



SLOVENSKI STANDARD

SIST EN 1744-6:2007

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Preskusi kemičnih lastnosti agregatov - 6. del: Ugotavljanje vpliva izlužka recikliranega agregata na začetni čas vezanja cementa

Tests for chemical properties of aggregates - Part 6: Determination of the influence of recycled aggregate extract on the initial setting time of cement

Prüfverfahren für chemische Eigenschaften von Gesteinskörnungen - Teil 6: Bestimmung des Einflusses von Auszügen rezyklierter Gesteinskörnung auf den Erstarrungsbeginn von Zement

Essais relatifs aux propriétés chimiques des granulats - Partie 6: Détermination de l'influence d'un extrait de granulat recycle sur le temps de prise initial du ciment

Ta slovenski standard je istoveten z: **EN 1744-6:2006**

ICS:

13.030.50	Recikliranje	Recycling
91.100.15	Mineralni materiali in izdelki	Mineral materials and products

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EUROPEAN STANDARD
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EN 1744-6

October 2006

ICS 91.100.15

English Version

**Tests for chemical properties of aggregates - Part 6:
Determination of the influence of recycled aggregate extract on
the initial setting time of cement**

Essais pour déterminer les propriétés chimiques des
granulats - Partie 6: Détermination de l'influence d'un extrait
de granulats recyclés sur le temps de prise initial du ciment

Prüfverfahren für chemische Eigenschaften von
Gesteinskörnungen - Teil 6: Bestimmung des Einflusses
von Auszügen rezyklierter Gesteinskörnung auf den
Erstarrungsbeginn von Zement

This European Standard was approved by CEN on 28 August 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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Foreword

This document (EN 1744-6:2006) has been prepared by Technical Committee CEN/TC 154, "Aggregates", 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 April 2007, and conflicting national standards shall be withdrawn at the latest by April 2007.

This standard forms part of a series of tests for chemical properties of aggregates. Test methods or other properties of aggregates will be covered by Parts of the following European Standards:

EN 932 Tests for general properties of aggregates

EN 933 Tests for geometrical properties of aggregates

EN 1097 Tests for mechanical and physical properties of aggregates

EN 1367 Tests for thermal and weathering properties of aggregates

EN 13179 Tests for filler aggregate used in bituminous mixtures

The other parts of EN 1744 are, or will be:

Part 1: Chemical analysis

Part 2: Determination of resistance to alkali reaction

Part 3: Preparation of eluates by leaching of aggregates

Part 4: Determination of water susceptibility of fillers for bituminous mixtures

Part 5: Determination of acid soluble chloride salts

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, 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.

EN 1744-6:2006 (E)**1 Scope**

This European Standard specifies the procedure for the determination of the influence of water-soluble components from recycled aggregates on the initial setting time of cement.

NOTE A procedure is described in EN 1744-1:1998, clause 15.3, for use with natural aggregates; this procedure is intended to demonstrate and quantify the effects of organic contaminants. It is not suitable for recycled aggregates because these may also contain inorganic contaminants.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 196-3, *Methods of testing cement — Part 3: Determination of setting times and soundness*

EN 197-1, *Cement — Part 1: Composition, specifications and conformity criteria for common cements*

EN 932-1, *Tests for general properties of aggregates — Part 1: Methods for sampling*

EN 932-2, *Tests for general properties of aggregates — Part 2: Methods for reducing laboratory samples*

EN 932-5, *Tests for general properties of aggregates — Part 5: Common equipment and calibration*

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3 Definitions

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For the purposes of this standard, the following terms and definitions apply.

3.1**laboratory sample**

reduced sample derived from a bulk sample for laboratory testing

3.2**test portion**

sample used as a whole in a single test

4 Reagents

4.1 Cement type CEM I conforming to the requirements of EN 197-1.

4.2 Demineralised water or water of equivalent purity.

5 Apparatus

All apparatus shall comply with the general requirements of EN 932-5.

5.1 Container, capacity approximately 40 l.

5.2 Funnel, internal diameter 100 mm approximately.

- 5.3 Folded coarse filter paper, diameter appropriate (pore diameter approximately 20 μm).
- 5.4 Graduated cylinder, capacity 250 ml.
- 5.5 Apparatus and equipment for the determination of the setting time of cement in accordance with EN 196-3.
- 5.6 Trays to dry the laboratory sample.

6 Principle

An aggregate test portion is extracted with water to remove water-soluble compounds. The initial setting time of cement mixed with the extract is compared to the initial setting time of the same cement mixed with demineralised water.

7 Sampling

The laboratory sample shall be taken in accordance with the procedures specified in EN 932-1.

8 Preparation of test portion

Dry the laboratory sample by spreading it over trays and allowing it to air-dry at ambient temperature. Using the procedures specified in EN 932-2 further reduce the dried laboratory sample to produce a test portion of (20 ± 1) kg of aggregate.

9 Procedure

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9.1 General

For the purpose of the test, two cement paste test specimens are prepared. One of the specimens is prepared to standard consistency using water (4.2). The other specimen is prepared using the same quantity of an aggregate extract as produced (9.2). The initial setting time of both cement paste specimens is determined as specified in EN 196-3.

9.2 Production of the aggregate extract

Transfer the test portion, obtained as specified in 8, to the container. Add water (4.2) to the container until the test portion is just covered. Allow the container to stand for 3 h, agitating the contents by turning every 30 min.

Decant and filter the extract through the coarse filter paper into the graduated cylinder until at least 150 ml of filtrate has been collected.

9.3 Determination of the standard consistence

Determine the standard consistence of the cement in accordance with EN 196-3 by using water (4.2).

EN 1744-6:2006 (E)**9.4 Determination of the initial setting time**

Prepare a cement paste specimen at a standard consistency in accordance with EN 196-3 using water (4.2). Prepare a second cement paste specimen using the same quantity of filtered aggregate extract.

NOTE The cement paste specimen prepared using filtered extract may not be exactly at standard consistence.

Determine the initial setting time of both cement paste specimens in accordance with EN 196-3.

10 Calculation and expression of results

Calculate the influence A of the aggregate extract in terms of minutes difference in initial setting times, using the following equation:

$$A = t_w - t_e \quad (1)$$

where:

t_w is the initial setting time (in minutes) of the cement/water (4.2) paste;

t_e is the initial setting time (in minutes) of the cement/aggregate extract paste.

A negative value of A indicates a retarding effect, a positive value an accelerating effect.

11 Test report

The test report shall include at least the following:

- a) reference to this European Standard;
- b) source of the sample;
- c) designation of the sample;
- d) mass of dry sample tested, in grams;
- e) result of the test;
- f) date of the test.