



# SLOVENSKI STANDARD

## SIST EN 12350-1:2019

01-september-2019

Nadomešča:  
SIST EN 12350-1:2009

---

### Preskušanje svežega betona - 1. del: Vzorčenje in naprave za preskušanje

Testing fresh concrete - Part 1: Sampling and common apparatus

Prüfung von Frischbeton - Teil 1: Probenahme und Prüfgeräte

Essais pour béton frais - Partie 1 : Prélèvement et appareillage commun

Ta slovenski standard je istoveten z: **EN 12350-1:2019**

---

#### ICS:

91.100.30	Beton in betonski izdelki	Concrete and concrete products
-----------	---------------------------	--------------------------------

**SIST EN 12350-1:2019**

**en,fr,de**

**ITeH STANDARD PREVIEW**  
**(standards.iteh.ai)**

Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/4a35170a-a93b-4f89-ad8a-6d6b8799a9c4/sist-en-12350-1-2019>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

# EN 12350-1

June 2019

ICS 91.100.30

Supersedes EN 12350-1:2009

English Version

## Testing fresh concrete - Part 1: Sampling and common apparatus

Essais pour béton frais - Partie 1 : Prélèvement et appareillage commun

Prüfung von Frischbeton - Teil 1: Probenahme und Prüfgeräte

This European Standard was approved by CEN on 29 April 2019.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword.....	3
<b>1 Scope</b> .....	<b>4</b>
<b>2 Normative references</b> .....	<b>4</b>
<b>3 Terms and definitions</b> .....	<b>4</b>
<b>4 Apparatus</b> .....	<b>5</b>
<b>4.1 Common apparatus for fresh concrete testing and for making specimens for strength tests</b> .....	<b>5</b>
<b>4.2 Apparatus required for sampling of the concrete</b> .....	<b>6</b>
<b>5 Sampling</b> .....	<b>6</b>
<b>5.1 Sampling plan</b> .....	<b>6</b>
<b>5.2 Obtaining a composite sample</b> .....	<b>7</b>
<b>5.3 Obtaining a spot sample</b> .....	<b>7</b>
<b>5.4 Measuring the temperature of the sample</b> .....	<b>7</b>
<b>5.5 Transporting, handling and care of samples</b> .....	<b>7</b>
<b>6 Report of sampling</b> .....	<b>8</b>

**ITeH STANDARD PREVIEW**  
 (standards.iteh.ai)  
 Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/42351702-a230-4f89-ad8a-6d6b8799a9c4/sist-en-12350-1-2019>

## European foreword

This document (EN 12350-1:2019) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by SN.

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 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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

This document supersedes EN 12350-1:2009.

This standard is one of a series on testing concrete.

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

- *Part 1: Sampling and common apparatus*
- *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*

The following amendments have been made to the 2009 edition of this standard:

- a) editorial revisions;
- b) consolidation of common apparatus for fresh concrete testing (EN 12350 series) and for making specimens for strength tests (in EN 12390-2);
- c) guidance on sampling for consistence retention testing.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## EN 12350-1:2019 (E)

### 1 Scope

This document specifies two procedures for sampling fresh concrete, by composite sampling and by spot sampling.

NOTE 1 The requirement for remixing the sample before tests on the fresh concrete, or before making test specimens, is included in the relevant standards.

When mixing and sampling concrete is done in a laboratory, different procedures may be required.

NOTE 2 In this case Clause 6, item g) applies.

Additionally, this standard lists common apparatus mentioned in two or more standards of EN 12350 series and EN 12390-2.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 3.1

##### **batch**

quantity of fresh concrete which is:

- mixed in one cycle of operation of a batch mixer;
- discharged during 1 min from a continuous mixer; or
- conveyed ready-mixed in a truck mixer when the load requires more than one cycle of a batch mixer or more than one minute of operation of a continuous mixer

#### 3.2

##### **composite sample**

quantity of concrete consisting of a number of increments distributed through a batch or mass of concrete thoroughly mixed together

#### 3.3

##### **spot sample**

quantity of concrete taken from part of a batch or mass of concrete, consisting of one or more increments thoroughly mixed together

#### 3.4

##### **increment**

quantity of concrete taken by the single operation of a scoop or similar sampling device

## 4 Apparatus

### 4.1 Common apparatus for fresh concrete testing and for making specimens for strength tests

**4.1.1 Scoop**, approximately 100 mm in width or similar sampling device, made from non-absorbent material not readily attacked by cement paste, suitable for taking increments of concrete.

**4.1.2 Thermometer**, to measure the temperature of the fresh concrete with a maximum permissible error of 1 °C.

**4.1.3 Shovel**, with square mouth.

**4.1.4 Container**, watertight, of sufficient rigidity to retain its shape, made from a non-absorbent material not readily attacked by cement paste, having a smooth internal face. The smallest dimension of the container shall be at least four times the maximum nominal size of the aggregate ( $D_{max}$ ) in the concrete, but shall be not less than 150 mm. The volume of the container shall be not less than 5 l.

**4.1.5 Remixing container or 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 remixed, using the square-mouthed shovel or scoop.

**4.1.6 Sealed container**, for storing concrete for consistence retention testing, sealable cylindrical container made from non-absorbent material not readily attacked by cement paste, for receiving and storing increments of concrete. The ratio of height to diameter shall be in the range 0,7 to 1,3 and of sufficient size to fully retain the sample.

NOTE Plastic cement sample containers have been found suitable for this purpose.

**4.1.7 Hollow cone**, with the base and the top of the cone open and parallel to each other and at right angles to the axis to form a hollow frustum of a cone having the following internal dimensions:

- diameter of base:  $(200 \pm 2)$  mm;
- diameter of top:  $(100 \pm 2)$  mm;
- height:  $(300 \pm 2)$  mm.

The cone shall be made of metal not readily attacked by cement paste and not thinner than 1,5 mm. The interior of the cone shall be smooth and free from projections, such as protruding rivets and shall be free from dents.

The cone shall be provided with two handles near the top and fixing clamps or foot pieces near the bottom to hold it steady. A cone which can be clamped to the base is acceptable provided the clamping arrangement can be fully released without movement of the cone or interference with the concrete.

**4.1.8 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 cone;
- b) vibrating table, with a minimum frequency of approximately 40 Hz (2 400 cycles per minute);

**EN 12350-1:2019 (E)**

- c) compacting rod, of circular cross-section, straight, made of metal not readily attacked by cement paste, having a diameter of approximately 16 mm, length of approximately 600 mm and with rounded ends;
- d) compacting bar, straight, made of metal not readily attacked by cement paste having a square cross-section of approximately 25 mm × 25 mm and length of approximately 380 mm.

**4.1.9 Rule**, graduated from 0 mm to 300 mm, at intervals not exceeding 1 mm, the zero mark being at the extreme end of the rule.

**4.1.10 Measuring tape**, (or rigid rule), of minimum length 1000 mm and having sub-divisions not greater than 5 mm along its entire length.

**4.1.11 Base plate/surface**, non-absorbent, rigid, flat, plate or other surface.

**4.1.12 Timer or clock** with a resolution of 0,5 s.

**4.1.13 Balance or scales**, with a maximum permissible error of 0,01 kg.

**4.1.14 Straight-edged scraper**, made of steel, not less than 100 mm greater in length than the maximum internal dimension of the top of the container.

**4.1.15 Mallet**, soft faced.

**4.1.16 Trowel** or float, made of metal not readily attacked by cement paste.

**4.1.17 Funnel**, made of non-absorbent material not readily attacked by cement paste and having a collar to enable the funnel to be located on the upper part of the hollow frustum cone.

**4.1.18 Spirit level**.

**4.1.19 Moist cloth**.

## **4.2 Apparatus required for sampling of the concrete**

The following apparatus shall conform to the specifications in 4.1:

- scoop;
- container;
- thermometer (optional);
- sealed container(s) (if required).

## **5 Sampling**

### **5.1 Sampling plan**

Depending upon the intended use of the sample, decide whether a spot sample or a composite sample is to be taken. Take at least 1,5 times the quantity estimated as being required for the tests.

Where there is a requirement to measure the consistence retention of the concrete, the quantity of the concrete sampled shall be not less than 1,5 times the quantity estimated for the tests and sufficient to fill the sealed container to within 25 mm to 50 mm of the cover.



## 5.2 Obtaining a composite sample

Clean all the apparatus prior to use. Using the scoop take the required number of increments uniformly distributed throughout the batch. When sampling from the discharging stream of concrete from a stationary batch mixer or ready-mixed concrete truck, disregard the first part and the last part of the load. If the batch has been deposited in a heap or heaps of concrete, take the increments, wherever possible, distributed through the depth of the concrete, as well as over the exposed surface, at a minimum of five different places. When sampling from a falling stream, take the increments in such a way as to represent the whole width and thickness of the stream. Deposit the increments into the container(s).

Where there is a requirement to measure the consistence retention of the concrete, the concrete shall be deposited in each of the sealed container(s) to a level that is within 25 mm to 50 mm of the cover and the cover placed securely on top of the container(s). These containers shall be stored at the location of point of discharge until required for testing.

Record the date and time of sampling.

When obtaining a composite sample from a ready mixed concrete truck, a minimum of four increments is recommended.

## 5.3 Obtaining a spot sample

Clean all the apparatus prior to use. Using the scoop take the increment(s) from the required part of a batch or mass of concrete. When sampling from a falling stream, take the increment(s) in such a way as to represent the whole width and thickness of the stream. Deposit the increment(s) in the container.

Where there is a requirement to measure the consistence retention of the concrete, the concrete shall be deposited in each of the sealed container(s) to a level that is within 25 mm to 50 mm of the cover and the cover placed securely on top of the container(s). These containers shall be stored at the location of point of discharge until required for testing.

Record the date and time of sampling.

## 5.4 Measuring the temperature of the sample

If required, the temperature of the concrete in the container(s) shall be measured after 30 s but no longer than 60 s after insertion of the thermometer at a depth of approximately 50 mm.

## 5.5 Transporting, handling and care of samples

At all stages of sampling, transport and handling, protect the fresh concrete samples against contamination, gaining or losing water and extreme variations of temperature.

The properties of fresh concrete change with time after mixing, depending upon the environmental conditions. This should be taken into account in deciding the time when tests are carried out or specimens made.

Take care when the concrete is taken from the container(s) to ensure that no more than a light covering of mortar is left adhering to the container(s).

Concrete used for initial consistence testing shall not be re-used for the determination of a specified consistence retention.

Where testing is used to establish the loss of consistence over time, repeat testing of a large sample is acceptable; however, for the determination of conformity to a specified consistence retention, the method of sampling specified in this standard applies.