

**Testing fresh concrete - Part 11: Self-compacting  
concrete - Sieve segregation test**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12350-11:2010 sisaldab Euroopa standardi EN 12350-11:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.09.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 21.07.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 12350-11:2010 consists of the English text of the European standard EN 12350-11:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.09.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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The standard is available from Estonian standardisation organisation.

ICS 91.100.30

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English Version

## Testing fresh concrete - Part 11: Self-compacting concrete - Sieve segregation test

Essai pour béton frais - Partie 11: Béton auto-plaçant -  
Essai de stabilité au tamis

Prüfung von Frischbeton - Teil 11: Selbstverdichtender  
Beton - Bestimmung der Sedimentationsstabilität im  
Siebversuch

This European Standard was approved by CEN on 20 June 2010.

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## Foreword

This document (EN 12350-11:2010) 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of an identical text or by endorsement, at the latest by January 2011, and conflicting national standards shall be withdrawn at the latest by January 2011.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This standard is based on the results from the EU-project "Testing-SCC" under the 5<sup>th</sup> Frame Programme (GRD2-2000-30024/G6RD-CT-2001-00580).

Owing to its significant advantages in the improvement of construction quality and working environment, self-compacting concrete (SCC) has been widely accepted by the construction owners. The use of SCC in practical concrete construction is steadily increasing. Since SCC has to give satisfactory in-situ properties (perfect filling of the mould and embedment of the reinforcement, homogeneity and full compaction) without vibration, the proper methods for testing the fresh SCC are very important. These should address three key properties: filling ability, passing ability and resistance to segregation. It is desirable, especially in the case of new constituents or new concrete compositions, to test the consistence of fresh SCC before casting in place.

A number of test methods including this test are available for testing fresh SCC. Most of the commonly used test methods were evaluated in the recently closed EU-project "Testing-SCC" under the 5<sup>th</sup> Frame Programme (GRD2-2000-30024/G6RD-CT-2001-00580). According to the results from this EU project, it seems that no single test method can completely cover all the three key properties. Nevertheless any test method should at least be correlated to the practical situation and give consistent results in order to provide reliable data for judgment of concrete consistence.

This standard is one of a series concerned with testing fresh concrete.

EN 12350, *Testing fresh concrete*, consists of the following parts:

- *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*

- *Part 9: Self-compacting concrete — V-funnel test*
- *Part 10: Self-compacting concrete — L box test*
- *Part 11: Self-compacting concrete — Sieve segregation test*
- *Part 12: Self-compacting concrete — J-ring test*

**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.

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, Croatia, 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 the procedure for determining the sieve segregation resistance of self-compacting concrete.

NOTE This test is not applicable to concrete containing fibres or lightweight aggregate.

## 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*

ISO 3310-2, *Test sieves — Technical requirements and testing — Part 2: Test sieves of perforated metal*

## 3 Principle

The sieve segregation resistance test is used to assess the resistance of self-compacting concrete to segregation.

After sampling, the fresh concrete is allowed to stand for 15 min and any separation of bleed water is noted. A defined top part of the sample is then poured onto a sieve with 5 mm square apertures. After 2 min the weight of material which has passed through the sieve is recorded. The segregation ratio is then calculated as the proportion of the sample and the material passing through the sieve.

## 4 Apparatus

**4.1 Perforated plate sieve**, having 5 mm square apertures, frame diameter not less than 300 mm and a height of at least 30 mm, conforming to ISO 3310-2, complete with a receiver from which the sieve can easily be removed by lifting vertically.

**4.2 Balance**, having a flat platform which can accommodate the sieve receiver and having a capacity of at least 10 kg, capable of determining the mass to an accuracy of 0,01 kg.

**4.3 Sample container**, a rigid container made from a non-absorbent material and having a minimum internal diameter of 200 mm and a capacity of at least 11 l with a 10 l point indicated on the inside of the container.

**4.4 Timer**, capable of measuring to 1 s.

**4.5 Thermometer**, capable of measuring to 1 °C.

## 5 Test sample

A sample shall be obtained in accordance with EN 12350-1.

## 6 Procedure

Take and record the temperature of the concrete to the nearest 1 °C by using the thermometer.