KIVISTUNUD BETOONI KATSETAMINE. OSA 15: ADIABAATILINE MEETOD BETOONIST KIVISTUMISEL ERALDUVA SOOJUSE MÄÄRAMISEKS

Testing hardened concrete - Part 15: Adiabatic method for the determination of heat released by concrete during its hardening process

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12390-15:2019 sisaldab Euroopa standardi EN 12390-15:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 12390-15:2019 consists of the English text of the European standard EN 12390-15:2019.
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 and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 31.07.2019.	Date of Availability of the European standard is 31.07.2019.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Testing hardened concrete - Part 15: Adiabatic method for the determination of heat released by concrete during its hardening process

Essai pour béton durci - Partie 15 : Méthode adiabatique de détermination de la chaleur dégagée par le béton en cours de durcissement

Prüfung von Festbeton - Teil 15: Adiabatisches Verfahren zur Bestimmung der Wärme, die während des Erhärtungsprozesses von Beton freigesetzt wird

This European Standard was approved by CEN on 17 June 2019.

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

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

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European foreword

This document (EN 12390-15:2019) 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of an identical text or by endorsement, at the latest by January 2020, and conflicting national standards shall be withdrawn at the latest by January 2020.

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 standard is one of a series on testing concrete.

EN 12390, *Testing hardened concrete*, consists of the following parts:

— *Part 1: Shape, dimensions and other requirements of specimens and moulds*

— *Part 2: Making and curing specimens for strength tests*

— *Part 3: Compressive strength of test specimens*

— *Part 4: Compressive strength - Specification for testing machines*

— *Part 5: Flexural strength of test specimens*

— *Part 6: Tensile splitting strength of test specimens*

— *Part 7: Density of hardened concrete*

— *Part 8: Depth of penetration of water under pressure*

— *Part 10: Determination of the carbonation resistance of concrete at atmospheric levels of carbon dioxide*

— *Part 11: Testing hardened concrete. Determination of the chloride resistance of concrete, unidirectional diffusion*

— *Part 12: Determination of the potential carbonation resistance of concrete: Accelerated carbonation method (in preparation)*

— *Part 13: Determination of secant modulus of elasticity*

— *Part 14: Semi-adiabatic method for the determination of heat released by concrete during its hardening process*

— *Part 15: Adiabatic method for the determination of heat released by concrete during its hardening process*

— *Part 16: Determination of shrinkage of concrete (in preparation)*

— *Part 17: Determination of creep of concrete in compression (in preparation)*

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.

1 Scope

This document specifies the procedure for the determination of heat released by concrete during its hardening process in adiabatic condition.

The test is suitable for specimens having a declared value of D of the coarsest fraction of aggregates actually used in the concrete (D_{max}) not greater than 32 mm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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*

EN 12390-2, *Testing hardened concrete — Part 2: Making and curing specimens for strength tests*

3 Terms, definitions, symbols and scripts

3.1 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

3.1.1
adiabatic equipment
equipment whose error of adiabatism, as defined in 3.1.2, is less than 0,05 K/h at least in the temperature range 20 °C to 70 °C, and the ratio between the heat capacity of calorimeter and the heat capacity of the sample $\frac{C_{cal}}{C_{con}}$ is less or equal than 0,1

3.1.2
adiabatism error
α
rate of decrease in temperature (K/h) of a fully hydrated reference concrete sample

Note 1 to entry: A concrete sample can be considered to be fully hydrated when cured for 12 months in accordance with EN 12390-2.

3.1.3
intrinsic temperature rise
ΔT_c^*
temperature rise in concrete in the absence of heat transfer from the concrete sample to the surrounding environment