



NSAI
Standards

Irish Standard
I.S. EN 12350-6:2009

Testing fresh concrete - Part 6: Density

I.S. EN 12350-6:2009

Incorporating amendments/corrigenda issued since publication:

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NSAI 1 Swift Square, Northwood, Santry Dublin 9	T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie	Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie Price Code: E
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Supersedes EN 12350-6:1999

English Version

Testing fresh concrete - Part 6: Density

Essai pour béton frais - Partie 6: Masse volumique

Prüfung von Frischbeton - Teil 6: Frischbetonrohddichte

This European Standard was approved by CEN on 20 January 2009.

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 CEN Management Centre 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 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: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 12350-6:2009) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by October 2009.

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 12350-6:1999.

The results of a recent laboratory inter-comparison, part-funded by the EC under the Measurement and Testing programme, contract MAT1-CT94-0043mtp, have been taken into account. The compaction of specimens using hand tamping, vibrating table, or internal (poker) vibrator are accepted as equivalent. However, the use of an internal vibrator to compact specimens containing entrained air should be carried out with caution.

A procedure for calibrating the container has been included as a normative Annex A.

This series EN 12350 includes the following parts.

EN 12350 Testing fresh concrete

Part 1: Sampling;

Part 2: Slump-test;

Part 3: Vebe test;

Part 4: Degree of compactability;

Part 5: Flow table test;

Part 6: Density;

Part 7: Air content — Pressure methods;

Part 8: Self-compacting concrete - Slump-flow test (in preparation);

Part 9: Self-compacting concrete - V-funnel test (in preparation);

Part 10: Self-compacting concrete - L-box test (in preparation);

Part 11: Self-compacting concrete - Sieve segregation test (in preparation);

Part 12: Self-compacting concrete - J-ring test (in preparation).

CAUTION — When cement is mixed with water, alkali is released. Take precautions to avoid dry cement entering the eyes, mouth and nose whilst mixing concrete. Prevent skin contact with wet cement or concrete by wearing suitable protective clothing. If cement or concrete enters the eye, immediately wash it out thoroughly with clean water and seek medical treatment without delay. Wash wet concrete off the skin immediately.

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EN 12350-6:2009 (E)

The following amendments have been made to the 1999-10 edition of this standard:

- editorial revision
- detailing of compaction process
- accuracy of balance, scales and other testing equipment.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 the United Kingdom.

1 Scope

This European standard specifies a method for determining the density of compacted fresh concrete both in the laboratory and in the field.

NOTE It may not be applicable to very stiff concrete which cannot be compacted by normal vibration.

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 12350-1, *Testing fresh concrete — Part 1: Sampling*

3 Principle

Fresh concrete is compacted into a rigid and watertight container of known volume and mass and is then weighed.

4 Apparatus

4.1 Container, watertight, of sufficient rigidity to retain its shape, made of metal not readily attacked by cement paste, having a smooth internal face, with the rim machined to a plane surface. The rim and base shall be parallel. The smallest dimension of the container shall be at least four times the maximum nominal size of the coarse aggregate in the concrete, but shall be not less than 150 mm. The volume of the container shall be not less than 5 l.

4.2 Filling frame, filling may be simplified by using a filling frame fitted tightly to the container

4.3 Means of compacting the concrete, which may be one of the following:

- a) internal (poker) vibrator with a minimum frequency of approximately 120 Hz (7 200 cycles per minute), the diameter of the internal vibrator not exceeding approximately one-quarter of the smallest dimension of the container;
- b) vibrating table with a minimum frequency of approximately 40 Hz (2 400 cycles per minute);
- c) compacting rod of circular cross-section, straight, made of steel, having a diameter of approximately 16 mm, length of approximately 600 mm and with rounded ends;
- d) compacting bar, straight, made of steel having a square cross-section of approximately 25 mm × 25 mm and length of approximately 380 mm.

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