

Method of testing fly ash - Part 1: Determination of free calcium oxide content

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 451-1:2017 sisaldab Euroopa standardi EN 451-1:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 451-1:2017 consists of the English text of the European standard EN 451-1:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 03.05.2017.	Date of Availability of the European standard is 03.05.2017.
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ICS 91.100.30

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English Version

Method of testing fly ash - Part 1: Determination of free calcium oxide content

Méthode d'essai des cendres volantes - Partie 1:
Détermination de la teneur en oxyde de calcium libre

Prüfverfahren für Flugasche - Teil 1: Bestimmung des
freien Calciumoxidgehalts

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

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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.

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European foreword

This document (EN 451-1:2017) 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of an identical text or by endorsement, at the latest by November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.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 451-1:2003.

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

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

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.

1 Scope

This European Standard specifies the procedure for the determination of free calcium oxide content in fly ash.

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.

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 3534-1, *Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability*

3 General

3.1 Number of determinations

Carry out twice the procedure for determining the free calcium oxide content of the sample.

If the difference between two determinations is more than twice the repeatability standard deviation, repeat the test and take the mean of the closest values

3.2 Repeatability and reproducibility

The standard deviations of repeatability and reproducibility, as defined in ISO 3534-1, are expressed in absolute percentages by mass.

3.3 Expression of masses and volumes

Express masses in grams to the nearest 0,000 1 g, measure volumes using a burette and express them in millilitres to the nearest 0,05 ml.

4 Reagents

Use only reagents of analytical grade and distilled water, or water of equal purity.

4.1 Butanoic acid, 3-oxo-ethyl ester (= ethyl acetoacetate).

4.2 Butan-2-ol.

4.3 Propan-2-ol.

4.4 Indicator (0,1 g of bromophenol blue in 100 ml of ethanol).

4.5 Hydrochloric acid (0,100 M).