SLOVENSKI STANDARD
SIST EN 14488-1:2005

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Preskušanje brizganega betona – 1. del: Vzorčenje svežega in strjenega betona

Testing sprayed concrete - Sampling fresh and hardened concrete

Prüfung von Spritzbeton - Teil 1: Probenahme von Frisch- und Festbeton

Essais pour béton projeté - Échantillonnage de béton frais et de béton durci

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Prüfung von Spritzbeton - Probenahme von Frisch- und Festbeton

This European Standard was approved by CEN on 17 April 2005.

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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 14488-1:2005) 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of an identical text or by endorsement, at the latest by December 2005, and conflicting national standards shall be withdrawn at the latest by December 2007.

This European Standard is part of a series concerned with testing sprayed concrete.

This series EN 14488 *Testing sprayed concrete* includes the following parts:

— Part 1: Sampling fresh and hardened concrete

— Part 2: Compressive strength of young sprayed concrete

— Part 3: Flexural strengths (first peak, ultimate and residual) of fibre reinforced beam specimens

— Part 4: Bond strength of cores by direct tension

— Part 5: Determination of energy absorption capacity of fibre reinforced slab specimens

— Part 6: Thickness of concrete on a substrate

— Part 7: Fibre content of fibre reinforced concrete

This part does not supersede any other European Standard.

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.

1 Scope

This European Standard specifies a method for obtaining samples of fresh or hardened (i.e. before or after set) sprayed concrete, depending on the property to be measured and its associated test method.

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*

EN 12504-1, *Testing concrete in structures - Part 1: Cored specimens - Testing, examining and testing in compression*

3 Principle

A sample of fresh or hardened sprayed concrete is extracted from either an in situ element or a test panel.

4 Apparatus

4.1 Scoop, or similar sampling device, made from a non-absorbent material not readily attacked by cement paste, suitable for taking increments of concrete.

4.2 Trowel, or similar cutting device, made from a non-absorbent material not readily attacked by cement paste, suitable for cutting a concrete sample from fresh, in situ sprayed concrete.

4.3 Moulds, of steel or other non-water-absorbing rigid material shall be used (a minimum of 4 mm steel sheet or 18 mm plywood). The minimum plan dimensions shall be 500 mm × 500 mm for hand spraying and 1 000 mm × 1 000 mm for robot spraying. The actual dimensions should be chosen taking into account the type, number and size of samples to be extracted (and avoiding the defective zone). The thickness should be appropriate to the size of test specimens to be cut from the panel, but shall not be less than 100 mm. Appropriate measures shall be taken to avoid entrapment of rebound in the mould (such as chamfered or slotted sides).

4.4 Coring or cutting equipment, suitable for extracting samples of sprayed concrete from a test panel or, where required in situ, to the required dimensions.

5 Procedures

5.1 General

Fresh samples may be extracted from the basic mix, the in situ material or from a test panel. Hardened samples may be cut from the in situ material or from a test panel. It should be noted that the properties at each of these locations may be different, due to the spraying process. The most appropriate sample type and location should be used, which will depend on the purpose of the quality control and on the specimens required for the property or properties to be measured.

A sample of fresh or hardened concrete is extracted in a manner suitable for the required test method.

5.2 Obtaining a fresh sample from the basic mix

The basic concrete mix shall be sampled from the mixing pan or spraying pump or gun in a series of increments with a scoop, which are to be combined to form a homogenous sample, in accordance with EN 12350-1.

5.3 Obtaining a fresh sample from in situ sprayed concrete

The concrete or mortar shall be cut by trowel from the in situ sprayed material before initial set.

5.4 Making a test panel

The moulds shall be positioned within 20° of the vertical (unless another orientation has been specified, e.g. overhead) and sprayed with the same equipment, technique, layer thickness per pass and spraying distance as the actual work. The operator shall also be the same.

The panel shall be protected immediately against moisture loss using the same method as in the construction. The samples shall be marked for later identification (Mix, location, date and operator, see clause 6). The panel shall not be moved within 18 h of being sprayed, unless a shorter period is agreed between the parties. Curing shall continue thereafter under site conditions for at least 7 days or until samples are to be extracted.

5.5 Obtaining a fresh sample from a test panel

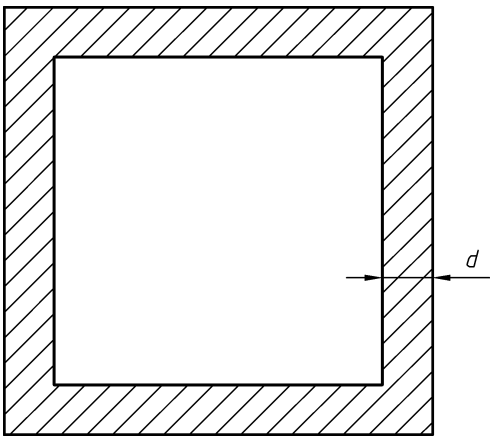
The concrete or mortar shall be cut from the test panel of sprayed material before initial set, and shall not include material within the defective zone, see Figure 1.

5.6 Obtaining a hardened sample from in-situ sprayed concrete

The test samples shall be obtained from the set in-situ sprayed material in accordance with EN 12504-1.

5.7 Obtaining a hardened sample from a test panel

The test samples shall be cored or sawn from the panel, and shall not include material within the defective zone, see Figure 1 (with the exception of the ends of beams for flexural and residual strength testing to prEN 14488-3, which may include such material, provided it does not intrude into the central 250 mm of the beam).



The width of the defective zone, d, is equal to the depth of the test panel.

Figure 1 — Defective zone of a test panel

6 Identification of sample

6.1 Fresh samples

Test specimens made from the fresh sample extracted from a test panel or in situ shall be marked with a waterproof ink or paint to indicate the mix, location, specimen orientation, date and operator.

6.2 Hardened samples

The test panel or sample extracted from the test panel or in-situ shall be marked with a waterproof ink or paint to indicate the mix, location, specimen orientation, date and operator.