



SLOVENSKI STANDARD
SIST EN 413-2:1995

01-december-1995

Zidarski cement - 2. del: Metode preskušanja

Masonry cement - Part 2: Test methods

Putz- und Mauerbinder - Teil 2: Prüfverfahren

Ciment a maçonner - Partie 2: Méthodes d'essai

Ta slovenski standard je istoveten z: EN 413-2:1994

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ICS:

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

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EUROPEAN STANDARD

EN 413-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 1994

ICS 91.100.10

Descriptors: Cements, masonry cements, conformity tests, tests, fabrication, consistency, cohesion, water, determination of content, air

English version

Masonry cement - Part 2: Test methods

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Ciment à maçonner - Partie 2: Méthodes d'essai Putz- und Mauerbinder - Teil 2: Prüfverfahren
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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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 51 "Cement and building limes", the secretariat of which is held by IBN.

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of an identical text or by endorsement, at the latest by May 1995, and conflicting national standards shall be withdrawn at the latest by May 1995.

The European Standard, EN 413 for masonry cement consists of the following parts:

- Part 1: Specification
- Part 2: Test methods

The existing standards from the EN 196 series were used as a basis for EN 413-2. However, because of the chemical and physical properties of masonry cement, other test methods than those used for common cements are necessary and have been incorporated into this European Standard.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom. [SIST EN 413-2:1995](https://standards.iteh.ai/catalog/standards/sist/497fd6c6-e057-4876-9346-e650934c5b59/sist-en-413-2-1995)

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0 Introduction

This European Standard includes test methods that enable the performance of masonry cement to be assessed when used in mortar for bedding masonry units and for rendering and plastering. One of these methods provides an estimate of the workability of the fresh mortar as measured by the cohesiveness at a defined level of consistence. This property has for many years proved to be exceedingly difficult to characterize and, whilst the method described in this European Standard does not represent the ultimate development, it is considered to be particularly helpful for monitoring changes in the workability of mortar made with masonry cement from one source.

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1 Scope

This European Standard describes reference and alternative test methods to be used when testing masonry cements to assess their conformity to ENV 413-1. It gives the tests on fresh mortar for consistence, water retention, air content and workability.

In the event of a dispute, only the reference methods are used.

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.

- EN 196-1 Methods of testing cement - Part 1: Determination of strength
ENV 413-1 Masonry cement - Part 1: Specification
EN 459-2 Building lime - Part 2: Test methods

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3 General requirements for testing

3.1 Laboratory

Unless specifically stated to the contrary, all the tests described in this European Standard shall be carried out in a laboratory where the air temperature is maintained at (20 ± 2) °C and the relative humidity at not less than 50 %.

3.2 Manufacturing tolerances for test equipment

3.2.1 Linear dimensions

Figures indicating the specified requirements for apparatus used in the tests described in this European Standard shall include essential dimensions for which manufacturing tolerances are given.

NOTE: All other dimensions are given for guidance.

3.2.2 Mass

Specified masses shall have manufacturing tolerances within $\pm 1\%$ of the mass unless otherwise stated.

3.3 Tolerances for test equipment in use

Tolerances applying to apparatus which has been subjected to wear in use shall not exceed twice the corresponding manufacturing tolerance unless alternative requirements are specified.

4 Preparation of standard mortar

4.1 Principle

The properties of fresh mortar made with masonry cement are assessed on standard mortar prepared in accordance with EN 196-1, but with the water content necessary for the standard consistence.

The consistence is measured using the plunger apparatus (see 4.2) as the reference method to achieve the required value of penetration.

A flow table test (see 4.3) is allowed as an alternative to the plunger test but it is important that the flow table spread equivalent to the required value of penetration is established, using the same type of masonry cement as that which is to be tested.

4.2 Consistence of fresh mortar by plunger apparatus (reference method)

4.2.1 Apparatus

The mixer and ancillary equipment shall be as described in EN 196-1.

The plunger apparatus shown in figure 1 shall conform to the dimensions specified.

The shape of the baseplate (1) shall enable the mortar container (8) to be placed centrally below the plunger (7). The plunger shall have a hemispherical lower end, be resistant to corrosion and not attacked by mortar. The total mass of the rod (6) and plunger (7) shall be (90 ± 2) g. A release mechanism (5) holds the measuring rod in its initial position so that the lower end of the plunger is (100 ± 1) mm above the mortar surface prior to commencing the test (the initial position in 4.2.2).

The tamper (see figure 2) shall consist of a round rod made of impermeable material with sheet metal protection and shall weigh (250 ± 15) g.

4.2.2 Procedure

Prepare the mortar by the procedure described in EN 196-1 except that the water content shall be that determined to give the consistence required.

Before the start of each test wipe the plunger with a damp cloth.

Fill the container in two layers immediately after completing the mixing procedure. Compact each layer with 10 light strokes of the tamper.

Strike off any excess mortar within 1 min after the completion of mixing. After placing the container on the baseplate, release the plunger from its initial position (150 ± 15) s after the completion of mixing and determine the value of penetration into the mortar by reading the scale.

A value of penetration of (35 ± 3) mm is required for the mortar to be of standard consistence. If the mortar does not achieve the standard consistence required then mix a new batch of mortar using a different quantity of water. Repeat the test on new batches of mortar until the value of penetration of (35 ± 3) mm is obtained in two consecutive tests.

Record the mass of water required in grams to obtain standard consistence and the value of penetration in millimetres.

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4.3 Consistence of fresh mortar by flow table (alternative method)

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4.3.1 Apparatus

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Flow table, as described in 5.5.2.1.2 of EN 459-2.

4.3.2 Calibration

Calibrate the flow table, using the same type of masonry cement as that to be tested, against the plunger used for the consistence test described in 4.2. Carry out a minimum of three pairs of tests in order to establish the spread on the flow table which is equivalent to a (35 ± 3) mm value of penetration using the plunger apparatus. Then adopt this spread in order to achieve the defined level of consistence required. The relationship between the values using the flow table and the plunger apparatus shall be updated at least once every 4 weeks.

4.3.3 Procedure

Before the start of each test, ensure that the plate and inner surface of the mould are clean and dry.

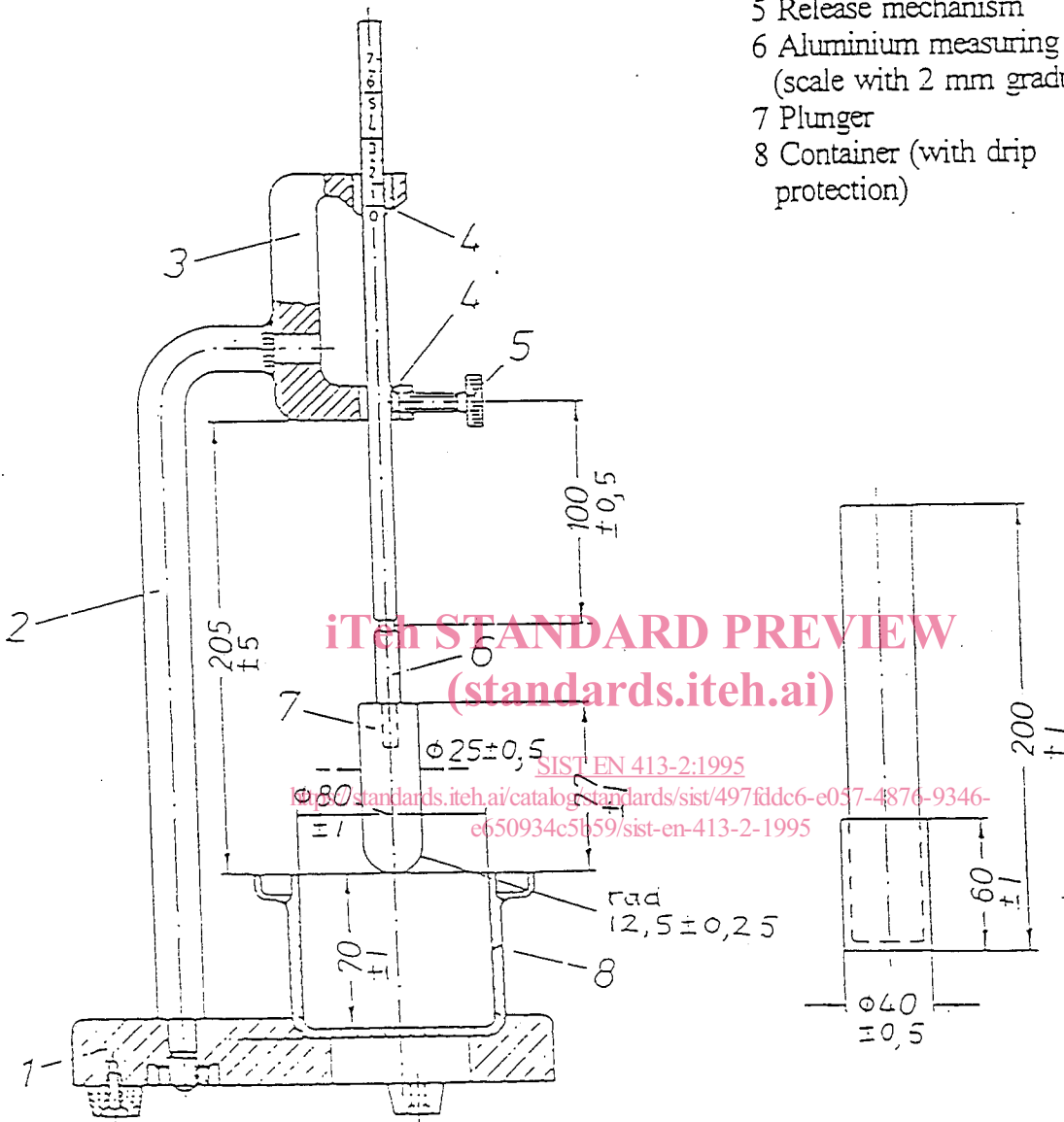
If the flow table has not been used during the hour prior to the test, the empty table shall be jolted several times. There shall be neither fluid nor dirt between the bearing (6) and the boss (8) (see figure 7 of EN 459-2)

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- 1 Baseplate
- 2 Support
- 3 Holder
- 4 Guide bushes
- 5 Release mechanism
- 6 Aluminium measuring rod
(scale with 2 mm graduations)
- 7 Plunger
- 8 Container (with drip protection)



dimensions and tolerances in millimetres

dimensions and tolerances in millimetres

Figure 1: Plunger apparatus for measuring consistence

Figure 2: Tamper