SLOVENSKI STANDARD
SIST ISO 10545-7:1998

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Keramične ploščice - Določitev odpornosti loščenih ploščic proti površinski obrabi

Ceramic tiles -- Part 7: Determination of resistance to surface abrasion for glazed tiles

Carreaux et dalles céramiques -- Partie 7: Détermination de la résistance à l'abrasion de surface pour les carreaux et dalles émaillés

Ta slovenski standard je istoveten z: ISO 10545-7:1996

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INTERNATIONAL STANDARD

ISO 10545-7

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Ceramic tiles —

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

Carreaux et dalles céramiques —

Partie 7: Détermination de la résistance à l'abrasion de surface pour les carreaux et dalles émaillés

Reference number
ISO 10545-7:1996(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 10545-7 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*

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— *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: Determination of lead and cadmium given off by glazed tiles*

— *Part 16: Determination of small colour differences*

— *Part 17 Determination of coefficient of friction*

Annex A of this part of ISO 10545 is for information only.

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Ceramic tiles —

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

1 Scope

This part of ISO 10545 specifies a method for determining the resistance to surface abrasion of all glazed ceramic tiles used for floor covering.

2 Normative reference

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10545. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8486-1:— [1], *Bonded abrasives — Grain size analysis — Designation and determination of grain size distribution — Part 1: Macrogrits F 4 to F 220.*

ISO 10545-14:1995, *Ceramic tiles — Part 14: Determination of resistance to stains.*

3 Principle

Determination of the abrasion resistance of the glaze of tiles by rotation of an abrasive load on the surface and assessment of the wear by means of visual comparison of abraded test specimens and non-abraded tiles.

4 Abrasive load

The total load on each test specimen shall consist of

70,0 g of steel balls of diameter 5 mm;
52,5 g of steel balls of diameter 3 mm;
43,75 g of stell balls of diameter 2 mm;
8,75 g of steel balls of diameter 1 mm;
3,0 g of white fused aluminium oxide of grain size F 80 according to ISO 8486;
20 ml of deionized or distilled water.

1) To be published. (Revision of ISO 8486:1986)

5 Apparatus

5.1 Abrasion apparatus (see figure 1), consisting of a steel case with an inbuilt electrical drive connected to a horizontal supporting plate with positions for test specimens of dimensions at least 100 mm × 100 mm. The distance between the centre of the supporting plate and the centre of each position shall be 195 mm. There shall be equal distances between each adjacent position. The supporting plate shall rotate at 300 r/min with an eccentricity, e, of 22,5 mm so that every part of each test specimen describes a circular motion of diameter 45 mm. The test specimens are held down with the aid of metal holders which are provided with rubber seals (see figure 2). The internal diameter of the holders is 83 mm, thus providing a test area of about 54 cm^2. The thickness of the rubber is 9 mm and the height of the space under the holder is 22,5 mm.

The apparatus switches off automatically after completion of a present number of revolutions.

The supporting plate with holders and test specimens shall be covered during operation.

A suitable apparatus of another description may be used, provided it gives the same results as those obtained with the apparatus described below.

5.2 Apparatus for visual assessment (see figure 3), consisting of a viewing box equipped with fluorescent lighting of colour temperature 6 000 K to 6 500 K placed vertically above the surface to be observed providing 300 lx illuminance. The dimensions of the box shall be 61 cm × 61 cm × 61 cm and the inner faces shall be painted a neutral gray. The light source is screened to avoid direct viewing.

5.3 Drying oven, capable of being operated at (110 ± 5) °C.

5.4 Balance (if mass loss is required).

6 Test specimens

6.1 Types of test specimens

Test specimens shall be representative of the sample. Where tiles have different colours or decorative effects in parts of the surface, care should be taken to include all the distinctive parts.

The usual facial dimensions of test specimens are 100 mm × 100 mm. Test specimens with smaller facial dimensions shall be fastened close together on a suitable supporting material. Edge effects at the narrow joints shall be ignored.

6.2 Number of test specimens

Eleven test specimens are required. In addition, eight test specimens are required for the visual assessment.

The procedure requires one test specimen for each state of abrasion, and subsequently an additional three test specimens to ckeck the result at the visual-failure point.

6.3 Preparation

The glazed surfaces of the test specimens shall be clean and dry.

Dimensions in millimetres

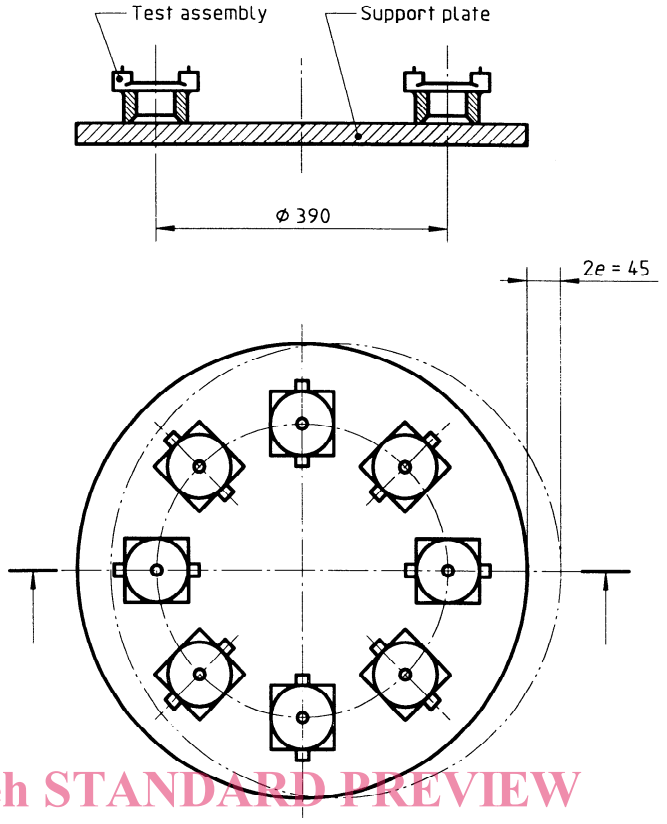

Figure 1 — Abrasion apparatus

Dimensions in millimetres

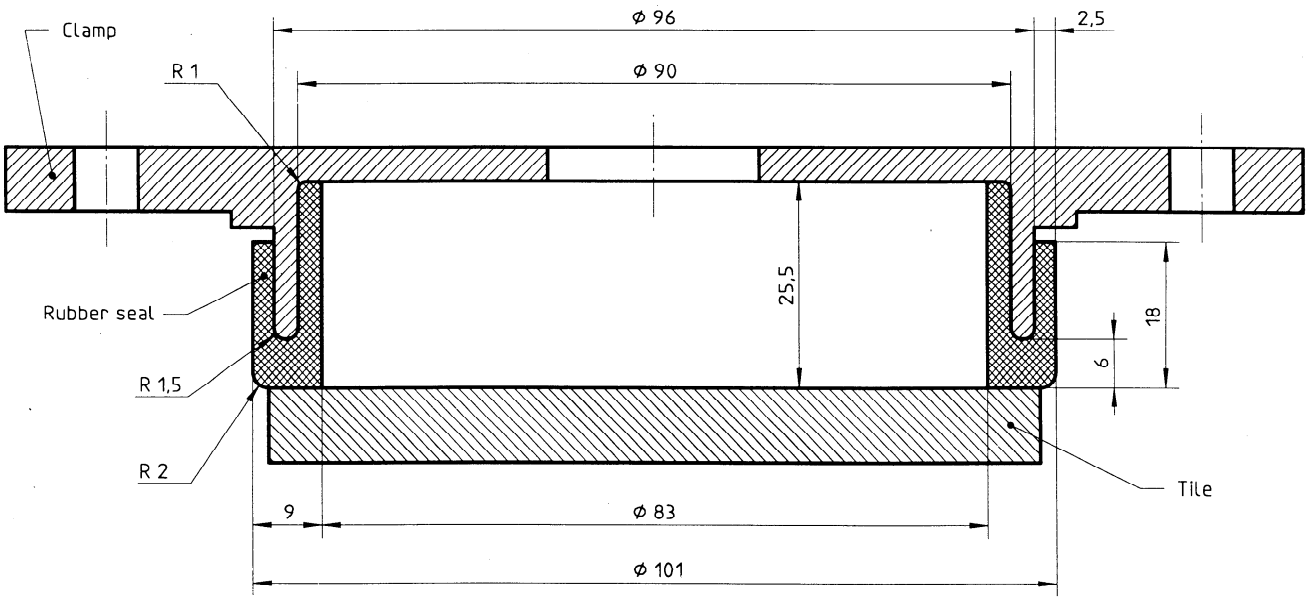

Figure 2 — Specimen holder