



SLOVENSKI STANDARD

SIST EN 480-2:2006

01-december-2006

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SIST EN 480-2:1998

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Admixtures for concrete, mortar and grout - Test methods - Part 2: Determination of setting time

Zusatzmittel für Beton, Mörtel und Einpressmörtel - Prüfverfahren - Teil 2: Bestimmung der Erstarrungszeit

Adjuvants pour béton, mortier et coulis - Méthodes d'essai - Partie 2: Détermination du temps de prise

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Ta slovenski standard je istoveten z: EN 480-2:2006

ICS:

91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar
91.100.30	Beton in betonski izdelki	Concrete and concrete products

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en

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English Version

Admixtures for concrete, mortar and grout - Test methods - Part 2: Determination of setting time

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Zusatzmittel für Beton, Mörtel und Einpressmörtel -
Prüfverfahren - Teil 2: Bestimmung der Erstarrungszeit

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.

CEN members are the national standards bodies of 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.

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

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Contents

Page

Foreword.....	3
1 Scope	5
2 Normative references	5
3 Test principle.....	5
4 General requirements for testing	5
4.1 Laboratory	5
4.2 Apparatus	5
4.3 Materials	6
5 Setting time test	6
5.1 Apparatus	6
5.2 Preparation of the mortar.....	8
5.3 Filling the mould	8
5.4 Test procedure	8
5.4.1 Determination of initial setting time.....	8
5.4.2 Determination of final setting time.....	8
5.4.3 Manual Vicat.....	9
6 Test report	9
Bibliography	10

SIST EN 480-2:2006
<https://standards.iteh.ai/catalog/standards/sist/4e82ec5b-0cbc-40fd-a7e9-c423de885d87/sist-en-480-2-2006>

Foreword

This document (EN 480-2:2006) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

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 February 2007.

This document supersedes EN 480-2:1996.

This draft European Standard is part of the series EN 480 *Admixtures for concrete, mortar and grout – Test methods* which comprises the following:

Part 1 *Reference concrete and reference mortar for testing*

Part 2 *Determination of setting time*

Part 4 *Determination of bleeding of concrete*

Part 5 *Determination of capillary absorption*

Part 6 *Infrared analysis*

Part 8 *Determination of the conventional dry material content*

Part 10 *Determination of water soluble chloride content*

Part 11 *Determination of air void characteristics in hardened concrete*

Part 12 *Determination of the alkali content of admixtures*

Part 13 *Reference masonry mortar for testing mortar admixtures*

Part 14 *Determination of the effect on corrosion susceptibility of reinforcing steel by potentiostatic electrochemical test¹⁾*

This standard is applicable together with the other standards of the series EN 934 *Admixtures for concrete, mortar and grout*.

Notification of revisions:

The previous edition EN 480-2:1996 has been revised as follows:

- provision for using a manual Vicat;
- general editorial revision.

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,

1) This part is under preparation.

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.

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1 Scope

This European Standard describes a method for determining setting time of mortar with and without admixtures. It is an adaptation of the setting time test described in EN 196-3.

This European Standard describes the reference method; it allows the use of alternative apparatus as indicated in notes provided that they do not affect the results.

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 196-1, *Methods of testing cement — Part 1: Determination of strength*

EN 413-2, *Masonry cement — Part 2: Test methods*

EN 480-1, *Admixtures for concrete, mortar and grout — Test methods — Part 1: Reference concrete and reference mortar for testing*

EN 1008, *Mixing water for concrete — Specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete*

3 Test principle

The setting time is determined by observing the penetration of a needle into a reference mortar until it reaches a specified value.

The reference mortar with admixture (test mix) shall have the same consistence as the reference mortar without admixture (control mix) that conforms to EN 480-1.

For this purpose the mixing water required shall be determined in advance according to EN 413-2.

4 General requirements for testing

4.1 Laboratory

The laboratory in which specimens are prepared and tested shall be maintained at a temperature of $(20 \pm 2) ^\circ\text{C}$ and a relative humidity no less than 65 %.

After preparation and between tests, the specimen shall be stored in a room or cabinet having a relative humidity of no less than 90 % and a temperature of $(5 \pm 1) ^\circ\text{C}$ or $(20 \pm 2) ^\circ\text{C}$ as appropriate to the test requirements.

4.2 Apparatus

- a) balance, accurate to 1 g;
- b) graduated cylinder or burette, accurate to 1 % of the volume measured;
- c) mixer, complying with EN 196-1.

4.3 Materials

Mortar shall be prepared by using the standard sand described in EN 196-1.

Water according to EN 1008 shall be used as mixing water²⁾.

Cement, sand, water, admixture and apparatus used to make the specimens shall be stored at a temperature selected for the test (5 ± 1) °C or (20 ± 2) °C for at least 12 h before the mortar is prepared.

5 Setting time test

5.1 Apparatus

Vicat apparatus as shown in Figure 1 a) with a needle as shown in Figure 1 b). The needle (Figure 1 b)) shall be of non-corrodible metal with an effective height of (50 ± 1) mm and a diameter of $(1,13 \pm 0,05)$ mm.

To prevent the needle of the Vicat apparatus striking the base plate of the mould, a stopping device (Figure 1 c) is recommended. A suitable device fixed to the central plunger of the apparatus such that the needle can be stopped at approximately 2 mm from the bottom of the mould is shown in Figure 1 a). This device takes the form of a split clamp which can be fixed in any position to suit the apparatus, and when loosened should not impart any friction to the plunger.

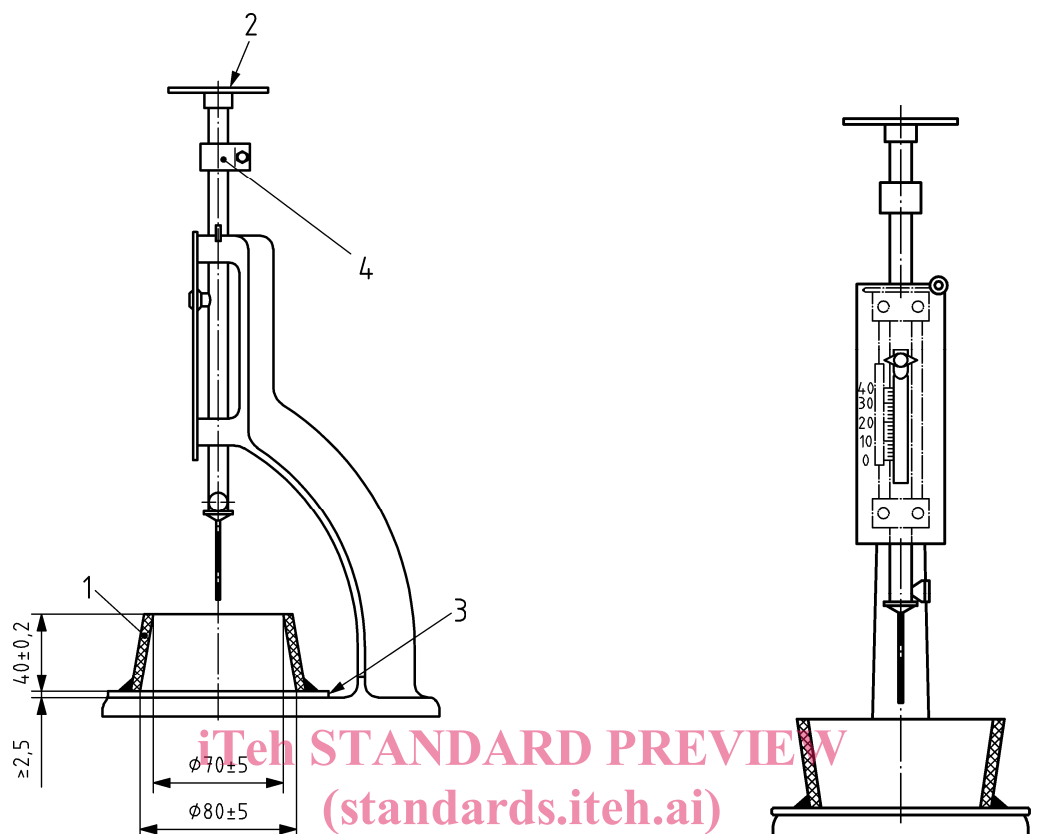
The total mass of the moving parts, including the stopping device, shall be $(1\,000 \pm 2)$ g. Their movement shall be truly vertical and without appreciable friction, and their axes shall coincide with that of the needle.

NOTE 1 Devices for automatic determination of the setting time are commercially available and may be used provided that they can be shown to give the same test results to those obtained with the specified apparatus and procedure.

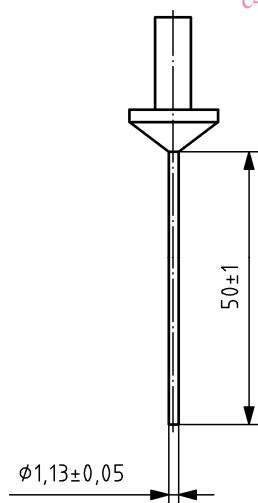
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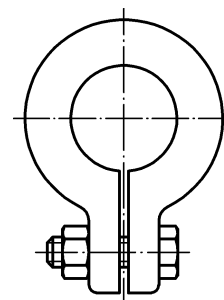
Dimensions in millimetres



- a) Side view with mould in upright position for initial setting time determination b) Front view with mould inverted for the determination of final setting time



c) Needle



d) Example of a stopping device

Key

- 1 hard rubber mould
- 2 platform for correcting weights
- 3 glass plate
- 4 stopping device

Figure 1 — Vicat apparatus for determining the setting time of mortar