



**SLOVENSKI STANDARD**  
**SIST EN 1015-12:2001**  
**01-februar-2001**

---

A YrcXY'dfYg\_i ýUb^UnjXUfg\_Y'a UHr!'%&"XY.'8c`c Yj Ub^Y'gdf]Ya bY'fXbcghj  
glf^yb] `ca Yrcj `bUdcXU] Y

Methods of test of mortar for masonry - Part 12: Determination of adhesive strength of hardened rendering and plastering mortars on substrates

Prüfverfahren für Mörtel für Mauerwerk - Teil 12: Bestimmung der Haftfestigkeit von erhärteten Putzmörteln

Méthodes d'essai des mortiers pour maçonnerie - Partie 12: Détermination de l'adhérence des mortiers d'enduit durcis appliqués sur supports

[https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-](https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-abd5af756374/sist-en-1015-12-2001)

Ta slovenski standard je istoveten z: **EN 1015-12:2000**

---

**ICS:**

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

**SIST EN 1015-12:2001**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 1015-12:2001

<https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-abd5af756374/sist-en-1015-12-2001>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1015-12**

February 2000

ICS 91.100.10

English version

**Methods of test for mortar for masonry - Part 12: Determination of adhesive strength of hardened rendering and plastering mortars on substrates**

Méthodes d'essai des mortiers pour maçonnerie - Partie 12:  
Détermination de l'adhérence des mortiers d'enduit durcis  
appliqués sur supports

Prüfverfahren für Mörtel für Mauerwerk - Teil 12: Bestimmung  
der Haftfestigkeit von erhärteten Putzmörteln

This European Standard was approved by CEN on 24 December 1999.

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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-abd5af756374/sist-en-1015-12-2001>



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

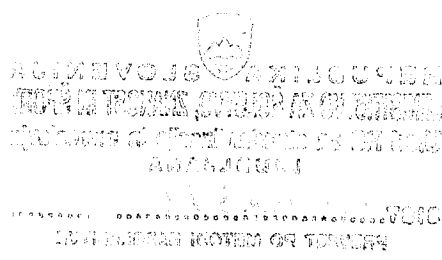
Central Secretariat: rue de Stassart, 36 B-1050 Brussels

<b>Contents</b>	<b>Page</b>
Foreword .....	3
1 Scope .....	4
2 Normative references .....	4
3 Principle.....	4
4 Symbols .....	4
5 Apparatus.....	5
6 Sampling and sample preparation.....	6
7 Preparation and storage of test specimens .....	7
8 Procedure.....	8
9 Expression of results.....	9
10 Test report.....	10

**ITeH STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 1015-12:2001

<https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-abd5af756374/sist-en-1015-12-2001>



## Foreword

This European Standard 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 August 2000, and conflicting national standards shall be withdrawn at the latest by December 2001.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 1015-12:2001

<https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-abd5af756374/sist-en-1015-12-2001>

## 1 Scope

This European Standard specifies a method for the determination of the adhesive strength between rendering and plastering mortars and a substrate.

## 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.

- |              |  |
|--------------|--|
| prEN 772-11  | Methods of test for masonry units - Part 11: Determination of water absorption of clay, aggregate concrete, autoclaved aerated concrete, manufactured stone and natural stone masonry units due to capillary action. |
| prEN 998-1   | Specification for mortar for masonry - Part 1: Rendering and plastering mortar with inorganic binding agents.  |
| prEN 998-2   | Specification for mortar for masonry - Part 2: Masonry 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 mortars for masonry - Part 3: Determination of consistence of fresh mortar (by flow table).  |
| prEN 1015-11 | Methods of test for mortars for masonry - Part 11: Determination of flexural and compressive strength of hardened mortar.  |

## 3 Principle

The adhesive strength is determined as the maximum tensile stress applied by a direct load perpendicular to the surface of the rendering or plastering mortar on a substrate. The tensile load is applied by means of a defined pull-head plate glued to the test area of the mortar surface. The adhesive strength obtained is the quotient between the failure load and the test area.

## 4 Symbols

- $f_u$  is the adhesive strength, (N/mm<sup>2</sup>);
- $F_u$  is the failure load, (N);
- $A$  is the test area of cylindrical specimen, (mm<sup>2</sup>).

## 5 Apparatus

**5.1 Truncated conical rings**, (see Figure 1) made of stainless steel or brass, with internal diameter of  $50 \text{ mm} \pm 0,1 \text{ mm}$  and  $25 \text{ mm} \pm 0,5 \text{ mm}$  in height. The minimum thickness of the mould wall shall be  $5,0 \text{ mm}$  at the top. The external diameter at the base shall be  $51 \text{ mm} \pm 0,1 \text{ mm}$ .

**5.2 Circular pull-head plates**, made of stainless steel, with diameter of  $50 \text{ mm} \pm 0,1 \text{ mm}$  and minimum thickness  $10 \text{ mm}$ , and with central fitting for connection to the direct pull tensile force apparatus.

Dimensions in millimetres

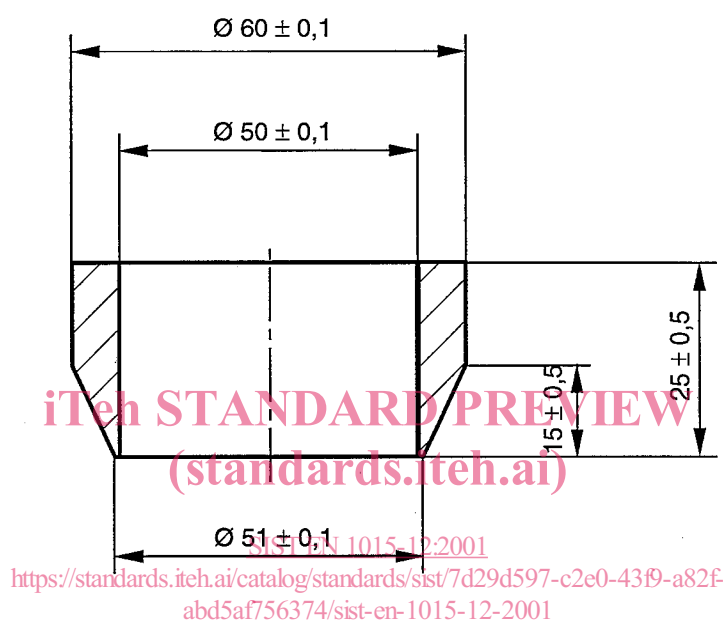


Figure 1 - Sharp-edged, truncated conical ring

**5.3 Adhesive**, based on resin, e.g. epoxy resin or methylmethacrylate resin.

**5.4 Core drilling machine**, with core drill of nominally  $50 \text{ mm}$  internal diameter, suitable to cut core samples from hardened mortars and substrates.

**5.5 Testing machine**, for direct pull tensile force test and with suitable capacity and sensitivity for the test as specified in clause 8. It shall be capable of applying the load to the pull-head plate through a suitable fitting that excludes any bending forces. The machine shall comply with the requirements in Table 1.

**5.6 Storage chamber**, capable of maintaining a temperature of  $20 \text{ °C} \pm 2 \text{ °C}$  and at a relative humidity of  $65 \% \pm 5 \%$ .

**Table 1 - Requirements for testing machine**

Maximum permissible repeatability of forces as percentage of nominal force	Maximum permissible mean error of forces as percentage of nominal force	Maximum permissible error of zero force as percentage of maximum force of range
%	%	%
2,0	±2,0	±0,4

## 6 Sampling and sample preparation

### 6.1 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. Two test samples shall be prepared.

### 6.2 Laboratory prepared mortars

The length of mixing period shall be measured from the moment all the constituents are introduced into the mixer.

SIST EN 1015-12:2001

The mortar shall be brought to a defined flow value as specified in EN 1015-2 determined in accordance with EN 1015-3 and reported. The test procedure shall not start until at least 10 min after completion of mixing and shall be concluded within the specified workable life of the mortar (preferably within 30 min after completion of mixing), unless otherwise instructed by the manufacturer.

### 6.3 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 to 10 seconds 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.



## 7 Preparation and storage of test specimens

### 7.1 Substrate

For rendering or plastering systems manufactured for a specific background, i.e. clay or calcium silicate masonry units, concrete masonry units, panels or cast in-situ concrete, etc., these materials, in an air-dried condition, should be used as test substrates. The water absorption due to capillary action of the units used in the substrate shall be recorded, if known, or tested in accordance with prEN 772-11 where appropriate.

Where no specific background is prescribed rectangular concrete panels shall be used as substrate, with dimensions not less than 550 mm × 150 mm and 50 mm in thickness. The concrete shall be mixed with a water/cement ratio of 0,55 and using normal graded aggregates with maximum particle size of one third of the concrete panel thickness. The upper surface of the moulded substrate shall be levelled and wood-floated to achieve a suitable surface. Within a period of 6 h to 24 h lightly brush the surface.

The concrete panels shall have an age of not less than 28 d when applying the plastering or rendering system, the panels being cured under standardized conditions as described in prEN 1015-11.

Note: Concrete panels as a substrate will normally give conservative adhesive strength values.

### 7.2 Application

The fresh mortar mix shall be applied to the prescribed substrate according to the manufacturer's recommendations and the intended use. The substrate shall be kept vertical during application. Unless otherwise specified the total thickness of the mortar layer shall be 10 mm ± 1 mm.

SIST EN 1015-12:2001

### 7.3 Test areas

<https://standards.iteh.ai/catalog/standards/sist/7d29d597-c2e0-43f9-a82f-abd5af756374/sist-en-1015-12-2001>

#### 7.3.1 General

Circular test areas of approximately 50 mm in diameter shall be cut through the mortar layer, either in the fresh mortar according to 7.3.2 or in the hardened mortar according to 7.3.3. The diameter of the circular test area shall be recorded for each specimen. Five test specimens shall be provided.

#### 7.3.2 Fresh mortar

After application and the initial setting of the mortar layer, the truncated conical rings (5.1), cleaned and lubricated with a thin layer of mineral oil, shall be pressed with their sharp edge, slightly rotating, through the fresh mortar layer until full contact with the substrate is reached. The minimum distance between the rings and the free edges of the rendered substrate, and the free distance between the individual rings shall be 50 mm.

The rings shall be carefully removed, still slightly rotating, when the substrate is reached. If it is obvious that the adhesion of any of the cut specimens is disturbed during this preparation, another test specimen shall be cut. The specimen shall then be stored as given in 7.4.