



SLOVENSKI STANDARD

SIST EN 1744-4:2005

01-december-2005

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Tests for chemical properties of aggregates - Part 4: Determination of water susceptibility of fillers for bituminous mixtures

Prüfverfahren für chemische Eigenschaften von Gesteinskörnungen - Teil 4:
Bestimmung der Wasserempfindlichkeit von Füllern in bitumenhaltigen Mischungen

Essais pour déterminer les propriétés chimiques des granulats - Partie 4 : Détermination de la sensibilité a l'eau des fillers pour mélanges bitumeux

Ta slovenski standard je istoveten z: EN 1744-4:2005

ICS:

91.100.15 Mineralni materiali in izdelki Mineral materials and products

SIST EN 1744-4:2005

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 1744-4

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English version

**Tests for chemical properties of aggregates - Part 4:
Determination of water susceptibility of fillers for bituminous
mixtures**

Essais pour déterminer les propriétés chimiques des
granulats - Partie 4 : Détermination de la sensibilité à l'eau
des fillers pour mélanges bitumeux

Prüfverfahren für chemische Eigenschaften von
Gesteinskörnungen - Teil 4: Bestimmung der
Wasserempfindlichkeit von Füllern in bitumenhaltigen
Mischungen

This European Standard was approved by CEN on 27 June 2005.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This European Standard (EN 1744-4:2005) 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 February 2006, and conflicting national standards shall be withdrawn at the latest by February 2006.

This European Standard forms part of a series of tests for chemical properties of aggregates. Test methods for other properties of aggregates are 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 [SIST EN 1744-4:2005](#)

Part 2: Determination of resistance to alkali/aggregate reaction <https://standards.iteh.ai/catalog/standards/sist/5c37673e-15bf-43cf-b37e-2005>

Part 3: Preparation of eluates by leaching of aggregates

Part 5: Determination of acid soluble chloride salts

Part 6: Determination of the influence of aggregate extract on the initial setting time of cement

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, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EN 1744-4:2005 (E)**1 Scope**

This European Standard specifies the procedure for the determination of the water susceptibility of fillers for bituminous mixtures, by separation of filler from a bitumen filler mixture.

A method for the determination of water susceptibility by volume increase and loss of stability of a Marshall specimen is described in Annex A.

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 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*

EN 933-2, *Tests for geometrical properties of aggregates — Part 2: Determination of particle size distribution - Test sieves, nominal size of apertures*

EN 933-3, *Tests for geometrical properties of aggregates - Part 3: Determination of particle shape - Flakiness index*

EN 933-4, *Tests for geometrical properties of aggregates - Part 4: Determination of particle shape - Shape index*

EN 12697-6, *Bituminous mixtures — Test methods for hot mix asphalt — Part 6: Determination of bulk density of bituminous specimens*

EN 12697-12, *Bituminous mixtures — Test methods for hot mix asphalt — Part 12: Determination of the water sensitivity of bituminous specimens*

EN 12697-30, *Bituminous mixtures - Test methods for hot mix asphalt - Part 30: Specimen preparation by impact compactor*

EN 12697-34, *Bituminous mixtures — Test methods for hot mix asphalt — Part 34: Marshall test*

EN 12697-35, *Bituminous mixtures — Test methods for hot mix asphalt — Part 35: Laboratory mixing*

EN 13357, *Bitumen and bituminous binders — Determination of the efflux time of petroleum cut-back and fluxed bitumens*

3 Terms and definitions

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

3.1

filler aggregate

aggregate, most of which passes a 0,063 mm sieve, which can be added to construction materials to provide certain properties

3.2

water susceptibility of filler

measure of the degree of separation which occurs in the presence of water from a filler bitumen mixture, e.g. as a result of intra-crystalline water inclusion between aggregate particles and binder coating

3.3

subsample

sample obtained from sampling increments or a bulk sample by means of a sample reduction procedure

3.4

test portion

sample used as a whole in a single test

3.5

aggregate size

designation of aggregate in terms of lower (d) and upper (D) sieve sizes expressed as d/D

NOTE This designation accepts the presence of some particles which will be retained on the upper sieve (oversize) and some which will pass the lower sieve (undersize).

3.6

particle size fraction

fraction of an aggregate passing the larger of two sieves and retained on the smaller

NOTE The smaller sieve size can be zero.

3.7

constant mass

successive weighings after drying at least 1 h apart not differing by more than 0,1 %, by mass

NOTE In many cases constant mass can be achieved after a test portion has been dried for a pre-determined period in a specified oven at (110 ± 5) °C. Test laboratories can determine the time required to achieve constant mass for specific types and sizes of sample dependent upon the drying capacity of the oven used.

4 Principle

A mixture of filler and bitumen is stirred in hot water. If filler becomes separated from the mixture (indicated by the turbidity of the water), the filler is recovered on a filter paper and weighed.

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5 Separation of filler from a bitumen filler mixture**5.1 Reagents**

5.1.1 *Bitumen:50/70.*

5.1.2 *Redistilled Kerosene* (paraffin oil), petroleum distillate with a boiling range between 190 °C and 260 °C.

NOTE The displacement liquid used in the method of testing density of cement, as specified in EN 196-6, is suitable.

5.1.3 *Low viscosity bitumen solution*, obtained by dissolution of 50/70 bitumen (5.1.1) in kerosene (5.1.2), with viscosity at 25 °C of (240 ± 10) (St) $((60s \pm 5) s$ S.T.V. (Standard Tar Viscometer) 10 mm) as specified in EN 13357.

5.1.4 *Demineralized water.*

5.2 Apparatus

5.2.1 *All apparatus*, unless otherwise stated, shall conform to the general requirements of EN 932-5.

5.2.2 Sampling apparatus.

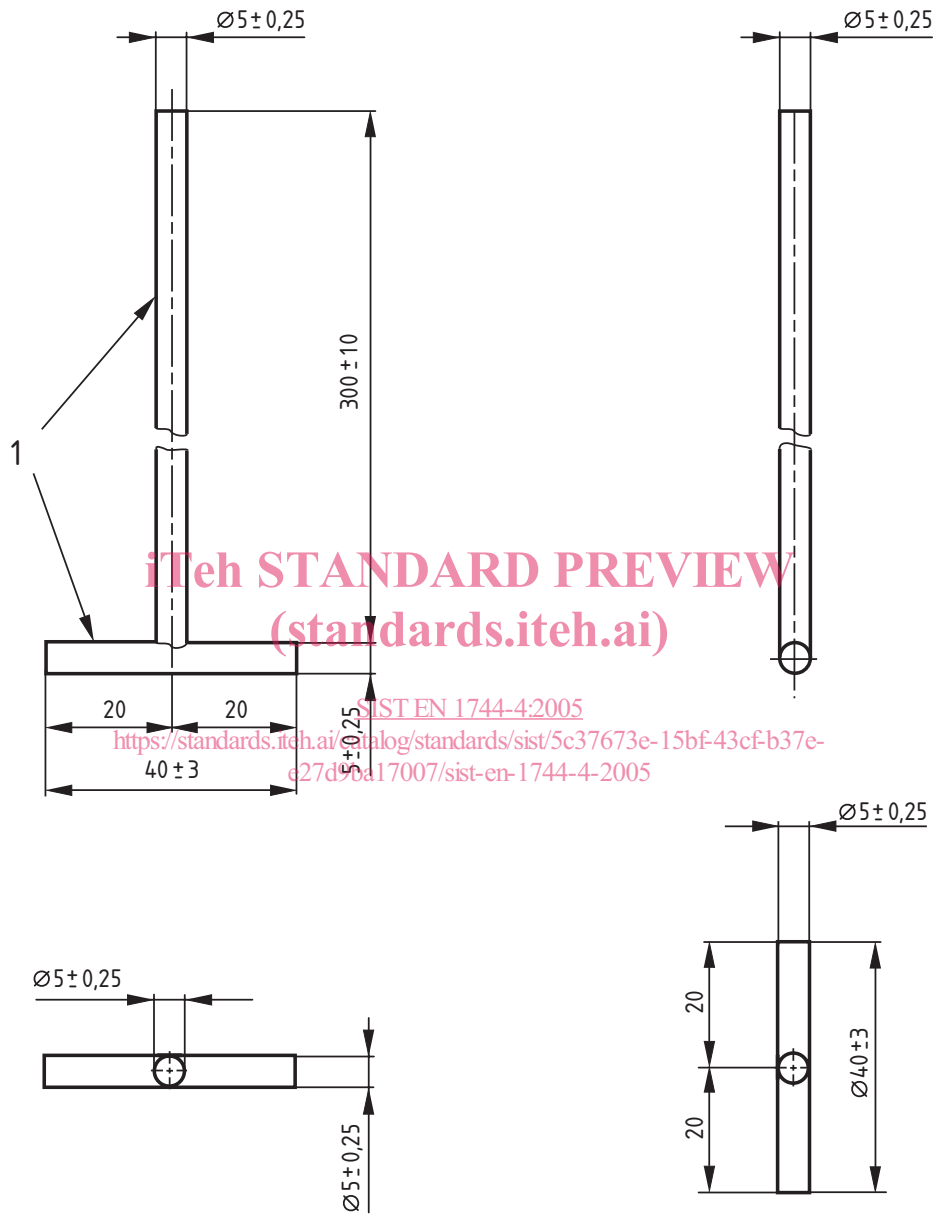
5.2.3 A balance capable of weighing up to 2000 g, accurate to 0,1 g. Other analytical balance capable of weighing with an accuracy of 1 mg.

5.2.4 *Glass conical flask*, wide-mouthed, 250 ml capacity.

5.2.5 *Water bath*, capable of maintaining a temperature of (60 ± 1) °C.

5.2.6 *Motor-driven T-shaped stirrer*, capable of maintaining (25 ± 1) revs/s (see Figure 1).

All dimensions in millimetres

**Key**

1 Welded steel rods

Figure 1 — T-shaped stirrer