



**SLOVENSKI STANDARD**  
**SIST EN 451-2:2017**

**01-september-2017**

**Nadomešča:**  
**SIST EN 451-2:1996**

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**Metoda preskušanja elektrofilitrskega pepela - 2. del: Ugotavljanje finosti z mokrim sejanjem**

Method of testing fly ash - Part 2: Determination of fineness by wet sieving

Prüfverfahren für Flugasche - Teil 2: Bestimmung der Feinheit durch Nasssiebung

Méthode d'essai des cendres volantes - Partie 2: Détermination de la finesse par tamisage humide

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**Ta slovenski standard je istoveten z: EN 451-2:2017**

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**ICS:**

91.100.30      Beton in betonski izdelki      Concrete and concrete products

**SIST EN 451-2:2017**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 451-2**

May 2017

ICS 91.100.30

Supersedes EN 451-2:1994

English Version

**Method of testing fly ash - Part 2: Determination of  
fineness by wet sieving**

Méthode d'essai des cendres volantes - Partie 2:  
Détermination de la finesse par tamisage humide

Prüfverfahren für Flugasche - Teil 2: Bestimmung der  
Feinheit durch Nasssieben

This European Standard was approved by CEN on 27 February 2017.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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## European foreword

This document (EN 451-2:2017) 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 November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

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 451-2:1994.

EN 451, *Method of testing fly ash*, is currently composed with the following parts:

- *Part 1: Determination of free calcium oxide content*;
- *Part 2: Determination of fineness by wet sieving* [the present document].

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## EN 451-2:2017 (E)

### 1 Scope

This European Standard specifies the method for the determination of fly ash fineness by wet sieving on a 0,045 mm sieve (ISO 565).

The European Standard specifies the reference procedure. If other methods are used it needs to be shown that they give results equivalent to those obtained by the reference method. In case of a dispute, only the reference method is used.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 450-1:2012, *Fly ash for concrete — Part 1: Definition, specifications and conformity criteria*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

### 3 Terms and definitions

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

#### 3.1

##### constant mass

successive weighings made after drying at intervals of at least 1 h, not differing by more than 0,1 %

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Note 1 to entry: In many cases constant mass can be achieved after a test portion has been dried for a pre-determined period in a specified oven at  $(105 \pm 5)$  °C. Test laboratories can determine the time required to achieve constant mass for specific types and sizes of sample dependent upon the drying capacity of the oven used.

### 4 Reagents

4.1 Alcohol, e.g. Butan-2-ol.

4.2 Distilled water.

### 5 Apparatus

The complete apparatus is shown in Figure 1 and consists of:

#### 5.1 Sieve.

The sieve frame shall be constructed of durable material not susceptible to corrosion or distortion by oven heat. The frame is essentially a tube of 50 mm nominal diameter and measuring 75 mm from the top of the frame to the sieve cloth, with facilities for removing and replacing the cloth. The stainless steel sieve cloth of a mesh size of 0,045 mm shall conform to ISO 565 and ISO 3310-1 and be free of visible irregularities such as creases, poor cloth tension, scratches or irregular markings when inspected visually as described in ISO 3310-1. The sieve cloth shall be suitably sealed in the case and uniformly tensioned in the frame to prevent loss of material.

## 5.2 Spray nozzle.

The spray nozzle (Figure 2) shall be constructed of metal not susceptible to corrosion by water, with an inside diameter of 17,5 mm. The spray nozzle shall have a central hole drilled parallel to the longitudinal axis, and an intermediate row of eight holes drilled 6 mm centre-to-centre at an angle of 5° to the longitudinal axis and an outer row of eight holes drilled 11 mm centre-to-centre at an angle of 10° to the longitudinal axis. All holes shall be 0,5 mm in diameter and be fully functional.

## 5.3 Pressure gauge.

The pressure gauge shall have a minimum diameter of 80 mm and a maximum scale capacity of 160 kPa, graduated at maximum intervals of 5 kPa. The resolution of the gauge shall be  $\pm 5$  kPa.

## 5.4 Weighing bottle.

A weighing bottle of sufficient size (e.g. diameter of 80 mm, height of 30 mm, volume 80 ml).

## 5.5 Oven.

A well-ventilated drying oven regulated at  $(105 \pm 5)$  °C.

## 5.6 Desiccator.

Desiccator, containing a drying agent, e.g. silica gel.

## 5.7 Balance.

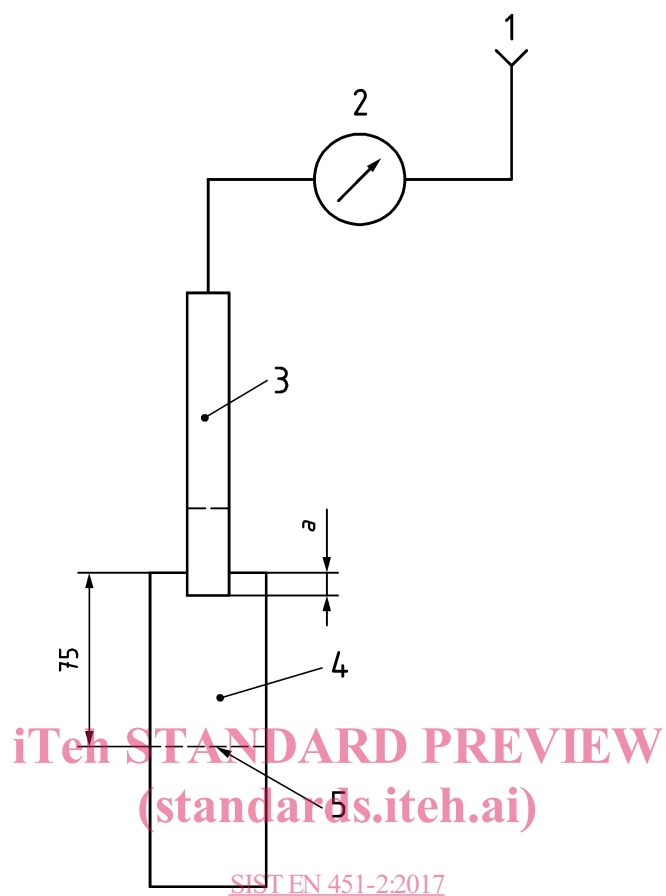
A balance with a resolution of 0,001 g.

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Dimensions in millimetres



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**Key**

$a$  = 10 mm to 15 mm

- 1 water tap
- 2 pressure gauge
- 3 spray nozzle
- 4 sieve frame
- 5 sieve cloth

**Figure 1 — Device**



Dimensions in millimetres

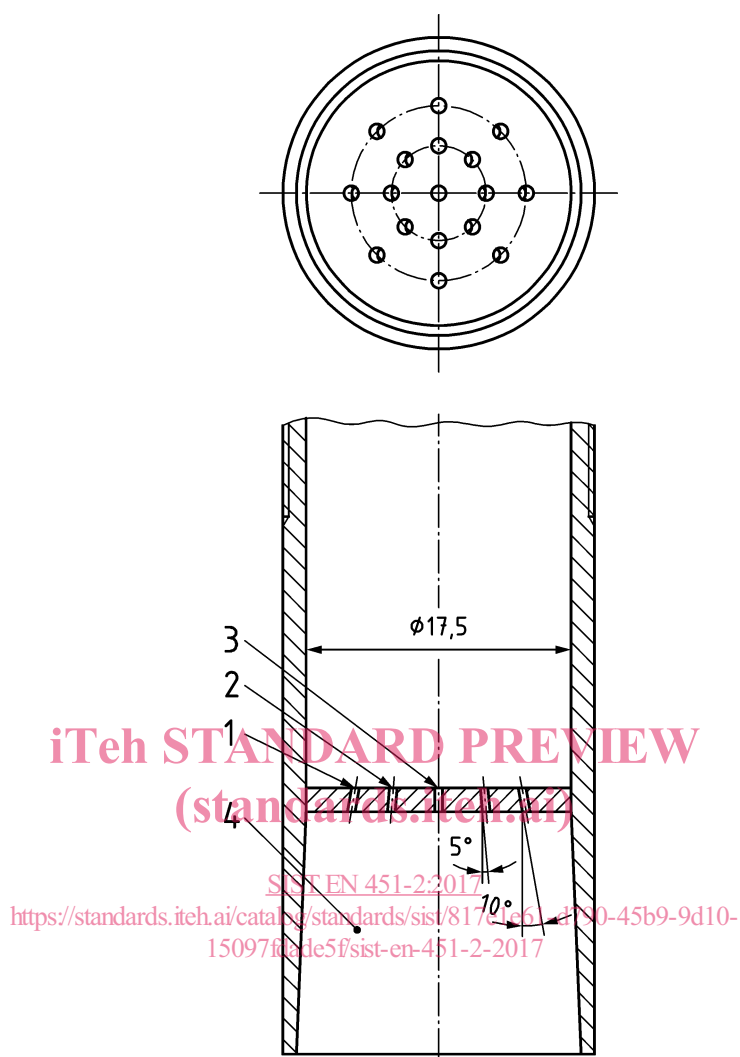


Figure 2 — Spray nozzle

## 6 Checking the Test Sieve

A reference material, consisting of rounded particles with a known proportion of material coarser than the specified mesh size shall be used for checking the sieve (5.1). The material shall be stored in sealed, airtight containers, to preclude changes in its properties due to deposition or absorption from the atmosphere.

Test sieves shall be checked when new and at intervals not exceeding 100 tests. The sieve cloth shall first be inspected visually as described in ISO 3310-1. Any sieve with an imperfect or damaged sieve cloth shall be rejected. The sieve shall be cleaned after every five tests, for example by back-flushing with water.