SLOVENSKI STANDARD
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Keramične ploščice - 10. del: Ugotavljanje raztezka zaradi vlage (ISO/DIS 10545-10:2020)

Ceramic tiles - Part 10: Determination of moisture expansion (ISO/DIS 10545-10:2020)

Keramische Fliesen und Platten - Teil 10: Bestimmung der Feuchtigkeitsdehnung (ISO/DIS 10545-10:2020)

Carreaux et dalles céramiques - Partie 10: Détermination de la dilatation à l'humidité (ISO/DIS 10545-10:2020)

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Ceramic tiles —

Part 10:
Determination of moisture expansion

Carreaux et dalles céramiques —

Partie 10: Détermination de la dilatation à l'humidité

ICS: 91.100.23

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 189, *Ceramic Tiles*

This second edition cancels and replaces the first edition (ISO 10545-10:1995), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Section 6 Test specimens

A list of all parts in the ISO 10545 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Type text.

Identification of patent holders, if any.

Ceramic tiles —

Part 10:
Determination of moisture expansion

1 Scope

This part of ISO 10545 specifies a method for determining the moisture expansion of ceramic tiles.

2 Normative references

There are no normative references in this document.

3 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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
Moisture expansion
proportional accelerated expansion that results from subjecting reheated tiles to extended immersion in boiling water.Note 1 to entry: Text of the note.

4 Principle

Determination of accelerated moisture expansion by subjecting a reheated tile to boiling water and measuring the proportional change in length.

5 Apparatus

5.1 Measuring Frame

A suitable type of measuring frame, fitted with a micrometer, dial gauge, transducer or similar device, with an accuracy of at least 0,01 % of the dimension of the specimen.

5.2 Reference Bars

Reference bars of nickel steel (Invar), of approximately the same length as the test specimens, fitted with an insulated grip.

5.3 Kiln

capable of firing up to 600 °C, at a rate of temperature rise of 150 °C/h and with a control over the temperature of ± 15 °C.

5.4 Vernier calipers,

Vernier calipers or other suitable apparatus for linear measurement to the nearest 0,5 mm.

5.5 Boiling apparatus,

for maintaining the test specimens in boiling deionized or distilled water for 24 h.

6 Test Specimens

A sample consists of a number of whole tiles as reported in table 1. If the size of the measuring frame is such that whole tiles do not fit, a test specimen shall be cut from the centre of each tile with a minimum length of 100 mm, a minimum width of 35 mm and the thickness of the tile.

In the case of extruded tiles, the length of the test specimens shall be in the direction of the extrusion.

Table 1 — Number of tiles to be tested

Nominal Area *A* cm^2	Number of tiles
$A \leq 3600$	5
$A > 3600$	3

7 Procedure

7.1 Refiring

Refire the test specimens in a kiln (5.3) with a rate of temperature rise of 150 °C/h and a 2 h step at (550 ± 15) °C. Allow the test specimens to cool inside the kiln. Remove them when the temperature falls to (70 ± 10) °C and then keep them at room temperature for 24 h to 32 h in a dry desiccator.

Should any of the specimens crack on refiring, carry out a further refiring on a fresh tile with slower heating and cooling rates.

Determine the initial length of each test specimen, with an accuracy of 0,1%, by comparing with a reference bar (4.2). Measure the test specimen twice, with 3 h between measurements.

7.2 Treatment in boiling water

Bring the deionized or distilled water to the boil in the boiling apparatus (4.5). Immerse the test specimens in the boiling water for 24 h consecutively, ensuring that there is at least 5 cm of water above the specimens, and that they do not touch each other or touch the base or sides of the container. Remove the test specimens from the boiling water. Allow them to cool to room temperature, ensuring that the test specimens do not touch each other. Measure them 1 h after removal from the boiling apparatus, and again after a further 3 h. Record the measurements as in 7.1.For each test specimen, determine the mean of the two measurements prior to treatment in boiling water, the mean of the two measurements after treatment in boiling water, and then determine the difference between the two mean values.