

<b>STN</b>	<b>Skúšanie zatvrdnutého betónu</b> <b>Časť 14: Semiadiabatická metóda na meranie</b> <b>hydratačného tepla vznikajúceho pri tvrdnutí</b> <b>betónu</b>	<b>STN</b> <b>EN 12390-14</b>  73 1302
------------	--	---

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

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/19

Obsahuje: EN 12390-14:2018

**127481**

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

# EN 12390-14

August 2018

ICS 91.100.30

English Version

## Testing hardened concrete - Part 14: Semi-adiabatic method for the determination of heat released by concrete during its hardening process

Essais pour béton durci - Partie 14 : Méthode semi-adiabatique de détermination de la chaleur dégagée par le béton en cours de durcissement

Prüfung von Festbeton - Teil 14: Teiladiabatisches Verfahren zur Bestimmung der Wärme, die während des Erhärtungsprozesses von Beton freigesetzt wird

This European Standard was approved by CEN on 9 April 2018.

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.



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

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

**EN 12390-14:2018 (E)**

<b>Contents</b>	<b>Page</b>
European foreword.....	3
<b>1 Scope .....</b>	<b>5</b>
<b>2 Normative references .....</b>	<b>5</b>
<b>3 Terms, definitions, symbols, units and scripts.....</b>	<b>5</b>
3.1 Terms and definitions .....	5
3.2 Symbols, units and scripts .....	6
<b>4 Principle .....</b>	<b>7</b>
<b>5 Apparatus.....</b>	<b>7</b>
5.1 Thermometers .....	7
5.2 Balance.....	7
5.3 Temperature monitoring and control system .....	7
5.4 Semi-adiabatic calorimeter .....	7
5.5 Control specimen .....	9
<b>6 Procedure.....</b>	<b>9</b>
<b>7 Expression of results - Semi-adiabatic heat release .....</b>	<b>10</b>
<b>8 Report.....</b>	<b>11</b>
<b>9 Precision.....</b>	<b>11</b>
<b>Annex A (normative) Calibration of semi-adiabatic calorimeter .....</b>	<b>12</b>
A.1 Calibration of the semi-adiabatic calorimeter .....	12
A.1.1 General.....	12
A.1.2 Determination of the total heat loss coefficient.....	12
A.1.3 Determination of heat capacity.....	13
A.2 Alternative method for the calibration of semi-adiabatic calorimeter .....	14
A.2.1 Calibration procedure .....	14
A.2.2 Determination of heat capacity and heat loss coefficient.....	14
<b>Annex B (informative) Experimentation on site.....</b>	<b>16</b>
<b>Annex C (informative) Specific heat of concrete components .....</b>	<b>17</b>
<b>Bibliography.....</b>	<b>18</b>

## European foreword

This document (EN 12390-14:2018) 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 February 2019, and conflicting national standards shall be withdrawn at the latest by February 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 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 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, Former Yugoslav Republic of Macedonia,

**EN 12390-14:2018 (E)**

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 document specifies the procedure for the determination of heat released by concrete during its hardening process in semi-adiabatic conditions in a laboratory. Annex B specifies the procedure when the test is performed on site. 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*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**