INTERNATIONAL STANDARD

ISO 10545-5

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Ceramic tiles —

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

Carreaux et dalles céramiques —

Partie 5: Détermination de la résistance au choc par mesurage du coefficient de restitution

Reference number
ISO 10545-5:1996(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 10545-5 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*

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

1 Scope

This part of ISO 10545 specifies a test method for determining the impact resistance of ceramic tiles by measuring the coefficient of restitution.

2 Definition

For the purpose of this part of ISO 10545, the following definition applies.

2.1 coefficient of restitution between two impacting bodies, e: Relative velocity of departure divided by the relative velocity of approach.

3 Principle

Determination of the coefficient of restitution by dropping a steel ball from a fixed height onto the test specimen and measuring the height of rebound.

4 Apparatus

4.1 Chrome steel ball, of diameter (19 ± 0,05) mm.

4.2 Ball-release apparatus, (see figure 1), consisting of a heavy steel base set on levelling screws with a vertical steel bar to which is attached an electromagnet, a guide tube and a test unit support.

The test unit is clamped firmly in a position so that when the steel ball drops it impinges on the centre of the horizontal tile surface. A clamping device is shown in figure 1, but any suitable system may be used.

4.3 Electronic timing device (optional), which, by means of a microphone, measures the time interval between the first and second impacts when the ball is dropped onto the test specimen.

5 Test specimens

5.1 Number of test specimens

A minimum of five pieces in dimensions 75 mm × 75 mm cut from five tiles. Tiles with facial dimensions less than 75 mm may be used.

5.2 Brief description of test units

The test units consist of test specimens fixed to mature concrete blocks by means of rigid epoxide resin adhesive.