PUBLICLY AVAILABLE SPECIFICATION

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Machine-made textile floor coverings — Determination of dimensional changes after exposure to heat and/or water

Revêtements de sol textiles fabriqués à la machine — Détermination de la variation dimensionnelle après exposition à la chaleur et/ou à l'eau

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. 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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed every three years with a view to deciding whether it can be transformed into an International Standard.

Attention is drawn to the possibility that some of the elements of this Publicly Available Specification may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/PAS 17984 was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

Annex A of this Publicly Available Specification is for information only.

Introduction

When ISO/TC 38/SC 12 reviewed ISO 2551:1981, it decided that because the original method gave rise to technical difficulties, any revision should incorporate a number of test method options for dimensional stability to heat, water and combined heat and water and stability out of the plane. In order to establish the utility of this new approach, and to allow the precision of each test method to be established, it was decided to initially publish a document that would allow for further development based on some or all of these methods.

When ISO/TC 219 inherited the project from the disbanded ISO/TC 38/SC 12 it decided that the most appropriate publication was a Publicly Available Specification (PAS) and that ISO 2551 would not be withdrawn until PAS 17984 had been thoroughly reviewed for a period following its publication.

Machine-made textile floor coverings — Determination of dimensional changes after exposure to heat and/or water

1 Scope

This Publicly Available Specification specifies procedures for the determination of both planar and out-of-plane dimensional changes that take place when machine-made textile floor coverings are subjected to heat, water or varied heat and water conditions.

The following methods are applicable to all machine-made textile floor coverings including those produced in tile form.

— Method 1: Determination of dimensional changes after exposure to heat.

— Method 2: Determination of dimensional changes after immersion in water.

— Method 3: Determination of dimensional changes due to the effects of varied heat and water conditions.

— Method 4: Dimensional changes out of the plane.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Publicly Available Specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this Publicly Available Specification are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*.

ISO 1957, *Machine-made textile floor coverings — Selection and cutting of specimens for physical tests*.

ISO 2424, *Textile floor coverings — Vocabulary*.

3 Terms and definitions

For the purposes of this Publicly Available Specification, the terms and definitions given in ISO 2424 apply.

4 Principle

Comparison is made between either planar or out-of-plane dimensions of a test specimen after conditioning in the standard atmosphere for testing textiles and after being subjected to either heat, water or specified varied heat and water conditions.

5 Apparatus

5.1 Methods 1, 2 and 3

5.1.1 Instrument capable of measuring length to the nearest 0,1 mm, e.g. an optical bench or mechanical device with gauge.

5.1.2 Plate glass sheet, marginally smaller than the test specimen, or other means of keeping the specimen flat while measurements are made. This will not be required if the instrument in 5.1.1 incorporates such a glass or metal plate.

5.1.3 Steel pins or **other appropriate means of indicating the reference points on the test specimen,** if necessary.

NOTE A suitable piece of equipment incorporating 5.1.1, 5.1.2 and 5.1.3 is given in annex A.

5.2 Methods 1 and 3

5.2.1 Ventilated drying oven, capable of being controlled at 60 °C ± 2 °C, with perforated and lacquered shelves that can be placed in the oven.

5.2.2 Desiccator or **similar apparatus, for maintaining specimens in a dry condition.**

5.3 Methods 2 and 3

5.3.1 Container, for holding water at 20 °C ± 2 °C, with dimensions at least 20 mm greater than the test specimen and deep enough to accommodate the submerged test specimen.

5.3.2 Rigid perforated tray, of a sufficient size to carry the test specimen.

5.3.3 Efficient wetting agent, e.g., sodium dioctyl sulfosuccinate, or dodecylbenzene sodium sulfonate.

5.3.4 Means of ensuring a forced draught of ambient air, if required.

5.4 Method 4 (if used in conjunction with methods 1, 2 or 3)

5.4.1 Gauge or **instrument,** capable of measuring in the vertical dimension, to an accuracy of 0,5 mm.

6 Sampling and selection of test specimens

6.1 Sampling

Select the specimens in accordance with ISO 1957.

6.2 Number and dimensions of test specimens

Take at least three test specimens each measuring not less than 450 mm × 450 mm, noting the direction of manufacture.

6.3 Conditioning

Lay out the specimens flat, singly and with the use surface uppermost in the standard atmosphere for testing for at least 48 h and until they reach constant mass (defined as no change in mass greater than 1 %) when determined at hourly intervals over a period of 3 h.

7 Procedure

7.1 Method 1: Determination of dimensional changes after exposure to heat

Make the first measurements (l_0) on the fully conditioned specimen using, e.g. the method described in annex A.

Place the specimen on the rigid perforated tray (5.3.2) with the use surface uppermost, and put it on a shelf in the drying oven (5.2.1) at 60 °C ± 2 °C. Keep the specimen in the drying oven for a period of 24 h. Remove it and place it immediately in a desiccator or similar apparatus (5.2.2) to allow cooling to take place. When its temperature has reached 20 °C ± 2 °C, remove the specimen from the desiccator and immediately measure the dimensions (l_1) using, e.g. the method described in annex A.

Leave the specimens in the standard atmosphere for testing to allow reconditioning to take place, until constant mass is again obtained (see 6.3). Measure the dimensions (l_2) to the nearest 0,1 mm, using e.g. the method described in annex A. Note the final appearance of the specimen.

7.2 Method 2: Determination of dimensional changes after immersion in water

Make the first measurements (l_0) on the fully conditioned specimen using, e.g. the method described in annex A.

Place the specimen on the rigid perforated tray with the use surface uppermost, and immerse it, laid flat, in water to which has been added 0,5 g/l of an efficient wetting agent (5.3.3), calculated on active matter content, at a temperature of 20 °C ± 2 °C. Allow the specimen to soak in the water for 2 h, ensuring that it remains submerged throughout. Lift the tray with the specimen from the water, taking precautions to avoid distorting its shape. Leave to drain in a horizontal position for 5 min ± 1 min. Place the specimen on the measuring board (5.1.1) and again measure the dimensions (l_1), using e.g. the method described in annex A.

Dry the specimen on the tray in the standard atmosphere for testing, as described in clause 6, using a forced air draught (5.3.4) if necessary, until constant mass is again obtained as in 6.3. Measure the dimensions (l_2) using e.g. the method described in annex A. Note the final appearance of the specimen.

7.3 Method 3: Determination of dimensional changes due to the effects of varied heat and water conditions

7.3.1 Initial measurement of the specimen

Make all measurements on the conditioned specimen when it is completely flat; this can be achieved by use of the glass plate (5.1.2) or other means.

On the conditioned specimen, measure the distance between the edges parallel to the direction of manufacture and between the edges at right angles to the direction of manufacture, each at two locations approximately 200 mm apart. If required by the method of measuring adopted, mark the pair of reference points, e.g. by the use of steel pins (5.1.3), approximately 200 mm apart on the edge parallel to the direction of manufacture and also on the edge at right angles to the direction of manufacture. Make all measurements on the back of the specimen to the nearest 0,1 mm.

NOTE Products made of discrete layers, e.g. foam-backed constructions, should be measured on both the backing and the use-surface, and the results of both measurements given in the test report.

7.3.2 Determination

Place the test specimen, lying freely on the perforated and lacquered shelves, in the drying oven (5.2.1), controlled at 60 °C ± 2 °C. Keep the specimen in the drying oven for 2 h, then remove it and measure the distance between the two parallel edges or the two sets of marks to the nearest 0,1 mm, within 6 min to 7 min of removing the specimen from the oven.