SLOVENSKI STANDARD
SIST EN ISO 10545-9:1998

01-april-1998

Keramične ploščice - 9. del: Ugotavljanje odpornosti proti hitrim temperaturnim spremembam

Ceramic tiles - Part 9: Determination of resistance to thermal shock (ISO 10545-9:1994)

Keramische Fliesen und Platten - Teil 9: Bestimmung der Temperaturwechselbeständigkeit (ISO 10545-9:1994)

Carreaux et dalles céramiques - Partie 9: Détermination de la résistance aux chocs thermiques (ISO 10545-9:1994)

Ta slovenski standard je istoveten z: **EN ISO 10545-9:1996**

ICS:

91.100.23	Keramične ploščice	Ceramic tiles

SIST EN ISO 10545-9:1998 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10545-9

August 1996

ICS 91.100.20

Supersedes EN 104:1991

Descriptors: ceramics, tiles, tests, thermal tests, thermal shock tests, determination, thermal shock resistance

English version

Ceramic tiles - Part 9: Determination of resistance to thermal shock (ISO 10545-9:1994)

Carreaux et dalles céramiques - Partie 9: Détermination de la résistance aux chocs thermiques (ISO 10545-9:1994)

Keramische Fliesen und Platten - Teil 9: Bestimmung der Temperaturwechselbeständigkeit (ISO 10545-9:1994)

This European Standard was approved by CEN on 1996-01-14. 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

Foreword

The text of the International Standard from Technical Committee ISO/TC 189 "Ceramic tiles" of the International Organization for Standardization (ISO) has been taken over as an European Standard by Technical Committee CEN/TC 67 "Ceramic tiles", the secretariat of which is held by UNI.

This European Standard replaces EN 104:1991.

ISO 10545 consists of the following parts, under the general title "Ceramic tiles":

- Part 1: Sampling and basis for acceptance
- Part 2: Determination of dimensions and surface quality
- Part 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density
- Part 4: Determination of modulus of rupture and breaking strength
- Part 5: Determination of impact resistance by measurement of coefficient of restitution
- Part 6: Determination of resistance to deep abrasion for unglazed tiles
- Part 7: Determination of resistance to surface abrasion for glazed tiles
- Part 8: Determination of linear thermal expansion
- Part 9: Determination of resistance to thermal shock
- Part 10: Determination of moisture expansion
- Part 11: Determination of crazing resistance for glazed tiles
- Part 12: Determination of frost resistance
- Part 13: Determination of chemical resistance
- Part 14: Determination of resistance to stains
- Part 15: Extraction of lead and cadmium from glazed tiles
- Part 16: Determination of colour differences
- Part 17: Determination of coefficient of friction

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 1997, and conflicting national standards shall be withdrawn at the latest by February 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of 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 and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 10545-9:1994 has been approved by CEN as a European Standard without any modification.

INTERNATIONAL STANDARD

ISO 10545-9

First edition
1994-08-15

Ceramic tiles —

Part 9:
Determination of resistance to thermal shock

Carreaux et dalles céramiques —

Partie 9: Détermination de la résistance aux chocs thermiques

Reference number
ISO 10545-9:1994(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10545-9 was prepared by Technical Committee ISO/TC 189, *Ceramic tile*.

ISO 10545 consists of the following parts, under the general title *Ceramic tiles*:

— *Part 1: Sampling and basis for acceptance*

— *Part 2: Determination of dimensions and surface quality*

— *Part 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density*

— *Part 4: Determination of modulus of rupture and breaking strength*

— *Part 5: Determination of impact resistance by measurement of coefficient of restitution*

— *Part 6: Determination of resistance to deep abrasion for unglazed tiles*

— *Part 7: Determination of resistance to surface abrasion for glazed tiles*

— *Part 8: Determination of linear thermal expansion*

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

— *Part 9: Determination of resistance to thermal shock*

— *Part 10: Determination of moisture expansion*

— *Part 11: Determination of crazing resistance for glazed tiles*

— *Part 12: Determination of frost resistance*

— *Part 13: Determination of chemical resistance*

— *Part 14: Determination of resistance to stains*

— *Part 15: Extraction of lead and cadmium from glazed tiles*

— *Part 16: Determination of colour differences*

— *Part 17: Determination of coefficient of friction*

This page intentionally left blank

Ceramic tiles —

Part 9:
Determination of resistance to thermal shock

1 Scope

This part of ISO 10545 defines a test method for determining the resistance to thermal shock of all ceramic tiles under normal conditions of use.

Depending on the water absorption of the tiles, different procedures (tests with or without immersion) are used unless there is an agreement to the contrary.

NOTE 1 ISO 13006:—, *Ceramic tiles — Definitions, classification, characteristics and marking* (to be published), provides property requirements for tiles and other useful information on these products.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 10545. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10545 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 10545-3:—[1], *Ceramic tiles — Part 3: Determination of water absorption, apparent porosity, apparent relative density and bulk density.*

3 Principle

Determination of the resistance to thermal shock of a whole tile by cycling 10 times between the temperatures of 15 °C and 145 °C.

4 Apparatus

4.1 Low-temperature water bath, through which flows cold water at (15 ± 5) °C. One example is a bath 55 cm long, 35 cm wide and 20 cm deep, with a water flowrate of 4 l/min. Any other suitable apparatus may be used.

For the case of testing with immersion, applicable to all tiles having a water absorption coefficient less than or equal to 10 % (*m/m*) (determined in accordance with ISO 10545-3), the bath shall not be covered and shall be of sufficient depth to allow the tiles to be placed vertically and immersed completely.

For the case of testing without immersion, applicable to glazed tiles having a water absorption coefficient greater than 10 % (*m/m*) (determined in accordance with ISO 10545-3), the bath shall be covered with a 5-mm thick aluminium plate in such a manner that the water, directed towards the surface, is in contact with the plate. The aluminium plate shall be covered with a layer of aluminium grains approximately 5 mm thick with diameters in the range of 0,3 mm to 0,6 mm.

4.2 Oven, capable of being operated at 145 °C to 150 °C.

5 Test specimens

A minimum of five whole tiles shall be tested.

1) To be published.