

TSEMENDI KATSETAMINE. OSA 3: TARDUMISAJA JA
MAHUPÜSIVUSE MÄÄRAMINE

Methods of testing cement - Part 3: Determination of
setting times and soundness

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 196-3:2016 sisaldab Euroopa standardi EN 196-3:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 196-3:2016 consists of the English text of the European standard EN 196-3:2016.
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English Version

Methods of testing cement - Part 3: Determination of setting times and soundness

Méthodes d'essai des ciments - Partie 3 :
Détermination du temps de prise et de la stabilité

Prüfverfahren für Zement - Teil 3: Bestimmung der
Erstarrungszeiten und der Raumbeständigkeit

This European Standard was approved by CEN on 5 September 2016.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (EN 196-3:2016) has been prepared by Technical Committee CEN/TC 51 “Cement and building limes”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 196-3:2005+A1:2008.

In comparison to EN 196-3:2005+A1:2008, the following changes have been made:

- In Clause 2, the normative references have been updated.
- In 6.2.2, data of repeatability and reproducibility have been added as a note.
- In 6.3.2, the elapsed time in minutes has been approximated to the nearest 5 min.
- The standard has been editorially revised.

EN 196 consists of the following parts, under the general title “*Methods of testing cement*”:

- EN 196-1, *Methods of testing cement — Part 1: Determination of strength*;
- EN 196-2, *Method of testing cement — Part 2: Chemical analysis of cement*;
- EN 196-3, *Methods of testing cement — Part 3: Determination of setting times and soundness*;
- CEN/TR 196-4, *Methods of testing cement — Part 4: Quantitative determination of constituents*;
- EN 196-5, *Methods of testing cement — Part 5: Pozzolanicity test for pozzolanic cement*;
- EN 196-6, *Methods of testing cement — Part 6: Determination of fineness*;
- EN 196-7, *Methods of testing cement — Part 7: Methods of taking and preparing samples of cement*;
- EN 196-8, *Methods of testing cement — Part 8: Heat of hydration - Solution method*;
- EN 196-9, *Methods of testing cement — Part 9: Heat of hydration - Semi-adiabatic method*;
- EN 196-10, *Methods of testing cement — Part 10: Determination of the water-soluble chromium (VI) content of cement*.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the methods for determining standard consistence, setting times and soundness of cements.

The method applies to common cements and to other cements and materials, the standards for which call up this method. It may not apply to other cement types that have, for example, a very short initial setting time. The method is used for assessing whether the setting time and soundness of a cement is in conformity with its specification.

This part of EN 196 describes the reference methods and allows the use of alternative procedures and equipment, as indicated in notes, provided that they have been calibrated against the reference methods. In the event of a dispute, only the reference equipment and procedures are used.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

3 Principles

Cement paste of standard consistence has a specified resistance to penetration by a standard plunger. The water required for such a paste is determined by trial penetrations of pastes with different water contents.

The setting time is determined by observing the penetration of a needle into cement paste of standard consistence until it reaches a specified value.

The soundness is determined by observing the volume expansion of cement paste of standard consistence as indicated by the relative movement of two needles.

4 Laboratory, equipment and materials

4.1 Laboratory

The laboratory in which specimens are prepared and tested shall be maintained at a temperature of (20 ± 2) °C and a relative humidity of not less than 50 %.

The temperature and relative humidity of the air in the laboratory and the temperature of the water in the storage containers shall be recorded at least once per day during testing.

Cement, water and apparatus used to make and test specimens shall be at a temperature of (20 ± 2) °C.

NOTE See Annex A for storage conditions to be applied when testing setting times by alternative method.

Where temperature ranges are given, the target temperature at which the controls are set shall be the middle value of the range.