
Specifikacije malt za zidanje – 3. del: Proizvodi na osnovi organskih veziv za zunanje in notranje omete

Specifications for mortar for masonry - Part 3: Products for external rendering and internal plastering based on organic binders

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Specifications for Mortar for Masonry - Part 3: Products for external rendering and internal plastering based on organic binders

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 125.

If this draft becomes a European Standard, 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.

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

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Foreword

This document (prEN 998-3:2006) has been prepared by Technical Committee CEN/TC 125, "Masonry", the secretariat of which is held by BSI, following initial preparation by Working Group 2/Task Group 3 in connection with CEN/TC 139, "Paints and varnishes", Working Group 1.

This document is currently submitted to the CEN Enquiry.

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 the EU Construction Products Directive (89/106/EEC).

For relationship with EU Directive, see informative Annex ZA which is an integral part of this document.

EN 998 *Specification for mortars for masonry* consists of:

Part 1: Mineral mortars for rendering and plastering;

Part 2: Masonry mortars;

Part 3: Products for external rendering and internal plastering based on organic binders.

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Introduction

The properties of products based on organic-polymer binders intended for external covering (rendering) an internal covering (plastering) are determined by the type or types of binders used and their respective proportions.

The characteristics of these binders and their properties can be determined by the type of aggregates, admixtures and/or additives used.

Organic rendering/plastering products can be defined according to the:

- chemical nature of the main active binder and its state of dissolution, dispersion, or powder, which is decisive for the final characteristics of the surface covering with one or several coats;
- finishes determined by the aggregates repartition and application technique;
- properties and/or type of use.

They are factory-made products presented in liquid or paste form, ready to use, or in powder form.

Rendering/plastering products do not attain their final characteristics until properly dried and hardened after application. The functions performed by a rendering/plastering product depend on the properties of the type of raw materials used, on the thickness of the coats and the type of application. In addition, rendering/plastering products determine the final surface of the construction before eventually receiving a complementary finishing.

These products can be applied with a brush, roller, trowel, spray machine or any special tool specified by the manufacturer.

The main functions assumed by organic products for rendering/plastering can be:

- protection of the substrate;
- levelling, smoothing or truing of the substrate;
- decoration of construction (colours and textures);

One or more function(s) can be obtained by one type of product or combination of products. The manufacturer designates the appropriate properties and characteristics for end use and appearance and should give information about the use of the product(s) and the relevant conditions of use.

The specifier should evaluate the state of the job site (mechanical and thermal influences) and choose the appropriate product(s) considering all the possible risks.

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1 Scope

This document is applicable to factory made rendering/plastering products based on organic-polymer binders as the principal binder for external rendering and internal plastering systems used on walls, ceilings, columns and partitions which are used according to EN 13914-2 and CEN/TR 15123. This document is also applicable to renders/plasters based on silicate, silane, or siloxane, and silicone binders sometimes considered as mineral.

NOTE Mineral binders can be used as additives.

This document is applicable to all products for exterior or interior masonry and concrete construction which have a primary protective function, including those for external thermal insulating composite systems (ETICS) if they also conform to the specifications of EN 13499 or EN 13500.

This document contains definitions and final performance requirements. It specifies the construction products and systems for the protection and decoration of external and internal, new or old, coated or uncoated masonry and concrete substrates. It includes relevant characteristic categories to designate the different types of products more precisely.

This document is not applicable to mortars or covering products where mineral binder (e.g. cement, lime, calcium sulphate) is the principle active binding agent nor paints and coatings according to EN 1062-1.

This document does not contain recommendations for the design and installation of rendering/plastering products. However, this standard or part of this standard may be used for definition of products in conjunction with codes of application and national specifications for execution of works.

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 1015-2, *Methods of test for mortar for masonry — Part 2: Bulk sampling of mortars and preparation of test mortars*

EN 1062-1, *Paints and varnishes — Coating materials and coating systems for exterior masonry and concrete — Part 1: Classification*

EN 1062-3, *Paints and varnishes — Coating materials and coating systems for exterior masonry and concrete — Part 3: Determination and classification of liquid-water transmission rate (permeability)*

EN 1504-2, *Products and systems for the protection and repair of concrete structures — Definitions, requirements, quality control and evaluation of conformity — Part 2: Surface protection systems for concrete*

EN 1542, *Products and systems for the protection and repair of concrete structures — Test methods — Measurement of bond strength by pull-off*

EN 1745:2002, *Masonry and masonry products — Methods for determining design thermal values*

EN 13914-2, *Design, preparation and application of external rendering and internal plastering — Part 2: Design considerations and essential principles for internal plastering*

EN 13499, *Thermal insulation products for buildings — External thermal insulation composite systems (ETICS) based on expanded polystyrene — Specification*

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EN 13500, *Thermal insulation products for buildings — External thermal insulation composite systems (ETICS) based on mineral wool — Specification*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*

EN 13687-3, *Products and systems for the protection and repair of concrete structures — Test methods — Determination of thermal compatibility — Part 3: Thermal cycling without de-icing salt impact*

EN ISO 7783-2:1999, *Paints and varnishes — Coating materials and coating systems for exterior masonry and concrete — Part 2: Determination and classification of water-vapour transmission rate (permeability)* [ISO 7783-2:1999]

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

EN ISO 15528, *Paints, varnishes and raw materials for paints and varnishes — Sampling* [ISO 15528:2000]

CEN/TR 15123, *Design, preparation and application of internal polymer plastering systems*

3 Terms, definitions and abbreviations

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

3.1 General

3.1.1

rendering/plastering product

product in liquid, paste, or powder form, consisting of a mix of one or more organic polymer binders, mineral aggregates and particles, and sometimes admixtures and/or additives, with water or solvent, or with water to be added, used for external rendering or internal plastering

3.1.2

shelf-life

time of storage under stated conditions during which a product may be expected to maintain its working properties

3.1.3

declared value

value that a manufacturer is confident in achieving, bearing in mind the precision of test and variability of a process

3.1.4

textured product

product designed to obtain a non-smooth but decorative surface according to aggregate size and/or application technique

3.1.5

substrate

rigid surface on which the plastering/rendering product is applied

NOTE Examples are masonry elements, rendered/plastered or not, concretes, gypsum elements, gypsum or cementitious boards.

3.1.6

rendering/plastering system

sequence of coats to be applied to a background which can be used in conjunction with the possible use of a support and/or reinforcement and/or a pre-treatment

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NOTE In some cases the pre-treatment may be regarded as a separate coat in addition to the specified system.

3.1.7

decoration

treatments with the primary objective of changing or restoring the appearance of the substrate

NOTE Functions of these treatments are colour, gloss and/or texture.

3.1.8

preservation

treatments with the primary objective of keeping the substrate in a condition as near as possible to its original state and appearance of gloss, colour and texture

NOTE Functions of these treatments are, for example, water repellence and/or improvement of the integrity of the substrate. They can also include protective functions and may be used for pre-treatment.

3.1.9

protection

treatments with the primary objective to protect the substrate against one or more of the following influences: water, atmospherical, chemical, biological, mechanical or other actions

NOTE These treatments can also include decorative functions.

3.2 Types of rendering/plastering products according to properties and/or use

3.2.1

product for undercoat

product used to protect the substrate and/or to obtain smooth and/or levelled surface

3.2.2

product for finishing

product of smooth or textured appearance

NOTE The finishing coat can also be referred to as the top coat.

3.2.3

product for levelling

product used for levelling in one or more coat(s)

4 Materials

Raw materials shall have characteristics that allow the product to be delivered and the system(s), which it is/they are used in, to conform to the requirements of the document. The manufacturer shall keep records of how the suitability of materials is established (see 8.3.4).

NOTE Execution of rendering/plastering systems can utilize ancillary products such as primer, sealer, mesh or film reinforcement, compound for jointing, etc. They may be regarded as additional to the specified system, but are generally attached to the system.

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5 Requirements

5.1 General

The requirements on characteristics for dried and hardened products and systems specified in this standard shall be defined using the test methods and procedures referred to in this standard. For these tests, the products shall be sampled in accordance with EN ISO 15528 for liquid/paste products, or EN 1015-2 for powder products.

NOTE 1 The characteristic values are specified under laboratory conditions and cannot always be directly compared with the characteristics obtained under site conditions.

Dried and hardened product thickness and texture are subject to the manufacturer's recommendations for use and may be affected by the method of application and the state of the substrate. These factors can affect the final properties of the products and/or covering system.

To achieve the effective rendering/plastering characteristics the materials shall be applied according to the manufacturer's recommendations.

NOTE 2 Some requirements on characteristics of renders/plasters are classified in categories using values and symbols specified in EN 1062-1 and EN 1504-2 for similar properties. When appropriate to the intended use of the rendering/plastering product, additional properties to those specified in this clause (clause 5) may be characterized with reference to EN 1062-1 or EN 1504-2.

5.2 Water vapour transmission rate (permeability)

This characteristic is used to assess the influence of systems for external use on the moisture behaviour of the substrate.

Water vapour transmission rates shall be determined in accordance with EN ISO 7783-2 and are categorized in Table 1.

Table 1 — Categories for water vapour transmission rate (V)

| Category | Requirement | |
|--------------------------|--|--|
| | Water vapour transmission rate V g/(m ² · d) | Diffusion equivalent to the air layer thickness s _a m ^a |
| V ₁ High | >150 | <0,14 |
| V ₂ Medium | ≤150 | ≥0,14 |
| V ₃ Low | >15 | <1,4 |
| | ≤15 | ≥1,4 |

^a Values of diffusion equivalent to the air layer thickness (s_a) in accordance with EN ISO 7783-2.

5.3 Liquid water permeability

This characteristic is used to assess the influence of systems for external use on the moisture behaviour of the substrate.

Liquid water permeabilities shall be determined in accordance with EN 1062-3 and are categorized in Table 2.

Table 2 — Categories for liquid water permeability (W)

| Category | | Requirement kg/(m ² · h ^{0,5}) |
|----------|--------|--|
| W_1 | High | >0,5 |
| W_2 | Medium | ≤0,5 >0,1 |
| W_3 | Low | ≤0,1 |

5.4 Adhesion

Adhesion of the system shall be determined in accordance with EN 1542 after drying, hardening and conditioning for 28 days at (23 ± 2) °C and (50 ± 10) % relative humidity. If the liquid water permeability of a render (for external use) is $w \geq 0,5$ kg/(m² · d^{0,5}) when determined using EN 1062-3, the adhesion shall be determined after conditioning in accordance with EN 13687-3.

All measured values shall be equal or more than 0,3 MPa.

5.5 Durability

The durability shall be assessed by testing the adhesion in accordance with 5.4.

5.6 Thermal conductivity

The declared thermal conductivity of dried and hardened products shall be 1,0 W/(m · K). For renders/plasters intended to be used in elements subject to thermal requirements, the tabulated values given in Table A.12 of EN 1745:2002 shall be used.

5.7 Reaction to fire

Renders/plasters containing a mass or volume fraction of $\leq 1,0$ % (whichever is the most onerous) of homogeneously distributed organic materials are classified as reaction to fire Class A1 without the need to test (see Commission Decision 96/603/EC, as amended).

Renders/plasters containing a mass or volume fraction of $>1,0$ % (whichever is the most onerous) of homogeneously distributed organic materials shall be tested and classified in accordance with EN 13501-1 and the appropriate reaction to fire class declared.

For products with a dry film average thicknesses ≤ 1 mm or mass ≤ 1 kg/m², the reaction to fire is not to be measured because they do not appreciably modify this property of the substrate. Those systems may also be considered as reaction to fire Class B without the need to test. Products applied in quantities $< 3,5$ kg/m² may be considered as Class C.

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