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Floor tiles of agglomerated cork — Methods of test

Dalles d'aggloméré de liège pour revêtements des sols — Méthodes d'essai

Reference number
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3810 was prepared by Technical Committee ISO/TC 87, *Cork.*

This second edition cancels and replaces the first edition (ISO 3810 : 1977), of which it constitutes a technical revision.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Floor tiles of agglomerated cork — Methods of test

1 Scope and field of application

This International Standard specifies methods of test for determining the following characteristics of agglomerated cork floor tiles : dimensions and squareness, apparent density, tensile strength, initial and residual indentation, ash content and resistance to boiling hydrochloric acid.

2 References

ISO 3813, *Floor tiles of agglomerated cork — Characteristics, sampling and packing.* [1]

ISO 9366, *Floor tiles of composition cork — Determination of dimensions and of deviation from rectilinearity and from sides perpendicularity.* [2]

3 Reagent

Hydrochloric acid, $\varrho_{20} \approx 1{,}18$ g/ml, of technical grade.

4 Apparatus

4.1 Balance, accurate to ± 0,5 g.

4.2 Balance, accurate to ± 0,1 mg.

4.3 Crucible, made of porcelain, nickel or platinum.

4.4 Stop-watch.

4.5 Desiccator.

4.6 Conditioning chamber, temperature and humidity controlled.

4.7 Electrically heated oven, capable of being controlled at 103 ± 2 °C.

4.8 Electric muffle furnace, capable of being controlled at 450 ± 20 °C.

4.9 Tensile testing machine, accurate to ± 1 N, with one fixed jaw and one movable jaw, initially 12 mm apart. The movable jaw shall move unloaded at a speed of 300 mm/min.

4.10 Static load press, with flat parallel platens of dimensions greater than those of the test pieces and equipped with the following items :

4.10.1 Cylindrical indentor, made of steel, of diameter 28,7 mm (cross-sectional area 645 mm^2) fitted on the movable head.

4.10.2 Dial micrometer, accurate to ± 0,05 mm, attached to the movable head and giving by direct reading the thickness of the compressed material.

4.10.3 Weights, for applying the load to the movable head.

4.11 Device for testing resistance to boiling hydrochloric acid, equipped with

4.11.1 Round bottom flask, of min. capacity 500 ml.

4.11.2 Reflux condenser.

4.11.3 Heating device, to maintain temperature.

4.12 Punch, to prepare test piece.

5 Sampling and conditioning

Tests shall be carried out at ambient temperature, on test specimens taken from a sample obtained in accordance with ISO 3813 and conditioned in the conditioning chamber (4.6) for 24 h at 20 ± 2 °C and at a relative humidity of 65 ± 5 %, unless otherwise specified.

1) At present at the stage of draft. (Revision of ISO 3813-1977.)

2) At present at the stage of draft.

6 Methods of test

6.1 Dimensions

6.1.1 Length and width

Test each tile of the sample according to the method specified in ISO 9366.

Express the results in millimetres, rounded off to the nearest 0,1 mm.

6.1.2 Thickness

Test each tile of the sample according to the method specified in ISO 9366.

Express the results of the measurements obtained in millimetres, rounded off to the nearest 0,1 mm.

6.1.3 Deviations

For each dimension, calculate the deviation as the average of the deviations determined for each tile. No single deviation shall exceed the permissible tolerance specified in ISO 3813.

6.2 Squareness of tiles and straightness of edges

Take five tiles at random from the sample.

Test them according to the method specified in ISO 9366.

6.3 Apparent density

6.3.1 Procedure

Determine the dimensions of each tile in the sample, following the procedure specified in 6.1, and determine its mass on the balance (4.1). The apparent density is obtained by dividing the mass of the tile, in grams, rounded off to the nearest 0,5 g, by its volume, in cubic centimetres, rounded off to the nearest 0,1 cm^3, the volume being equal to the product of the linear dimensions, in centimetres, rounded off to the nearest 1 mm.

6.3.2 Expression of results

Calculate the apparent density of the sample as the average of the values resulting from the tests. Express the result in kilograms per cubic metre, rounded off to the nearest 1 kg/m^3.

6.4 Initial and residual indentation

6.4.1 Preparation of test pieces

Cut one test piece measuring 5 cm × 5 cm and having the thickness of the tile, from each tile in the sample.

6.4.2 Procedure

Place the test piece on the base-plate of the press (4.10), apply the indentor to the centre under a load of 88,9 N for 15 s and immediately read the thickness (d_1) of the test piece; then increase the pressure exerted by the indentor applying a load of 444,5 N for 10 min. Read the thickness (d_2) of the test piece at the point where the indentor was applied. Remove the load and allow the test piece to recover for 1 h. At the end of this period, re-apply the indentor under a load of 88,9 N for 15 s and read the thickness (d_3) of the piece at the point where the tile has been compressed.

6.4.3 Expression of results

The initial indentation of each test piece is given, as a percentage, by the formula

$$\frac{d_1 - d_2}{d_1} \times 100$$

The residual indentation of each piece is given, as a percentage, by the formula

$$\frac{d_1 - d_3}{d_1} \times 100$$

Calculate the initial and residual indentations as the average of the values thus found, rounded off to the nearest 0,1 %.

6.5 Tensile strength

6.5.1 Preparation of test pieces

Take three tiles at random from the sample. Cut from each a test piece measuring 10 cm × 5 cm and of the thickness of the tile.

6.5.2 Procedure

Determine the width and the thickness of the test piece, following the procedure specified in 6.1. Clamp each test piece, with the long edges vertical, in the jaws of the tensile testing machine (4.9), set the machine in operation and record the force at which rupture occurs.

6.5.3 Expression of results

The tensile strength of the test piece is given, in megapascals, by the formula

$$\frac{F}{b \times d}$$

where

F is the force at which rupture occurs, in newtons, rounded off to the nearest 1 N;

b is the width of the test piece, in millimetres, rounded off to the nearest 1 mm;

d is the thickness of the test piece, in millimetres, rounded off to the nearest 1 mm.

Record the tensile strength of each test piece, rounded off to the nearest 0,1 MPa, in the test report.