SLOVENSKI STANDARD
SIST EN 1015-21:2004

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Metode preskuġanja zidarske malte ï 21. del: Doloļ evanje zdruġljivosti enoslojnih ometov s podlagami

Methods of test for mortar for masonry - Part 21: Determination of the compatibility of one-coat rendering mortars with substrates

Prüfverfahren für Mörtel für Mauerwerk - Teil 21: Bestimmung der Verträglichkeit von Einlagenputzmörteln mit Untergründen

Méthodes d'essai des mortiers pour maçonnerie - Partie 21: Détermination de la compatibilité des mortiers d'enduit extérieur mono-couche avec les supports

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ICS:

91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar

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Methods of test for mortar for masonry - Part 21: Determination of the compatibility of one-coat rendering mortars with substrates

Méthodes d'essai des mortiers pour maçonneries - Partie 21: Détermination de la compatibilité des mortiers d'enduit extérieur mono-couches avec leur armature

Prüfverfahren für Mörtel für Mauerwerk - Teil 21: Bestimmung der Verträglichkeit von Einlagenputzmörteln mit Untergründen

This European Standard was approved by CEN on 6 July 2002.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Foreword

This document (EN 1015-21:2002) has been prepared by Technical Committee CEN/TC 125 "Masonry", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2003, and conflicting national standards shall be withdrawn at the latest by September 2004.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies a test method for determining the compatibility of One-Coat (OC) rendering mortars with given substrates.

The evaluation is based on the determination of the adhesion strength and water permeability of the hardened render applied on defined substrates, after exposure to weathering cycles.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 772-11, *Methods of test for masonry units — Part 11: Determination of water absorption of aggregate concrete, manufactured stone and natural stone masonry units due to capillary action and the initial rate of water absorption of clay masonry units.*

prEN 998-1, *Specification for mortar for masonry — Part 1: Rendering and plastering mortar.*

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

EN 1015-3, *Methods of test for mortar for masonry — Part 3: Determination of consistence of fresh mortar — (by flow table).*

EN 1015-9, *Methods of test for mortar for masonry — Part 9: Determination of workable life and correction time of fresh mortar.*

EN 1015-12:2000, *Methods of test for mortar for masonry — Part 12: Determination of adhesive strength of hardened rendering and plastering mortars on substrates.*

3 Principle

One-coat rendering mortars are applied to substrates specified by the manufacturer. The hardened specimens are tested after conditioning consisting of thermal cycling and humidification/thermal cycling.

The specimens are subjected to two tests as follows:

a) water permeability by the application of a specified head of water to the rendered surface;

b) adhesive strength using the pull-off test of EN 1015-12.

4 Apparatus

4.1 Apparatus for determination of water permeability (see Figure 1)

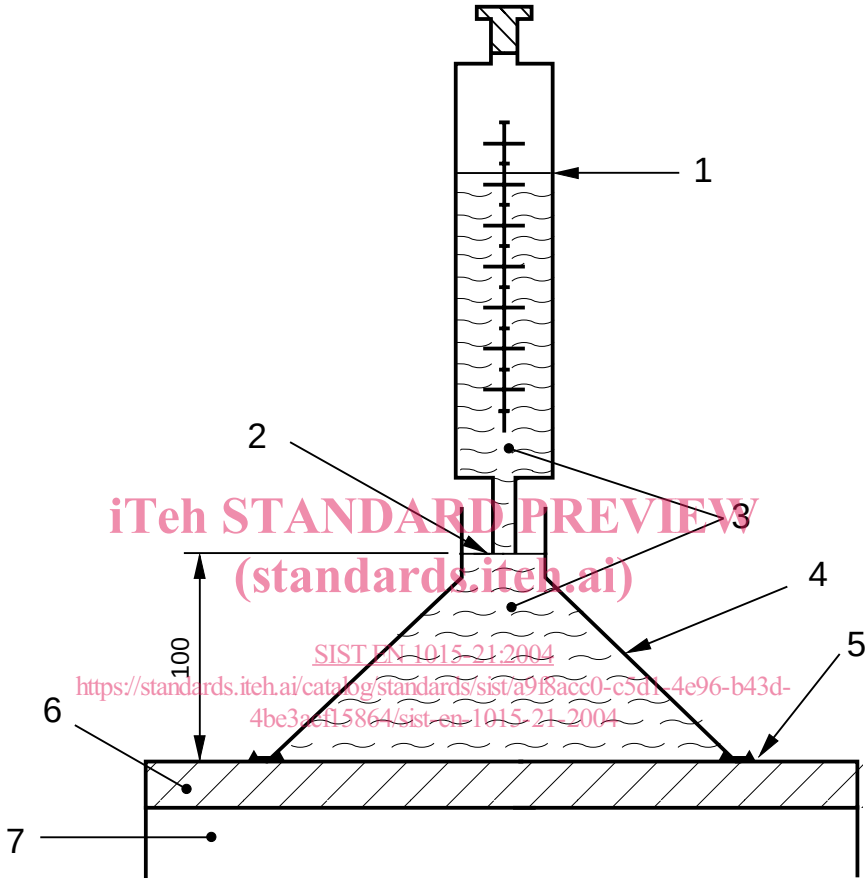
4.1.1 Metal cone with a base diameter of 200 mm, and 100 mm high.

4.1.2 Closed graduated glass tube (or transparent plastics material) with a minimum capacity of 1 l and with 1 ml graduations.

NOTE A large burette can be suitable.

4.1.3 Device for fixing the graduated glass tube.

Dimensions in millimetres



Key

1 Device for maintaining a constant level and for measuring the water flow
2 Constant level
3 Water
4 Cone Ø 200 mm (at the bottom)
5 Sealant
6 Render
7 Substrate

Figure 1 — Water permeability apparatus

4.2 Apparatus for determination of adhesive strength (in accordance with EN 1015-12)

4.3 Apparatus for the conditioning of the test specimens

4.3.1 Deep freeze cabinet capable of maintaining a constant temperature of – 15 °C ± 1 °C.

4.3.2 Infra-Red lamp device capable of maintaining a vertical rendered surface at 60 °C ± 2 °C.

4.3.3 Large waterproof container to maintain 15 mm of liquid water.

4.3.4 Water-resistant wedges 10 mm thick to support test specimens.

4.3.5 Thermocouple

5 Sampling and sample preparation

5.1 General

The fresh mortar for this test shall have a minimum volume of 1,5 l or at least 1,5 times the quantity needed to perform the test, whichever is the greater, and shall either be obtained by reduction of the bulk test sample (see EN 1015-2) using a sample divider or by quartering or by preparation from water and the other constituents in the laboratory.

5.2 Laboratory prepared mortars

A sample of at least 25 kg (or one bag) of the mortar in powder form shall be taken in accordance with EN 1015-2. The amount of water required for preparing the mortar shall be as stated by the manufacturer. If a range of values is given, the mean value shall be used. The mixing of the mortar shall be done with the mixing equipment and the mixing time(s) specified by the mortar producer for site uses. The length of mixing period shall be measured from the moment all the constituents are introduced into the mixer.The consistence of the mortar shall be determined in accordance with EN 1015-3 and reported.

The prepared fresh mortar shall be applied on the relevant substrates after a minimum delay of 10 min following the completion of mixing and in accordance with the workable life (see EN 1015-9).

5.3 Mortars, other than laboratory prepared mortars

Ready to use mortars (factory-made wet mortars which are retarded), and pre-batched air-lime/sand wet mortars when not gauged with hydraulic binders, shall be used for specimen preparation within their specified workable life.

Before testing, the batch shall be gently stirred by hand using a trowel or palette knife for 5 s to 10 s to counteract any false setting etc., but without any additional mixing of the batch.

The flow value of the mortar in the bulk test sample shall be determined in accordance with EN 1015-3 and reported.

6 Preparation and storage of test specimens

6.1 Substrates

6.1.1 General

The test shall be performed on two panels each of at least two types of substrates which represent the ' worst condition' appropriate to the field of use specified by the manufacturer, i.e.:

a) “Strong substrate”: concrete panel as described in clause 6.1.2.

b) “Weak substrate”: lightweight masonry unit, e.g. autoclaved aerated concrete masonry unit or low density clay unit.

If one or both of the above-mentioned substrates are not part of the intended field of use, the manufacturer shall perform the tests on other relevant types of substrates and identify them as per clause 9 f).

Record the water absorption due to capillary action of the units used in the substrate, if known, or test in accordance with EN 772-11 where appropriate.

6.1.2 Concrete substrates

Where a concrete substrate is specified, apply the render to the moulded face of a 300 mm × 300 mm × 40 mm substrate minimum.

6.1.3 Masonry substrates

Where a masonry substrate is specified, apply the render to the surface of a panel made from at least one whole and two half masonry units laid in the specified masonry mortar. The face size of the specimen shall be at least 400 mm × 400 mm.

6.2 Application

Apply the fresh mortar mix in accordance with the producer's recommendations on two panels of each type of substrate, one in 10 mm ± 1mm, and the other in 20 mm ± 1 mm thickness.

Keep the substrate vertical during application.

6.3 Conditioning

Cure the test specimens for at least 28 d, in standardized conditions of 20 °C ± 2 °C and 65 % ± 5 % RH. Fix the thermocouple to the centre of the face of the specimen.

After curing, subject the test specimens successively to two conditioning series of four cycles.

Between the two series, store them for at least 48 h in standard conditions of 20 °C ± 2 °C and 65 % ± 5 % RH.

1 st series: four heating - freezing cycles

1) Heat by infra red radiation (see 4.3.2) and maintain a surface temperature of 60 °C ± 2 °C, for 8 h ± 15 min.

2) Place the specimen in the standardized conditions of 20 °C ± 2 °C and 65 % ± 5 % RH for 30 min ± 2 min.