



SLOVENSKI STANDARD

SIST EN 451-2:1996

01-november-1996

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 1: Bestimmung der Feinheit durch Naßsiegung

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

ITeH STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 451-2:1994
<https://standards.iteh.ai/catalog/standards/sist/1d13ddca-6ff8-4af1-9274-96ddb34721e/sist-en-451-2-1996>

ICS:

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

SIST EN 451-2:1996

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 451-2:1996](#)

<https://standards.iteh.ai/catalog/standards/sist/fd13ddca-bff8-4af1-9274-96ddba34721e/sist-en-451-2-1996>

EUROPEAN STANDARD

EN 451-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 1994

UDC 666.952.2:620.168.32:539.215.4

Descriptors: Fly ash, determination, fineness, sieving, wet processes

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 1:
Bestimmung der Feinheit durch Naßsiebung

STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 451-2:1996

<https://standards.iteh.ai/catalog/standards/sist/fd13ddca-bff8-4af1-9274-96ddba34721e/sist-en-451-2-1996>

This European Standard was approved by CEN on 1994-09-09. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

- 1 Scope
- 2 Normative references
- 3 Apparatus
 - 3.1 Sieve
 - 3.2 Spray nozzle
 - 3.3 Pressure gauge
 - 3.4 Oven
 - 3.5 Balance
- 4 Checking the test Sieve
- 5 Procedure
- 6 Calculation
- 7 Results

Foreword

This European Standard was drawn up by the Technical Committee CEN/TC 104 "Concrete", the secretariat of which is held by DIN.

The preparatory work was carried by WG 4 of CEN/TC 104 since June 1988 in which the following countries participated: Austria, Belgium, Denmark, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Sweden and United Kingdom.

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

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 March 1995, and conflicting national standards shall be withdrawn at the latest by March 1995.

No existing European Standard is superseded.

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

1 Scope

This test method describes the determination of fly ash fineness by wet sieving on a 0,045 mm sieve (ISO 565).

The standard describes the reference procedure. If other methods are used it shall be shown that they give results equivalent to those obtained by the reference method. In case of a dispute, only the reference method shall be used.

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.

ISO 565:1990 Test sieves - Woven metal wire cloth, perforated plate and electroformed sheet - Nominal sizes of openings

ISO 3310-1:1990 Test sieves - Technical requirements and testing - Part 1: Test sieves of metal wire cloth

3 Apparatus

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

3.1 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 0,45 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.

3.2 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 50 ° to the longitudinal axis and an outer row of eight holes drilled 11 mm centre-to-centre at an angle of 100 ° to the longitudinal axis. All holes shall be 0,5 mm in diameter and be fully functional.

3.3 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 accuracy of the gauge shall be ± 5 kPa.

3.4 Oven

A well-ventilated drying oven regulated at (105 ± 5) °C.

3.5 Balance

A balance capable of weighing to the nearest 0,001 g.

- a = 5 mm to 10 mm
 1) water tap
 2) pressure gauge
 3) spray nozzle
 4) sieve frame
 5) sieve cloth

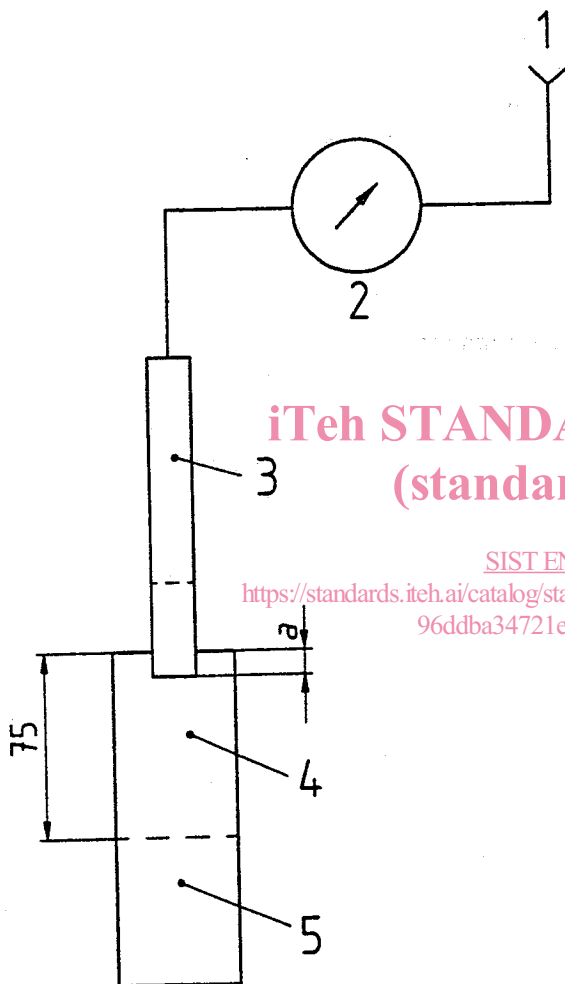


Figure 1: Device

- a) outer row
 b) intermediate row
 c) central hole
 d) spray nozzle with 17 holes of 0,5 mm diameter

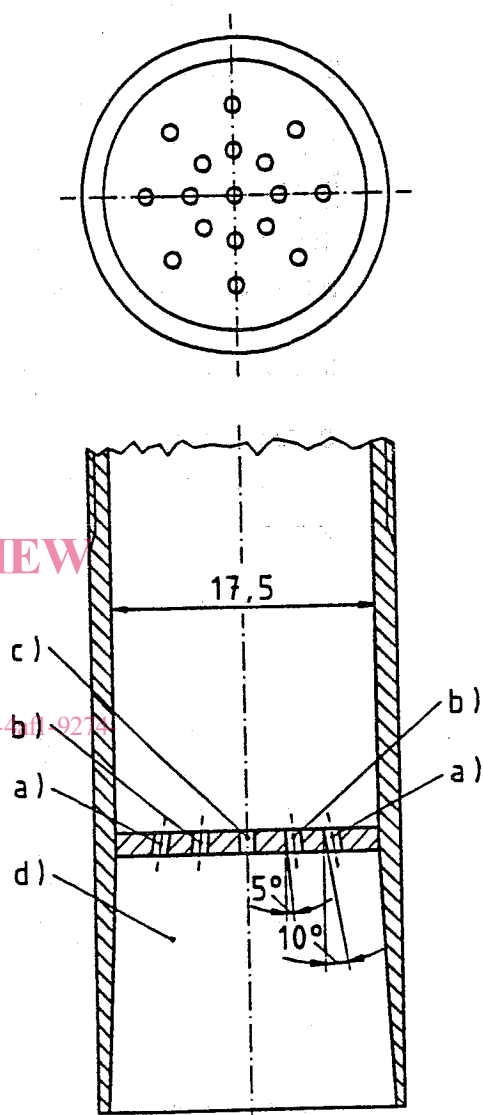


Figure 2: Spray nozzle

4 Checking the Test Sieve

A reference material, consisting of rounded sand particles¹⁾ with a known proportion of material coarser than the specified mesh size shall be used for checking the sieve (3.1). The material shall be stored in sealed, airtight containers, to preclude changes in its properties due to deposition or absorption from the atmosphere. Containers with the 0,045 mm sieve residue of the reference material shall be marked.

¹⁾ Reference samples may be obtained for example from (addresses to be inserted later).

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.

Determine the fineness of the reference material as described in clause 5. Calculate the correction factor f for the test sieve from the equation:

$$f = r_t / r_r$$

where

f is the correction factor;

r_r is the percentage by mass of the reference material retained by the test sieve;

r_t is the known 0,045 mm sieve residue in percentage by mass of the reference material.

The test shall be performed twice and the mean value of f taken as the correction factor. It shall be within the limits 0,8 and 1,2 otherwise the sieve cloth shall be replaced and the test repeated.

5 Procedure

Dry a sample of at least 1 g in the oven (3.4) at $(105 \pm 5) ^\circ\text{C}$ to a constant mass.

For the test sample, transfer approximately 1,0 g, weighed to the nearest 0,001 g, of the oven-dry sample to a clean, dry and sieve (3.1).

Wet the sample thoroughly with a gentle flow of water, for example, by using a hand-held wash bottle.

Set the water pressure to (80 ± 5) kPa and place the sieve in position under the spray nozzle (3.2) and wash for (60 ± 10) s, keeping the lower end of the nozzle between 10 mm and 15 mm below the top of the sieve frame, and swirling the sieve horizontally at about 1 revolution per second.

Remove the sieve from under the nozzle, rinse with approximately 50 ml alcohol or distilled water and blot up residual moisture from the underside of the sieve cloth. Dry the sieve and residue to a constant mass in the oven at $(105 \pm 5) ^\circ\text{C}$. Cool the sieve and the residue in a desiccator and weigh the residue to the nearest 0,001 g.

6 Calculation

Calculate the fineness of the sample as a percentage by mass to the nearest 0,10 % by the following equation:

$$r = \frac{f \times m_r}{m_o} \times 100$$

where

r is the fineness of the sample expressed as the 0,045 mm sieve residue fraction in percentage by mass;

f is the sieve correction factor (see clause 4),

m_r is the mass of sample residue (g),

m_o is the mass of test sample (g).

7 Results

Report the mean value of r from the two tests, expressed to one decimal place, as the fineness of the fly ash. If the two values differ by more than 0,3 %, repeat the test on further samples until two values are obtained that differ by not more than 0,3 %.