15

6.3 Checking of the moulding definition of the face

6.3.1 Principle

Visual inspection of the cast and measurement of defects shall be carried out as follows.

6.3.2 Apparatus

Metal rule or metal tape graduated in millimetres.

Gauge made from a thin metal or plastic plate containing a 3 mm x 3 mm square hole.

300 lux light source.

6.3.3 Preparation of test samples

Conditioning of the samples is not required for this test to method 6.3.4.2 a).

Calculation of the developed area requires conditioning of the samples according to method 6.3.4.2 b).

6.3.4 Procedure

6.3.4.1 General

Examine the surface appearance of the face and of the edges from a distance of 1,5 m using the naked eye, in 300 lux light.

Apply the gauge to cavities and voids in order to determine their size. Identify and count those which are able to be contained within the square hole of the gauge.

6.3.4.2 Method of calculation of developed area

The developed area of the face of interior architectural and technical function casts, is calculated using one of the two following methods:

a) for casts with a simple configuration: measurement, calculation and adding up of elementary areas;

NOTE Example: expansion of a cornice with a dressmaker's tape measure.

b) for casts with a complex configuration: calculation of conventional areas, given by the formula :

$$A_d = \frac{M_2 - (M_3 + M_4)}{M_5}$$

where

A_d is the developed area, in m²;

M_2 is the mass of the cast dried to constant mass, in kg;

M_3 is the mass of any metal reinforcements (class: f5), in kg;

M_4 is the mass of any handling frameworks, in kg;

M_5 is the theoretical surface mass of the cast calculated as a function of its nominal thickness and one of the three minimum surface masses given in 5.15.4.

For these casts with a complex configuration, a simplified calculation of the developed area is permitted.

6.3.5 Expression of results

To notice visible defects to the naked eye, divide the number of defects by the developed area.

6.4 Prime layer thickness checking

6.4.1 Principle

Direct measurement of the prime layer shall be as follows.

6.4.2 Apparatus

Magnifying lens, magnification 7 x, with micrometer or other suitable apparatus.

6.4.3 Preparation of test pieces

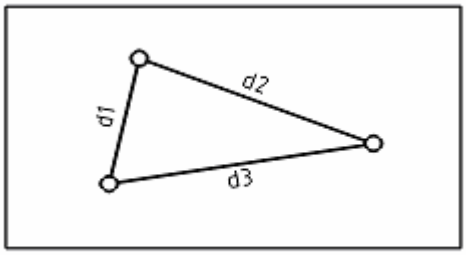
Conditioning of the test pieces not required for this test.

6.4.4 Procedure

For each sample, take three measurements for each m² of developed area of the face, the developed area is determined according to 6.3.4.2; each point of measurement shall be at least 400 mm apart from each other (see Figure 6).

The measurements are carried out on a cut or through a hole made in the cast.

The minimum thicknesses required for the particular configuration of architectural casts (for example: recessed points of the reliefs (see Figure 5) are disregarded



Key

1 d_1, d_2, d_3 $\geq$ 400 mm

Figure 6 — Determination of the prime layer thickness

6.4.5 Expression of results

The thickness is the arithmetic mean of the three measurements.

6.5 Checking the resistance to impact by a hard steel ball and the cohesion

6.5.1 Principle

Determination of the behaviour of a cast on impact shall be by use of a ball dropped from a specific height as follows.

6.5.2 Apparatus (see Figure 7)

Horizontal supporting frame made of four sections, made of wood, 150 mm high and 50 mm thick, fitted together to make a square opening of 500 mm x 500 mm.

Straight, smooth, clean and dry tube of 60 - 80 mm internal diameter and 2300 mm long, supported firmly in a vertical position centred on the supporting frame, with the top of the supporting frame 150 mm below the bottom of the tube.

Hard steel ball 50 mm in diameter and weighing 0,5 kg ± 0,015 kg (ball bearing).

6.5.3 Preparation of test pieces

The test pieces shall be conditioned and shall be prepared in accordance with 6.2.

The dimensions of the test pieces taken from a smooth part of the casts shall be not less than the external dimensions of the supporting frame (600 mm x 600 mm).

6.5.4 Procedure

Place the test piece with the face in contact with the supporting frame.

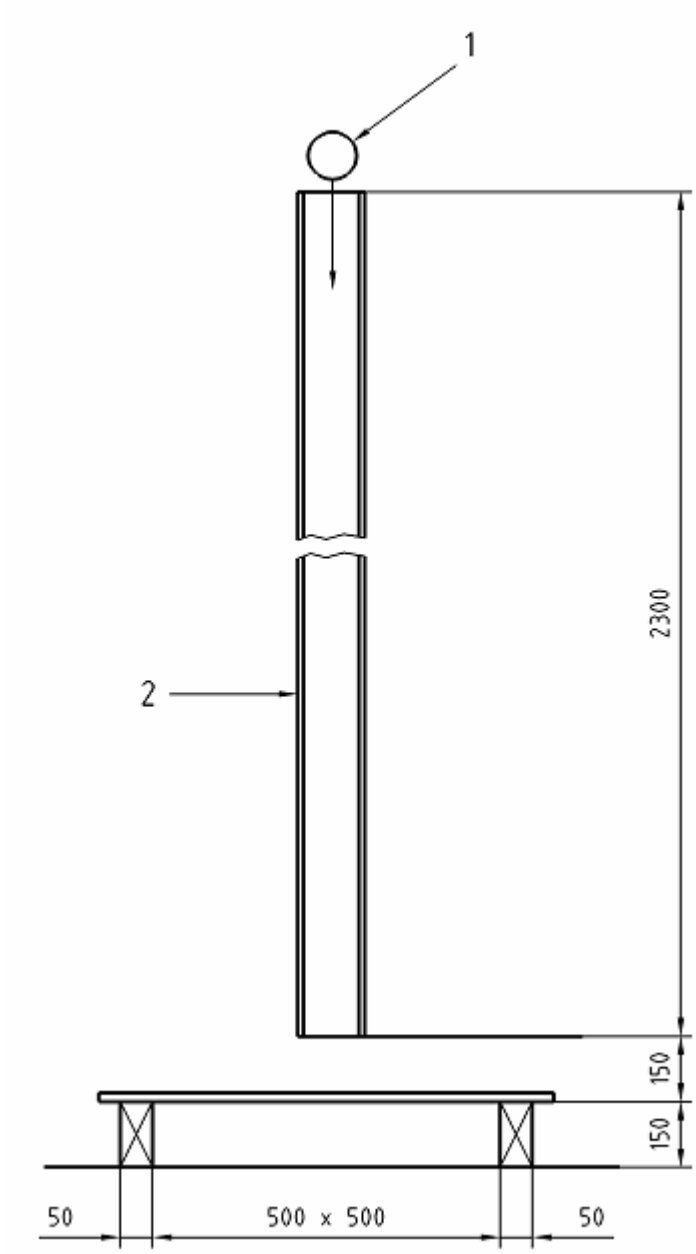
Release the ball from rest from the top of the tube.

Repeat the test with another test piece with the other surface in contact with the supporting frame.

6.5.5 Expression of results

The ball shall not pass through the cast.

Dimensions in millimetres



Key

1 Ball (diameter 50 mm) (0,5 kg)
2 Tube (inside diameter 60 mm to 80 mm)

Figure 7 — Checking the resistance to impact by a hard steel ball and the cohesion

6.6 Moisture content

6.6.1 Principle

The determination of the difference in mass between sampled products as received and when dried to constant mass shall be as follows.

6.6.2 Apparatus

A balance with an accuracy of 0,1 % regarding the mass to weigh

6.6.3 Preparation of test pieces

The test shall be carried out on three selected products prepared ready with wrapping for dispatch.

6.6.4 Procedure

Weigh the test pieces (mass M_1), then dry to constant mass (mass M_2) in accordance with 6.2.

6.6.5 Expression of results and method of calculation

Each test piece moisture content M_c in % by mass is calculated by the formula:

$$M_c = \frac{M_1 - M_2}{M_2} \times 100$$

Record the three calculated values.

The average moisture content is the arithmetic mean moisture content of the three results.

6.7 pH measurement

6.7.1 Principle

The pH value shall be assessed by use of a coloured reagent or with a pH meter.

6.7.2 Apparatus

Coloured reagent with a readibility of 0,5 pH unit or pH-meter.

6.7.3 Preparation of test pieces

Take fragments of three products prepared in accordance with 6.2 that were used for tests, using one fragment for each cast.

6.7.4 Procedure

Take a sample of about 10 g of powder from each fragment by scraping the face to a depth of approximately
1 mm.

Dilute the powder obtained separately from each test piece in 100 ml of demineralized or boiled and distilled water.

Wait for 5 min.

Measure the pH by means of the coloured reagent or with the pH-meter.

6.7.5 Expression of results

The pH of the casts is the arithmetic mean of the three pH measurements.

6.8 Surface hardness measurement

6.8.1 Principle

Surface hardness shall be assessed by measurement of the penetration of a specified indenter forced into the product under specified conditions, as follows.

6.8.2 Apparatus

A Shore C durometer consisting of the following components (see Figure 8):

— presser foot with a hole of diameter 3,2 mm ± 0,1 mm, centred at least 6 mm from any edge of the foot;

— indenter, made of hardened steel of diameter 1,3 mm ± 0,1 mm of the shape and dimensions shown in Figure 10;

— calibrated spring for applying force to the indenter. The nominal value of the spring characteristic is 44,5 N per 100 Shore hardness units;

— indicating device for reading the extent of penetration of the point of the intender beyond the face of the presser foot. This may be read in terms of units ranging from 0 to 100 Shore C hardness units,0 representing the lowest, 100 the highest hardness value.

NOTE The hardness is inversely proportional to the penetration. The shape of the indenter, the force applied to it and the duration of its application influence the results so that there may be no simple relationship between the results obtained with one type of durometer and those obtained with either another type of durometer or another instrument for measuring hardness.

Dimensions in millimetres

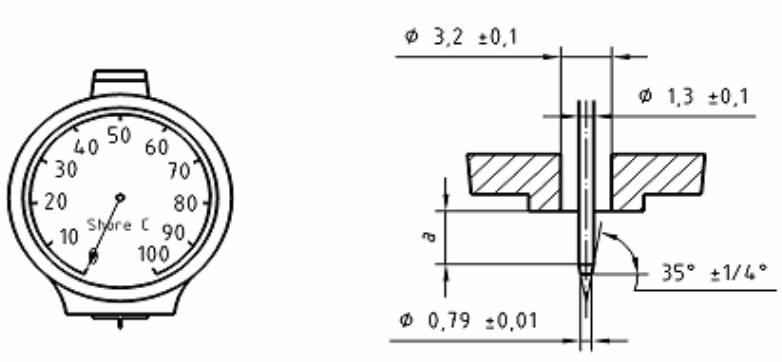


Figure 8 — Shore C durometer

6.8.3 Preparation of test pieces

The test requires three test pieces to be conditioned in accordance with 6.2.

6.8.4 Procedure

Place the test piece on a hard, horizontal, plane surface. Hold the durometer in a vertical position and apply pressure to the test piece without shock, keeping the foot parallel to the surface of the test piece. Apply just sufficient pressure to obtain firm contact between the presser foot and the test piece.

Read the scale of the indicating device about 3 s after the presser foot has made contact with the test piece.

Twelve measurements distributed across the face are made on each sample.

6.8.5 Expression of results

The surface hardness is the arithmetic mean of the ten highest measured values.

6.9 Measurement of the thickness of interior architectural or technical function casts

6.9.1 Principle

Measurement of the thickness of interior architectural or technical function casts shall be by direct measurement of the distance between the face and the back (see Figure 5).

6.9.2 Apparatus

Micrometer accurate to 0,1 mm or other suitable apparatus.

6.9.3 Preparation of test pieces

Conditioning of the test pieces is not required for this test.

6.9.4 Procedure

On each test piece, take three measurements for each m² of developed area of the face; each point of measurement shall be at least 400 mm from the others and, if possible, at least 100 mm from the edges (see Figure 11).

The measurements are carried out on a cut or through a hole made in the element.

No measurement shall be taken on the over-thickness of reinforced rim edges or on complementary reinforcements.

Any measurement taken on thinner thickness of relief of architectural casts (e.g. bottom recessed point, see Figure 5) shall meet the tolerances given in Table 4.

6.9.5 Expression of results and method of calculation

The developed area of the face is calculated according to 6.3.4.2.

The thickness is the arithmetic mean of the three measurements.

6.10 Unit length measurement

6.10.1 Principle

Direct measurement of the longest dimension of the unit shall be as follows.

6.10.2 Apparatus

Metal rule or metal tape graduated in millimetres.

6.10.3 Preparation of test pieces

Conditioning of the test pieces is not required for this test.

6.10.4 Procedure

Take three measurements on each unit parallel to the longitudinal edges (see Figure 9) to the nearest 1 mm; one 50 mm from each edge and one in the centre of the unit.

Dimensions in millimetres

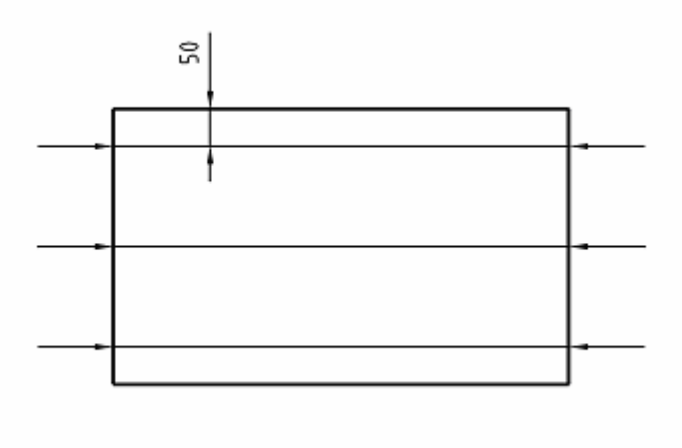


Figure 9 — Determination of length of the unit

6.10.5 Expression of results

The average length is the arithmetic mean of the three measurements, for each unit.

6.11 Unit width measurement

6.11.1 Principle

Direct measurement of the shortest dimension of the unit shall be as follows.

6.11.2 Apparatus

A metal rule or metal tape graduated in millimetres.

6.11.3 Preparation of test pieces

Conditioning of the test pieces is not required for this test.

6.11.4 Procedure

The width shall be measured on each unit parallel to the small sides (see Figure 10) to the nearest 1 mm, one 50 mm from each edge and one in the centre of the unit.

Dimensions in millimetres

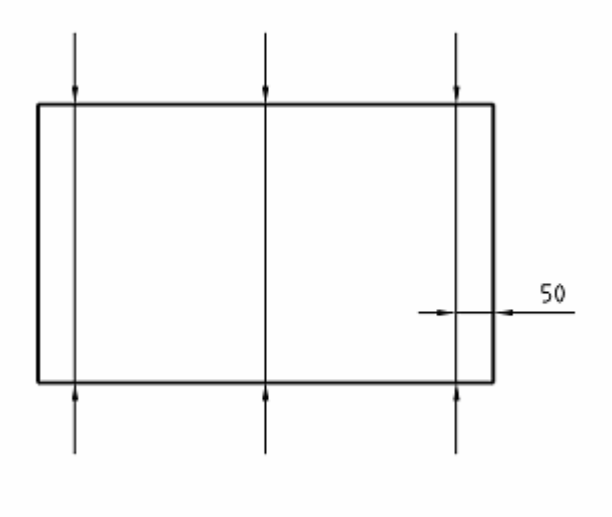


Figure 10 — Determination of width of the unit

6.11.5 Expression of results

The width is the arithmetic mean of the three measurements, for each unit.

6.12 Unit thickness measurement

6.12.1 Principle

Direct measurements of the distance between the face and the back shall be as follows.

6.12.2 Apparatus

A micrometer accurate to 0,1 mm or other suitable apparatus.

6.12.3 Preparation of test pieces

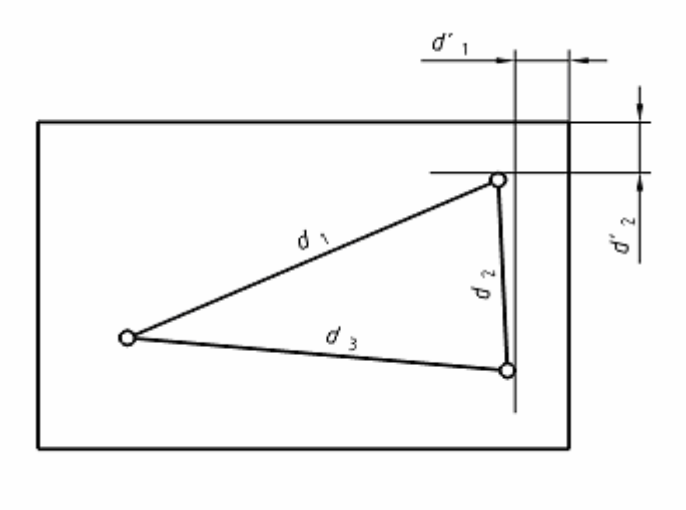
Conditioning of the test pieces is not required for this test.

6.12.4 Procedure

Take three measurements; each point of measurement shall be at least 400 mm apart from the others and and at least 100 mm from the edges (see Figure 11).

Measurements a long way from the edges shall be carried out on a cut or through a hole made in the unit.

No measurement shall be taken on the over thicknesses of reinforced rim edges or on complementary reinforcements.



Key

1 d_1, d_2, $d_3 \geq 400$ mm

2 d_1', d_2' ≥ 100 mm

Figure 11 — Determination of unit thickness

6.12.5 Expression of results

The average thickness is the arithmetic mean of the three measurements.

6.13 Checking of unit angle squareness

6.13.1 Principle

Checking of unit angle squareness shall be with a square as follows.

6.13.2 Apparatus

— a) metallic square with 600 mm sides and whose out-of-squareness does not exceed ± 20 minutes ;

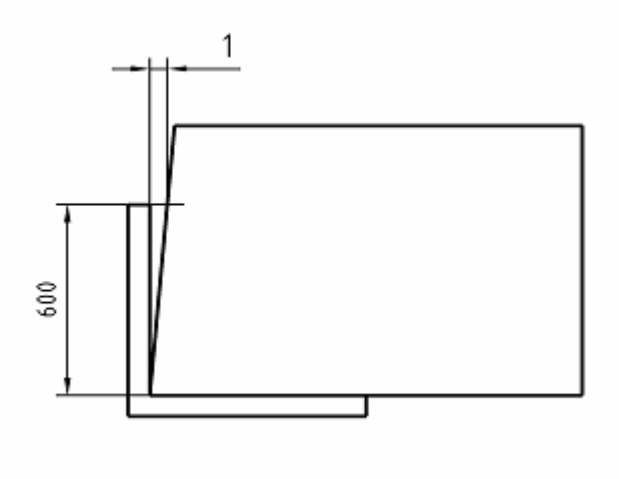
— b) magnifying glass, magnification 7x, with micrometer or other suitable apparatus.

6.13.3 Preparation of test pieces

Conditioning of the test pieces is not required for this test.

6.13.4 Procedure

Check the out-of-squareness of the unit angles with a metallic square and measure the possible deviations at the end (see Figure 12).



Key

1 Deviation

Figure 12 — Determination of unit squareness

6.13.5 Expression of results

Compare the measured deviations with the requirements in 5.15.2.

6.14 Checking of unit face flatness

6.14.1 General flatness

6.14.1.1 Principle

The flatness of the mould shall be measured using a studded rule. It is assumed that if the mould face is flat then the unit will be flat.

6.14.1.2 Apparatus

One metre long metal rule (see Figure 13), with a straightness tolerance of ± 0,05 mm, comprising studs of height *h* of 1 mm.

The studs width being 25 mm

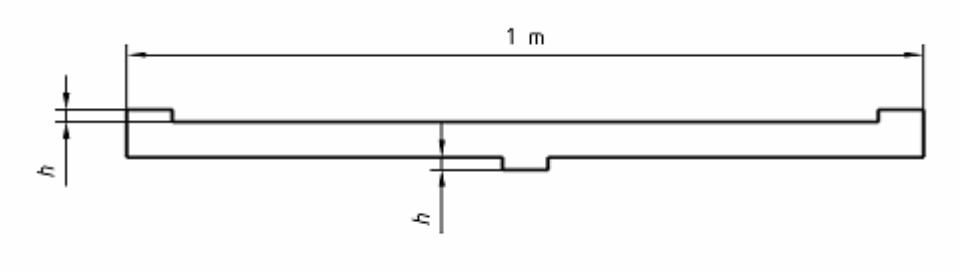


Figure 13 — One metre long rule with studs

6.14.1.3 Procedure

The checking shall be carried out on the mould base.

a) Apply the two studs side of the rule to the mould base and move the rule in all directions; the two studs shall always remain in contact with the mould and no rocking motion shall be produced;

b) apply the single stud side of the rule move it in all directions; in each position, the rule shall be capable of rocking.

If it is not possible to check the mould base, carry out the check on the unit placed on a flat and smooth surface (does not apply to boards with complementary reinforcement).

For lack of studded rule, use of metal rule with feeler gauges should be allowed.

6.14.1.4 Expression of results

The flatness is satisfactory if the two studs remain in simultaneous contact with the mould in 6.14.1.3 a) and if the rule rocks in 6.14.1.3. b).

6.14.2 Local flatness determination

6.14.2.1 Principle

The flatness of the unit when installed shall be measured using a rule.

6.14.2.2 Apparatus

a) Test device comprising two aluminium sections that are suspended and spaced E apart, placed on edge and situated in a same plane. The edges of the sections shall not have any positive or negative deflection exceeding 0,2 mm;

The face of the unit shall be applied against the sections using 10 kg weights positioned every E perpendicular to the rules (see Figure 14).

The values of *E* as a function of the nominal thickness of the units are:

- 400 mm for units of nominal thickness ≤ 10 mm;
- 475 mm for units of nominal thickness > 10 mm and < 15 mm;
- 550 mm for units of nominal thickness ≥ 15 mm;
- 600 mm for units with complementary reinforcement (*w* or *m*).

b) 300 mm long metal rule (see Figure 15), with a straightness tolerance of ± 0,05 mm, comprising studs of height *h* of 0,6 mm.

The studs width being 5 mm.

Dimensions in millimetres

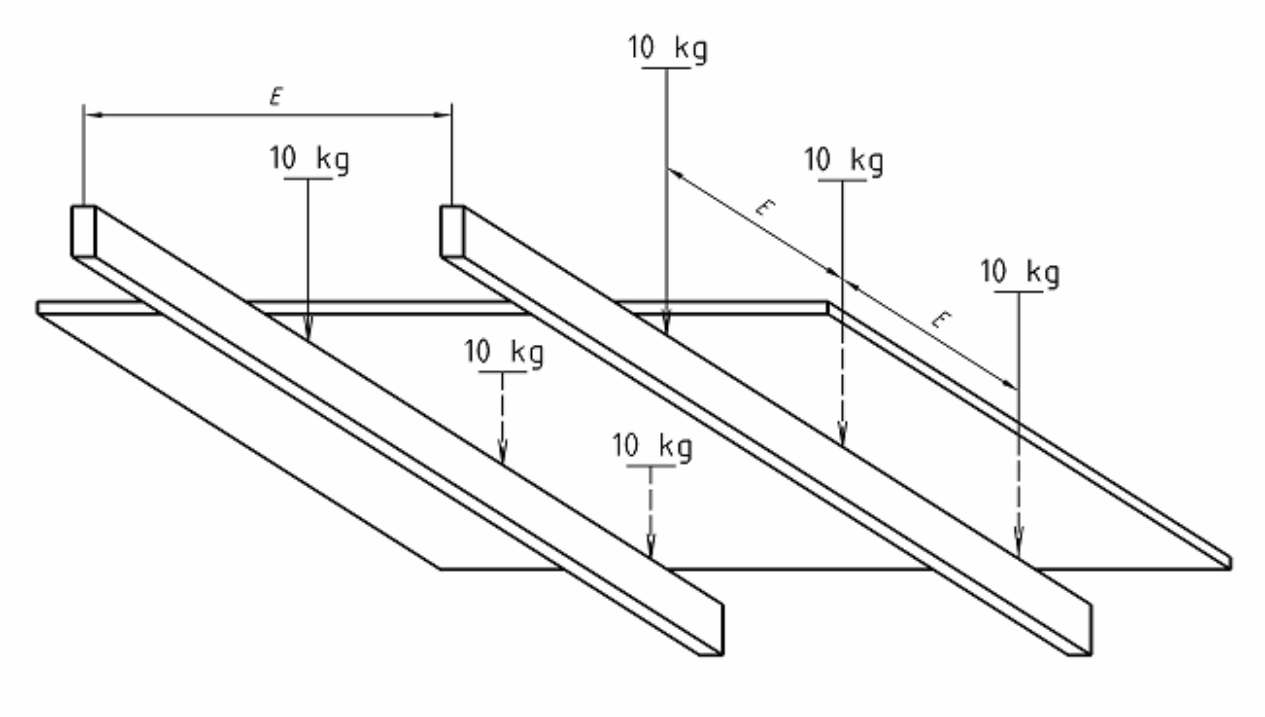


Figure 14 — Determination of local flatness

Dimensions in millimetres

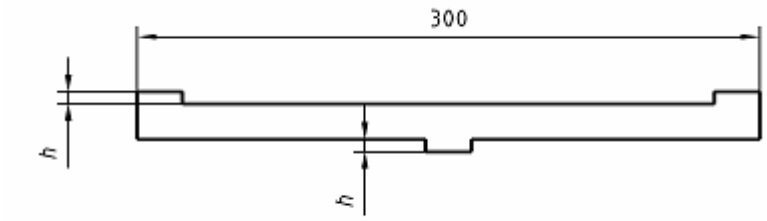


Figure 15 — 300 mm rule with studs

6.14.2.3 Preparation of test pieces

The test pieces shall be conditioned in accordance with 6.2.

6.14.2.4 Procedure

a) Apply the two-studs side of the rule to the face and move the rule in all directions; the two studs shall always remain in contact with the face and no rocking motion shall be produced;

b) apply the single-stud side of the rule and move it in all directions; in each position, the rule shall be capable of rocking.

If it is not possible to check on test device 6.14.2.2 a), carry out the check on the unit placed on a flat and smooth surface.

For lack of studded rule, use of metal rule with feeler gauges should be allowed.

6.14.2.5 Expression of results

The flatness is satisfactory if the two studs remain in simultaneous contact with the mould in 6.14.2.4 a) and if the rule rocks in 6.14.2.4 b).

6.15 Determination of unit mass and checking of mass per unit area

6.15.1 Principle

Determining of unit mass and checking of mass per unit area shall be carried out as follows.

6.15.2 Apparatus

A balance with an accuracy of 0,1 % regarding the mass to weigh

6.15.3 Preparation of test samples

The test shall be carried out on three units ready for delivery.

6.15.4 Procedure

The units are weighed.

6.15.5 Expression of results

The mass is the arithmetic mean of the three masses measured.

For checking of the mass per unit area of the unit, the above arithmetic mean mass is reduced to an equivalent mass per unit area for 1 mm thickness after deducting the mass of any complementary metallic reinforcements and is compared to the minimum masses specified in 5.14.5..

7 Evaluation of conformity

7.1 General

Conformity to this European Standard is achieved in compliance with the requirements. This is demonstrated by :

a) an initial type test (ITT),

b) factory production control by the producer (FPC).

For the purposes of testing, fibrous gypsum plaster casts may be grouped into ranges (see 4.2), where it is considered that the selected property is common to all products within that range.

According to his particular case, the producer may decide other ranges.

7.2 Type testing

7.2.1 Initial type testing (ITT)

7.2.1.1 General

An initial type test is the complete set of tests or other procedures, determining the performance of samples of products representative of the product type.
Initial type testing shall be performed to show conformity with this standard on first use of this standard for fibrous gypsum plaster casts put onto the market and :

— at the beginning of the series production of a new or modified fibrous gypsum plaster casts design,

— at the beginning of a new or modified method of production.

Shared ITT

A manufacturer may use ITT results by someone else (e.g. by a federation of contractors, by another manufacturer, as a common service to manufacturers, or by a product developer), hereafter called 'other party ITT results', to justify his own declaration of conformity regarding a product that is manufactured according to the same design and with raw materials, constituents and manufacturing methods of the same kind, provided that:

— the result can be demonstrated to be valid for products with the same characteristics relevant for performance;

— in addition to any information essential for confirming that the product has such same characteristics, the other party who has carried out the ITT testing concerned or has had it carried out, has expressly accepted to transmit to the manufacturer the results and the test report to be used for the latter's ITT, as well as information regarding production facilities and the production control process that can be taken into account for FPC;

— the manufacturer using another party ITT results accepts remaining responsible for the product being in compliance with all the provisions of this document, including both the design and the manufacture of the product;

— The manufacturer ensures that the product has the same characteristics relevant for performances as the one that has been subjected to ITT, and that there are no significant differences with regard to production facilities and the production control process compared to that used for the product that was subjected to ITT; and

— The manufacturer keeps available a copy of the ITT report that also contains the information needed for verifying that the product is manufactured according to the same design and with raw materials, constituents and manufacturing methods of the same kind as the product on which the actual ITT is based.

Raw materials CE marked in accordance with appropriate harmonised European specifications may be presumed to have the performances stated with CE marking, although this does not replace the responsibility on the producer of fibrous gypsum plaster casts to ensure that the product as a whole is correctly designed and its component products have the necessary performance values to meet the design.

7.2.1.2 Characteristics

All characteristics in clause 5 may be subject to initial type testing, with the following exceptions :

- reaction to fire when using the CWFT option (although measurement is required to ensure that the product meets the definition required by CWFT) ;
- release of dangerous substances may be assessed indirectly by controlling the content of the substance concerned;
- characteristics where the producer does not wish to claim conformity with them.

7.2.1.3 Previously existing data

Tests previously performed in accordance with the provisions of this standard (same product, same characteristic(s), same or more technically demanding and appropriate test method, sampling procedure and system of attestation of conformity) may be taken into account.

7.2.1.4 « Deemed to satisfy » provisions and use of reference tabulated data

In those cases where conformity with this standard is based on « deemed to satisfy » provisions or tabulated values, type testing shall be limited to the verification of whether the fibrous gypsum plaster casts meet the requirements to use these values, classes or levels, unless better values, classes or levels are being claimed.
The « deemed to satisfy » provisions applicable to fibrous gypsum plaster casts may be used in the following cases :

a) Constituent material
The gypsum casting plaster according to EN 13279-1 which is the only constituent material of fibrous gypsum plaster casts (reinforcements ≅ 1 % except) determines the equivalent level performances as its own ones for fibrous gypsum plaster casts. These performances meet the requirements of this standard (only if the gypsum casting plaster is used according to manufacturer's requirements – plaster/water proportioning).
The characteristics of these casts which conformity is demonstrated without performing a test are the following :

- 5.12 pH
- 5.13 Surface hardness

b) Equipment used in production progress

The fibrous plastering moulds regularly inspected and maintained to ensure production of fibrous gypsum plaster casts that meet the requirements of this standard.
The characteristics of this standard which conformity is demonstrated without performing a test are the following :

- 5.15.1.1 Dimensions of units and tolerances – length and width
- 5.15.2 Squareness of units and tolerances
- 5.15.3 Flatness of the face of units and tolerances.

7.2.1.5 Treatment of calculated values and design

In those cases where the conformity with the standard is based on calculations, type testing will be limited to the verification of the calculations made and that the resulting products correspond to the descriptions made in the design and/or calculations.

In some cases, the producer may produce products in accordance with a design or calculations provided by a third party. In this case, verification will not be of the design and/or calculations themselves, but only on the fact that the products conform to with the assumptions of the design and/or calculations.

Treatment of calculated values applicable to fibrous gypsum plaster casts concern subclause 5.5.1 « Thermal resistance », where this characteristic is determined using the formula given in EN ISO 6946.

7.2.1.6 Conventionally accepted performances

In those cases, provisions presented or referred to in the technical specification that allows manufacturers to declare product performances without the need to perform initial type tests, calculations, etc. Such provisions may be tabulated values, descriptive solutions and alike.

NOTE When using "deemed to satisfy" provisions, reference tabulated data, conventionally accepted performances, the manufacturer may need to perform some tests (e.g. density) to demonstrate that his product meets the definition of the product concerned by such provisions.

7.2.2 Sampling, testing and conformity criteria

7.2.2.1 Sampling

Initial type testing shall be performed on samples representative for the manufactured fibrous gypsum plaster casts type.

NOTE See annex A: Sampling procedure for testing.

7.2.2.2 Testing and conformity criteria

The number of fibrous gypsum plaster casts to be tested (or assessed) shall be in accordance with subclause 6.1 and/or as required by the appropriate test standards such as EN 13501-1.

Conformity criteria are given in the clause 5 « Requirements ».

If production of the fibrous gypsum plaster casts covered by this standard can be both the result of series and non-series production, initial type testing for non-series products may be limited, especially if they contain expensive and/or destructive tests.

The results of all type tests shall be recorded and held by the producer for at least 5 years.

7.3 Factory production control (FPC)

Factory production control means the permanent internal control of production exercised by the producer or his agent on the responsibility of the producer himself. All the elements, requirements and provisions adopted by the producer shall be documented in a systematic manner in the form of written policies and procedures. This production control system documentation shall ensure a common understanding of quality assurance requirements and enable the achievement of the required product characteristics and the effective operation of the production control system to be checked.

A producer who has a factory production control system that meets the requirement of EN/ISO 9001:2000 and which specific product shall be deemed to have met the requirements of this clause.

Where a manufacturer produces the same product on more than one production line or unit, or in more than one factory, there may be no need to repeat ITT for these different production lines or units (the manufacturer takes responsibility for ensuring that the products are indeed the same).

NOTE The need to repeat ITT depends on whether the production equipment used in the factory, the production line or unit might influence the performance declarations forming part of the CE marking. This might be product dependent and even product method dependent. The manufacturer is responsible for the declarations accompanying the product.
Manufacturers must be conscious that if ITT is performed on samples from various production units, lines or even factories, they will have to ensure that the declarations are valid for all products that rely on that ITT.

See annex C concerning recommendations for factory production control (FPC)

7.4 Individual (and non-series) products

For individual (and non-series) production, the manufacturer may vary the FPC and ITT requirements to reflect the practical nature of production for the individual or non-series product but such variation may not reduce the possibility of conformity of the product with the requirements of this document.

8 Designation of the products

8.1 Designation of the interior architectural casts and technical function casts

Casts shall be designated in the following order:

a) the name of the cast accompanied by the wording : "fibrous plaster" for traditional fibrous plaster, "GRG" for GRG or "PMGRG" for PMGRG;

b) reference to this standard;

c) categories of production, according to 4.1;

d) the nominal thickness, in millimetres;

e) the total mass of the product, in kilograms;

f) the class of reinforcement used (see Table 2);

g) if necessary, the designation of fillers and aggregates.

EXAMPLES OF DESIGNATION:

— fibrous plaster entablature, EN. 13815, ipp , 7 mm, 21 kg, f3;.

— GKG plaster, EN. 13815, cpp, 5 mm, 16 kg, f4;

— fibrous plaster vault, EN 13815, ipp, 15 mm, 30 kg, f1.

— fibrous plaster ventilation duct, EN 13815, cppv, 20 mm, 45 kg, f5.

8.2 Designation of the units

Units shall be designated in the following order:

a) the wording : "fibrous plaster units" for traditional fibrous plaster, "GRG units" for GRG or "PMGRG units" for PMGRG;

b) reference to this standard;

c) categories of production, according to 4.1;

d) the nominal dimensions in millimetres in the following order:

— length;

— width;

— thickness;

e) the mass of the unit, in kilograms;

f) the class of reinforcement used (see Table 2);

g) if necessary, the designation of fillers and aggregates.

EXAMPLES OF DESIGNATION:

— fibrous plaster unit, EN. 13815, cpp, 1200 mm x 800 mm x 15 mm, 15 kg, f2.

— GRG unit, EN 13815, ipp, 2000 mm x 1000 mm x 6 mm, 17 kg, f4w.

9 Marking, labelling and packaging

Fibrous gypsum plaster products complying with this European Standard shall be clearly marked on the packaging or delivery note or certificate supplied with the elements with the following information:

a) reference to this European Standard;

b) the name, trademark or other means of identification of the producer of fibrous gypsum plaster products;

c) date of production;

d) the means of identifying the gypsum plaster products relative to their designation as defined in clause 8.

NOTE Where the regulatory marking also requires the above items, compliance with regulatory marking would be deemed to satisfy the requirement of this clause

Annex A
(informative)

Sampling procedure for testing

A.1 General

If there is a requirement for a check on product compliance, the following sampling procedure is recommended.

The required number of products to determine compliance with specifications should be sampled from a delivered consignment of fibrous gypsum plaster products.

The appropriate consignment size should be agreed between the representatives of both parties who should have the opportunity to be present at the time of sampling.

A.2 Sampling procedure

A.2.1 General

The choice of the method of sampling as defined in A.2.2 and A.2.3 should be decided by agreement between the two parties.

NOTE In case of disagreement, method A.2.2 can be used for initial type testing and method A.2.3 can be used for routine testing.

A.2.2 Random sampling [1]

Whenever possible, the random sampling method should be used, in which every product in the consignment has an equal chance of being selected for the sample.

Three products should be selected from positions throughout the consignment without any consideration given to the condition or quality of the selected products.

NOTE In practice, random sampling is normally suitable either when the products forming the consignment are being moved in a loose (unpacked) form from one place to another or when they have been split into a large number of small stacks awaiting laying.

A.2.3 Representative sampling

A.2.3.1 General

When random sampling is impracticable or not convenient, e.g. when the products form a large stack or stacks with ready access to only a limited number of products, a representative sampling procedure should be used.

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[1] In practice, random sampling is normally only convenient either when the units forming the consignment are being moved in a loose (unpacked) form from one place to another or when they have been split into a large number of small stacks awaiting installation.

A.2.3.2 Sampling from a stack

The consignment should be divided into at least three real or imaginary sections, each of a similar size. One product should be selected at random from within each section in order to give the required number of samples as indicated in 6.1.

It will be necessary to remove some sections of the stack or stacks in order to gain access to products within the body of such stacks when taking samples.

A.2.3.3 Sampling from a consignment formed of banded packs

At least three packs should be selected at random from the consignment. The band around the packs shall be removed and one cast should be sampled at random from within each pack in order to give the required number of samples without any consideration given to the condition or quality of the selected products.

A.3 Particular provisions for fibrous gypsum plaster casts

The sampling procedure A.1 and A.2 concerns series production.

For individual and non-series production, a procedure adapted to both characteristics of casts to be controlled and process of production should be sought on producer's initiative.

In the case of these single-application products, finished product sampling do not apply for FPC.

For application of all procedures above (A.2 and A.3), scale of producers (medium, small or very small) should be taken into account.

Annex B
(normative)

Design values of thermal conductivity of gypsum plaster

Table B.1 — Design values of thermal conductivity of gypsum plaster

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

The values in Table B.1 are those of EN 12524. The reference values concern dry material used indoors. In order to take account of moisture, these values have to be adjusted in accordance with EN ISO 10456.

Annex C
(normative)
Factory Production Control (FPC)

NOTE In general FPC is relevant to all characteristics. However, this does not mean that all characteristics have to be subject to verification and/or evaluation, or that the same methods used for ITT have to be used for FPC. FPC may involve control by indirect means (for example by control of incoming raw materials and control of the production process) or may involve the use of methods different (usually simpler or cheaper).

C.1 FPC requirements for all producers

The producer shall establish procedures to ensure that the production tolerances allow for this fibrous gypsum plaster casts performances to be in conformity with the declared values, derived from initial type testing.

The producer shall record the results of the factory production control.

These records shall include at least the following information:

— identification of the product;

— the date of sampling and control;

— the control methods performed;

— the control results;

— identification of the responsible person in the moulding location.

NOTE If the producer declares "no performance determined" (NPD) for some characteristics, the corresponding parts of the test plan should not be performed.

The factory production control shall be relevant to manufacturing process of fibrous gypsum plaster casts (semi-mechanized or hand made) and adapted to the scale of companies or workshops (e.g. small-scale workshop where the craftsman owner makes all casts by himself).

C.2 Producer - specific FPC system requirements

C.2.1 Personnel

The responsibility, authority and the relationship between personnel that manages, performs or verifies work affecting product conformity, shall be defined. This applied in particular to personnel that need to initiate actions preventing product non-conformities from occurring, actions in case of non-conformities and to identify and register product conformity problems. Personnel performing work affecting product conformity shall be competent on the basis of appropriate education, training, skills and experience for which records shall be maintained.

C.2.2 Equipment

All weighing, measuring and testing equipment necessary to achieve, or produce evidence of, conformity shall be calibrated or verified and regulatory inspected according to documented procedures, frequencies and criteria.

All equipment used in the manufacturing process shall be regularly inspected and maintained to ensure use, and prevent that wear and failure to cause inconsistency in the manufacturing process.

Inspections of fibrous plastering moulds are normally carried out using the following checking:

Unbuckling (overall and partially), entirety of sizes, shapes, details, no change of moulding faces.

Frequencies of fibrous plastering moulds inspections depend of:

— number of uses,

— complexity of devices such as insertion moulds, loose piece moulds, etc,

— nature of material: plaster, flexible moulding compound, polished hard stone, metal, etc.

Additional inspections of fibrous plastering moulds based on aesthetic and sizes control of moulded casts, are recommended using the following stages:

— first use of a new mould: checking of the first, fifth and tenth moulded casts ;

— re-use of an old mould not used for more than six months (discontinued production): checking of the first moulded cast.

C.2.3 Raw materials

The specifications of all incoming raw materials shall be documented, and the inspection scheme for ensuring their conformity shall be in accordance with Table C.1.

Table C.1 — Inspection scheme for raw materials and components (examples)

Material / Component	Control	Method	Frequency
Gypsum casting plaster	Conformity with EN 13279-1	Packaging information examination	Each delivery
Gypsum casting plaster alpha based	Conformity with EN 13279-1	Packaging information examination	Each delivery
Jute fibres	Conformity with supplier's declaration	Document and material examination	Each delivery
Sisal fibres	Conformity with supplier's declaration	Document and material examination	Each delivery
Glass fibre	Conformity with supplier's declaration	Document examination	Each delivery
Softwood laths	Conformity with EN 1611-1	Material examination	Each delivery
Removal from mould agent	Conformity with supplier's declaration	Document examination	Each delivery
Flexible moulding compound	Conformity with supplier's declaration	Document and material examination	Each delivery

C.2.4 In-process control

The producer shall plan and carry out production under controlled conditions.

The in-process permanent control of production according to "deemed to satisfy" provisions shall be carried out using the following stages:

— specification and identification of the removal from mould agent used,

— specification and identification of the gypsum casting plasters used,

— specification and identification of the reinforcement used,

— control of the plaster/water proportioning according to producer's requirements,

— control of the reinforcement contents (resistance to impact by a hard steel ball and cohesion),

— control of the organic reinforcement contents (reaction to fire),

— face appearance checking of casts removed from mould.

In accordance with 5.1.1 the stage "control of the organic reinforcement contents" above shall be subject to particular monitoring.

C.2.5 Non-conforming products

The manufacturer shall have written procedures which specify how non-conforming products shall be dealt with. Any such events shall be recorded as they occur and these records shall be kept for the period defined in the manufacturer's written procedures. Compliance with EN ISO 9001:2000, 8.3 shall be deemed to satisfy the requirements of this sub-clause.

C.2.6 Corrective action

The manufacturer shall have documented procedures that instigate action to eliminate the cause of non-conformities in order to prevent recurrence. Compliance with EN ISO 9001:2000, 8.5.2 shall be deemed to satisfy the requirements of this sub-clause.

C.2.7 Traceability

Individual casts shall be identifiable and traceable with regard to their production origin.

NOTE Moulder's monogram is normally affixed on the back.

C.2.8 Handling, storage

The producer shall have written procedures providing methods of product handling and shall provide suitable storage areas preventing damages or deterioration.

For factory production control, other test methods may be used provided that.

C.2.9 Other test methods

FPC test method is at discretion of manufacturer such that it provides the manufacturer with sufficient confident in this conformity control.

Annex D
(informative)

Scope of this standard relative to the categories of production of fibrous gypsum plaster casts and to their intended uses

Table D.1

<table>
<tr><td colspan="2">Productions placed on the market</td><td colspan="2">Individual (and non-series) productions installed in one and the same known work
"ipp"'</td></tr>
<tr><td>Conventional series productions
"cpp"</td><td>Series productions of products with varying properties (e.g. different sizes)
"cppv"</td><td>Individually design and made upon request and for specific purposes</td><td>Custom-made for a specific order to obtain performances different from products manufactured in series</td></tr>
<tr><td colspan="2" rowspan="2">This standard is applicable in its entirety (including annex ZA allowing regulatory marking of these products)

Characteristics performance are covered according to commercial choice of the producer</td><td colspan="2"><u>When CE marking required</u>
This standard is applicable in its entirety (including annex ZA allowing regulatory marking of these products) subject to the provisions of art. 13(5) of the CPD.
Characteristics performances are covered according to characteristics required.</td></tr>
<tr><td colspan="2"><u>Without CE marking</u>
Members States may authorise the use of this products "ipp" thereof even if they do not comply with the provisions of the CPD.
This standard is applicable in sub-clauses 5.6 to 5.10 and 5.12 to 5.15</td></tr>
<tr><td colspan="4">NOTE 1 This standard is not applicable to casts and decors purely for decorative applications (see exclusions listed in clause 1, line ix).

NOTE 2 “Members States are not obliged to take measures for applying CPD provisions and CE marking to building elements made on the work and those construction products that are manufactured off the works but incorporated in them without beforehand having placed on the market, i.e directly by the manufacturer as part of a service comprising more than just manufacturing and delivering the product”.</td></tr>
</table>

Annex ZA
(informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

ZA.1 Scope and characteristics concerned

This European standard has been prepared under a mandate (M/106 "Gypsum products" amended by Mandate M/139) given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard, shown in the Table ZA.1 meet the requirements of the Mandate given under EU Construction Products Directive (89/106/EEC).

Compliance with the clauses confers a presumption of fitness of the products covered by this annex for their intended uses indicated herein; reference shall be made to the information accompanying the CE marking.

WARNING - Other requirements and other EU Directives, not affecting the fitness for the intended use(s), may be applicable to the construction products falling within the scope of this European Standard:

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

NOTE 2 An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPA (accessed through http:/europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm).

This Annex establishes the conditions for the CE marking of fibrous gypsum plaster casts intended for the uses indicated and the relevant clauses applicable (see Table ZA.1) This annex ZA has the same scope as clause 1 of this standard.

Table ZA.1 – Scopes and sub-clauses concerned with CE marking

Product : fibrous gypsum plaster casts **Intended uses : see clause 1**					
Essential characteristics from the mandate	**Requirements subclauses in this European standard**	**Mandated levels and/or classes** Categories of products (see 4.1)			**Notes and nature of initial tests**
		Conventional series products "cpp"	Series products with varying properties "cppv"	Individual (and-non series) products) "ipp"	
Reaction to fire (for exposed situation)	5.1.1	A 1 to F (1)		A1 to F (1)(2)	
Resistance to fire (in end use conditions) (5)	5.1.2	None (3)		None (2)	Property of an assembled system (no declared value for the product)
Dangerous substances (4)	5.2				See ZA.3
Impact resistance (for fire protection and/or compartmentation)	5.3	Associated with fire resistance			Ability of an assembled system
Direct airborne sound insulation	5.4.1.1	None (3)		None (2)	Property of an assembled system (no declared value for the product)
Acoustic absorption (in end use conditions)	5.4.2	None (3)		None (2)	Property of an assembled system (no declared value for the product)
Thermal resistance (in end use conditions	5.5.1	None (3)		None (2)	Determined by calculation

(1) Class A1 if the reinforcement is of mineral (glass fibre) or metallic origin, or organic (vegetable fibre), but limited to less than 1% by mass or by volume. Class A1 or A2 if the organic reinforcement content is equal to or greater than 1 %.

(2) Insofar required to be CE marked.

(3) Depends on the commercial choice of the manufacturer.

(4) In particular, those defined by the amended Council Directive (76/79/EEC).

The requirements on a certain characteristic are not applicable in those Member States where there are no regulatory requirements on that characteristic for the intended use of the product. In this case, manufacturers placing their products on the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option « No performance determined » (NPD) in the information accompanying the CE marking may be used.

The NPD option may not be used, however, where the characteristic is subject to a threshold level.

ZA.2 Attestation and declaration of conformity of fibrous gypsum plaster casts

ZA.2.1 General

The system(s) for attestation of conformity of fibrous gypsum plaster casts, in conformity with Commission Decision 95/467/EC as stated in Annex III of Mandate M/106 "Gypsum-based products" amended by Mandate M/139 is given in Table ZA.2.

NOTE For a given reinforcement, the reaction to fire performance of the fibrous gypsum plaster cast is not susceptible to change during the manufacturing process.

Table ZA.2.a — Attestation of conformity (AoC) systems for products subject to reaction to fire regulations

Product(s)	Intended use(s)	Level(s) or class(es) *(reaction to fire) (1)*	Attestation of conformity system(s)
Fibrous gypsum plaster casts, including relevant ancillary products	in walls, partitions or ceilings (or lining thereof) subject to reaction to fire requirements	(of incorporated materials) A1(2), A2(2), B(2), C(2)	**1**(4)
		A1(3), A2(3), B(3), C(3), D, E	**3**(5)
		A1 to E(7) - F	**4**(6)

(1) For reaction to fire, see Commission Decision 2000/147/EC (OJ L 50,23.02.2000 page 14)

(2) Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)

(3) Products/materials not covered by footnote (2).

(4) System 1: See CPD Annex III.2.(i), without audit-testing of samples

(5) System 3: See CPD Annex III.2.(ii), Second possibility

(6) System 4: See CPD Annex III.2.(ii), third possibility

(7) Products/materials that do not require to be tested for reaction to fire (e.g. Products/materials of classes A.1 according to Commission Decision 96/603/EC as amended For fibrous gypsum plaster casts with mineral or metallic reinforcements or with organic reinforcement limited to less 1 % by mass or volume, attestation of conformity system 4 is applicable.)

Table ZA.2.b — Attestation of conformity (AoC) systems for products not intended for use in areas subject to regulations for reaction to fire or fire resistance.

Product(s)	Intended use(s)	Level(s) or class(es)	Attestation of conformity system(s)
Fibrous gypsum plaster casts, including relevant ancillary products	in walls, partitions or ceilings, as relevant for situations and use not mentioned in Tables ZA.2.a and ZA.2.b	-	**4**
System 4: See CPD Annex III.2.(ii), Third possibility			

The attestation of conformity of the plaster casts in Table ZA.1 shall be based on the evaluation of conformity procedures indicated in Table(s) ZA.3.a to ZA.3.b resulting from application of the clauses of this or other European Standard indicated therein.

The assignment of tasks between the producer and the Approved Body is shown in Tables ZA.3.a and ZA.3.b for the indicated specified uses. If more than one specified use applies for the product, the tables shall be read in conjunction.

Table ZA.3a — Assignment of evaluation of conformity tasks for fibrous gypsum plaster casts under system 1

Tasks		Task content	Clause of this EN to be applied
Tasks of the producer	Factory production control (FPC)	Parameters relating to all declared characteristics from Table ZA.1	7
	Initial type testing (ITT)	All declared characteristics from Table ZA.1	
Tasks of the approved Body	Initial type testing (ITT)	Reaction to fire A1(2), A2(2), B(2), C(2)	
	Initial inspection of factory and FPC	Parameters related to reaction to fire	
	Continuous surveillance assessment and approval of FPC	Parameters related to reaction to fire	

Table ZA.3.b — Assignment of evaluation of conformity tasks for fibrous gypsum plaster casts under system 3

Tasks		Task content	Clause of this EN to be applied
Tasks of the producer	Factory production control (FPC)	Parameters relating to all declared characteristics from Table ZA.1	7
	Initial type testing (ITT)	All declared characteristics from Table ZA.1excepted reaction to fire.	
Tasks of the approved Body	Initial type testing (ITT)	Reaction to fire A1(3), A2(3), B(3), C(3), D, E	
NOTE Under system 3 all 'tasks' are under the responsibility of the producer.			

Table ZA.3.c — Assignment of evaluation of conformity tasks for fibrous gypsum plaster casts under system 4

Tasks		Task content	Clause of this EN to be applied
Task of the producer	Factory production control (FPC)	Parameters relating to all declared characteristics.	7
	Initial type testing (ITT)	Parameters relating to all declared characteristics.	

ZA.2.2 EC Certificate and Declaration of conformity

(In case of products with system 1): When compliance with the conditions of this annex is achieved, the certification body shall draw up a certificate of conformity (EC Certificate of conformity), which entitles the manufacturer to affix the CE marking. The certificate shall include:

- name, address and identification number of the certification body;
- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- description of the product (type, identification, use, ...);
- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- the number of the certificate;
- conditions and period of validity of the certificate, where applicable;
- name of, and position held by, the person empowered to sign the certificate.

In addition, the manufacturer shall draw up a declaration of conformity (EC Declaration of conformity) including the following:

- name and address of the manufacturer, or his authorised representative established in the EEA;
- name and address of the certification body;
- description of the product (type, identification, use, ...), and a copy of the information accompanying the CE marking;
- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- number of the accompanying EC Certificate of conformity;
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

(In case of products under system 3): When compliance with the conditions of this annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;
- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product, (e.g. provisions for use under certain conditions);
- name and address of the notified laboratory(ies);
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

(In case of products under system 4): When compliance with this annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity), which entitles the manufacturer to affix the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- description of the product (type, identification, use,...), and a copy of the information accompanying the CE marking;
- provisions to which the product conforms (i.e. Annex ZA of this EN);
- particular conditions applicable to the use of the product (e.g. provisions for use under certain conditions);
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or of his authorised representative.

The above mentioned declaration and certificate shall be presented in the official language or languages acceptable to the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol to affix shall be in accordance with Directive 93/68/EC and shall be shown on the [construction product] (or when not possible it may be on the accompanying label, the packaging or on the accompanying commercial documents e.g. a delivery note). The following information shall accompany the CE marking symbol:

- identification number of the certification body (only for products under system 1;
- name or identifying mark and registered address of the producer;
- the last two digits of the year in which the marking is affixed;
- number of the EC Certificate of conformity or factory production control certificate (if relevant);
- reference to this European Standard;
- description of the product: generic name, material, dimensions, … and intended use;
- information on those relevant essential characteristics listed in Table ZA.1 which are to be declared;
- declared values for each essential characteristic as indicated in "Notes" in Table ZA.1;
- “No performance determined” for characteristics where this is relevant;

Figure ZA.1 gives an example of the information to be given on the product, label, packaging and/or commercial documents.

CE 01234	*CE conformity marking, consisting of the "CE"-symbol given in Directive 93/68/EEC.* *Identification number of the certification body (where relevant)*
AnyCo Ltd, PO Box 21, B-1050 **06** 01234-CPD-00234	*Name or identifying mark and registered address of the producer* *Last two digits of the year in which the marking was affixed* *Certificate number (where relevant)*
EN 13815: 2002 Fibrous gypsum plaster cast for internal architectural use –GRG-PMGRG **Reaction to fire ……..Class A1** **Thermal resistance……NPD**	*No. of European standard* *Description of product* *and* *information on regulated characteristics*

Figure ZA.1 – Example CE marking information

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations need not be mentioned.

Bibliography

[1] EN 14246, *Gypsum elements for suspended ceilings — Definitions, requirements and test methods*

[2] prEN 15283, *Gypsum boards with fibrous reinforcement — Definitions, requirements and test methods*

[3] EN ISO 9001, *Quality management systems — Requirements* (ISO 9001:2000)

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BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

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