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STANDARD

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TESTING HARDENED CONCRETE - PART 2: MAKING AND CURING SPECIMENS FOR STRENGTH TESTS

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English version

Testing hardened concrete - Part 2: Making and curing specimens for strength tests

Essai pour béton durci - Partie 2: Confection et conservation des éprouvettes pour essais de résistance

Prüfung von Festbeton - Teil 2: Herstellung und Lagerung von Probekörpern für Festigkeitsprüfungen

This European Standard was approved by CEN on 3 February 2000.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Page

Foreword 3
1 Scope 3
2 Normative references 3
3 Apparatus 3
4 Sampling 4
5 Procedures 4
6 Report 5

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 104 "Concrete (performance, production, placing and compliance criteria)", 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of an identical text or by endorsement, at the latest by April 2001, and conflicting national standards shall be withdrawn at the latest by December 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This standard is one of a series of test methods for testing concrete.

It is based on the draft International Standard ISO 2736/2 - Concrete tests - Test specimens - Part 2: Making and curing of test specimens for strength tests. The results of a recent laboratory inter-comparison, part-funded by the EC under the Measurement and Testing Programme contract MATI-CT-94-0043, have been taken into account.

The compaction of specimens in the moulds 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 done only with caution.

Curing specimens in a closely regulated humidity chamber is recognised as being equivalent to curing in water.

A draft for this standard was published in 1996 for CEN enquiry as prEN 12379. It was one of a series of individually numbered test methods for fresh or hardened concrete. For convenience it has now been decided to combine these separate draft standards into three new standards with separate parts for each method, as follows:

- Testing fresh concrete (EN 12350)
- Testing hardened concrete (EN 12390)
- Testing concrete in structures (EN 12504)

The series EN 12390 includes the following parts where the brackets give the numbers under which particular test methods were published for CEN enquiry:

EN 12390 Testing hardened concrete

Part 1: Shape, dimensions and other requirements of specimens and moulds (former prEN 12356 : 1996)
Part 2: Making and curing specimens for strength tests (former prEN 12379 : 1996)
Part 3: Compressive strength of test specimens (former prEN 12394 : 1996)
Part 4: Compressive strength - Specification for testing machines (former prEN 12390 : 1996)
Part 5: Flexural strength of test specimens (former prEN 12359 : 1996)
Part 6: Tensile splitting strength of test specimens (former prEN 12362 : 1996)
Part 7: Density of hardened concrete (former prEN 12363 : 1996)
Part 8: Depth of penetration of water under pressure (former prEN 12364 : 1996)

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.

1 Scope

This standard specifies methods for making and curing test specimens for strength tests. It covers the preparation and filling of moulds, compaction of the concrete, levelling the surface, curing of test specimens and transporting test specimens.

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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 (including amendments).

EN 12350-1, *Testing fresh concrete – Part 1: Sampling.*

EN 12390-1, *Testing hardened concrete – Part 2: Shape, dimensions and other requirements for test specimens and moulds.*

3 Apparatus

3.1 Moulds, conforming to EN 12390-1.

3.2 Filling frame (optional)

NOTE Filling of the moulds may be simplified by using a filling frame fitted tightly to the mould.

3.3 Means of compacting the concrete (one of the following):

a) Internal (poker) vibrator with a minimum frequency of 120 Hz (7200 cycles per minute), the diameter of the internal vibrator not exceeding one-quarter of the smallest dimension of the test specimen;

b) Vibrating table with a minimum frequency of 40 Hz (2400 cycles per minute);

c) Compacting rod of circular cross-section, made of steel, having a diameter of approximately 16 mm, of length approximately 600 mm and with rounded ends;

d) Compacting bar, straight, made of steel having a square cross-section of approximately 25 mm x 25 mm and length approximately 380 mm.

3.4 Scoop, with width approximately 100 mm.

3.5 Two steel trowels or floats.

3.6 Remixing container, flat tray of rigid construction and made from a non-absorbent material not readily attacked by cement paste. It shall be of appropriate dimensions such that the concrete can be thoroughly re-mixed, using the square-mouthed shovel.

3.7 Shovel, with square mouth.

NOTE The square mouth to ensures proper mixing of material on the remixing container.

3.8 Non-reactive mould release material.

3.9 Mallet

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