



National Standards Authority of Ireland
Údarás um Chaighdeáin Náisiúnta na hÉireann

IRISH STANDARD

I.S. EN 933-4:2008

ICS 91.100.15

National Standards
Authority of Ireland
Northwood, Dublin 9
Ireland

Tel: +353 1 807 3800
Fax: +353 1 807 3838
<http://www.nsai.ie>

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**TESTS FOR GEOMETRICAL PROPERTIES OF
AGGREGATES - PART 4: DETERMINATION OF
PARTICLE SHAPE - SHAPE INDEX**

*This Irish Standard was
published under the authority
of the National Standards
Authority of Ireland and
comes into effect on:
18 June 2008*

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English Version

Tests for geometrical properties of aggregates - Part 4: Determination of particle shape - Shape index

Essais pour déterminer les caractéristiques géométriques
des granulats - Partie 4: Détermination de la forme des
granulats - Coefficient de forme

Prüfverfahren für geometrische Eigenschaften von
Gesteinskörnungen - Teil 4: Bestimmung der Kornform -
Kornformkennzahl

This European Standard was approved by CEN on 4 February 2008.

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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 Management Centre has the same status as the official versions.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 933-4:2008) 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of an identical text or by endorsement, at the latest by September 2008, and conflicting national standards shall be withdrawn at the latest by September 2008.

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

This document supersedes EN 933-4:1999.

This European Standard is one of a series of standards for tests for geometrical 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 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
EN 13179, Tests for filler aggregate used in bituminous mixtures

The other parts of EN 933 are:

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 5 - Determination of percentage of crushed and broken surfaces in coarse aggregate particles
Part 6 - Assessment of surface characteristics - Flow coefficient of 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)

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1 Scope

This standard describes the reference method used for type testing and in cases of dispute, for the determination of the shape index of coarse aggregates. For other purposes, in particular factory production control, other methods may be used provided an appropriate working relationship with the reference method has been established.

The test method specified in 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.

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 932-2, *Test 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 933-1, *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*

EN 1097-6, *Tests for mechanical and physical properties of aggregates - Part 6: Determination of the particle density and water absorption*

3 Terms and definitions

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

3.1

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).

3.2

particle size fraction d_i/D_i

fraction of an aggregate passing the larger (D_i) of two sieves and retained on the smaller (d_i)

3.3

test portion

sample used as a whole in a single test

3.4

constant mass

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

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 (see 5.5) 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.

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