

**Täitematerjalide geomeetriliste omaduste  
katsetamine. Osa 5: Purustatud pindadega terade  
protsentuaalse sisalduse määramine  
jämetäitematerjalis KONSOLIDEERITUD TEKST**

Tests for geometrical properties of aggregates - Part 5:  
Determination of percentage of crushed and broken  
surfaces in coarse aggregate particles  
CONSOLIDATED TEXT

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 933-5:2007 sisaldab Euroopa standardi EN 933-5:1998+A1:2004 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 28.12.2001 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 21.01.1998.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 933-5:2007 consists of the English text of the European standard EN 933-5:1998+A1:2004.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 28.12.2001 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 21.01.1998.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 91.100.15

**Võtmesõnad:** katsed, kruus, materjalid, täitematerjalid

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Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:  
Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

**English version**

**Tests for geometrical properties of aggregates**

Part 5: Determination of percentage of crushed and broken surfaces  
in coarse aggregate particles  
(includes Amendment A1 : 2004)

Essais pour déterminer les propriétés  
géométriques des granulats – Partie 5:  
Détermination du pourcentage de  
surfaces cassées dans les gravillons  
(amendement A1 : 2004 inclus)

Prüfverfahren für geometrische  
Eigenschaften von Gesteinskör-  
nungen – Teil 5: Bestimmung des  
Anteils an gebrochenen Körnern in  
groben Gesteinskörnungen (enthält  
Änderung A1 : 2004)

This European Standard was approved by CEN on 1997-01-26 and Amendment A1 on 2004-09-16.

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 Management Centre 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

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

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### Foreword to EN 933-5 : 1998

This European Standard 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, by July 1998 at the latest, and conflicting national standards shall be withdrawn, by December 1999 at the latest.

This European Standard forms part of a series of tests for geometrical properties of aggregates. Test methods for other properties of aggregates will be covered by parts of the following European Standards:

- EN 932 Tests for general properties of aggregates
- EN 1097 Tests for mechanical and physical properties of aggregates
- EN 1367 Tests for thermal and weathering properties of aggregates
- EN 1744 Tests for chemical properties of aggregates

A European Standard 'Tests for filler aggregate used in bituminous mixtures' is in preparation.

The other parts of EN 933 will be:

- Part 1: Determination of particle size distribution – Sieving method
- Part 2: Determination of particle size distribution – Test sieves, nominal size of apertures
- Part 3: Determination of particle shape – Flakiness index
- Part 4: Determination of particle shape – Shape index
- Part 6: Assessment of surface characteristics – Flow coefficient for coarse aggregates
- Part 7: Determination of shell content – Percentage of shells in coarse aggregates
- Part 8: Assessment of fines – Sand equivalent test
- Part 9: Assessment of fines – Methylene blue test
- Part 10: Assessment of fines – Grading of fillers (air jet sieving)

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

### Foreword to EN 933-5 : 1998/A1 : 2004

This amendment to EN 933-5 : 1998 has been prepared by Technical Committee CEN/TC 154 'Aggregates', the Secretariat of which is held by BSI.

This amendment shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by May 2005 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

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## 1 Scope

This European Standard specifies a method for the determination of the percentage of particles with crushed and broken surfaces in a sample of natural coarse aggregate. It applies to gravel or mixed aggregate containing gravel.

The test method specified in this part of this European Standard is applicable to particle size fractions  $d_i/D_i$  where  $D_i \leq 63$  mm and  $d_i \geq 4$  mm.

NOTE 1: For aggregate sizes with  $D > 63$  mm and/or  $d < 4$  mm the test may be carried out on particle size fractions  $d_i/D_i$  where  $D_i \leq 63$  mm and  $d_i \geq 4$  mm.

NOTE 2: For coarse aggregate between 4 mm and 20 mm the percentage of crushed or broken surfaces is linked to the flow coefficient and can therefore be used in association with the test method specified in EN 933-6.

## 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.

prEN 932-2	Tests for general properties of aggregates Part 2: Methods for reducing laboratory samples
prEN 932-5	Tests for general properties of aggregates Part 5: Common equipment and calibration
EN 933-1	Tests for geometrical properties of aggregates Part 1: Determination of particle size distribution - Sieving method
EN 933-2	Tests for geometrical properties of aggregates Part 2: Determination of particle size distribution - Test sieves, nominal size of apertures

## 3 Definitions

For the purposes of this standard, the following definitions apply:

**3.1 aggregate size:** A designation of aggregate in terms of lower ( $d$ ) and upper ( $D$ ) sieve sizes.

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).