International Standard 3415

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Textile floor coverings — Determination of thickness loss after brief, moderate static loading

Revêtements de sol textiles — Détermination de la perte d'épaisseur après application, de courte durée, d'une charge statique modérée

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Foreword

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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 3415 was prepared by Technical Committee ISO/TC 38, *Textiles*.

This second edition cancels and replaces the first edition (ISO 3415-1975), clauses 4 and 7 of which have been technically revised.

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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INTERNATIONAL STANDARD ISO 3415-1986 (E)

Textile floor coverings — Determination of thickness loss after brief, moderate static loading

1 Scope and field of application

This International Standard specifies a method for the determination of thickness loss of textile floor coverings after brief, moderate static loading, and is intended to simulate the effect of the pressure exerted by a chair leg for a short period. It is applicable to all textile floor coverings of uniform thickness and construction. It does not apply to other textile floor coverings unless the areas of different thickness or construction can be separately tested.

NOTE — A method for determination of thickness loss of textile floor coverings after prolonged, heavy static loading is given separately in ISO 3416.

2 References

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

ISO 1765, *Machine-made textile floor coverings — Determination of thickness*.

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

3 Principle

Subjection of a test specimen to a brief, moderate static loading treatment, the thickness being measured before loading and after various recovery periods.

4 Apparatus

4.1 Static loading machine, capable of measuring, in sequence, the initial thickness at the standard pressure of 2,00 ± 0,2 kPa*, the thickness when a pressure of 220 kPa has been applied and the thickness at the standard pressure after periods of recovery.

The presser foot shall move freely with negligible friction. It shall have a circular plane foot, parallel to a reference plate, of area between 300 and 1 000 mm^2. The presser foot shall be capable of exerting on the specimen the prescribed pressure over the whole area of measuring.

To ensure that the pressure will be exerted evenly within the allowed tolerances for all thicknesses to be measured, the pressure shall be exerted by the mass of the presser foot (without or with additions to the mass) and not by a spring.

The thickness gauge shall indicate the measurements in increments of 0,1 mm.

4.2 Circular guard ring, mass 1 000 g, external diameter not greater than 125 mm and internal diameter of d + 40 mm, where d is the diameter of the presser foot and such that a pressure of at least 1 kPa is exerted.

A throat of 40 mm width may be cut from the guard ring.

4.3 Straightedge, for example a ruler, for brushing the surface of the specimen.

5 Checking of the thickness gauge

With the presser foot and the reference plate in contact, set the gauge to read zero, or record the zero reading.

6 Atmosphere for conditioning and testing

The specimens shall be conditioned and all measurements made in the standard atmosphere for conditioning and testing textiles specified in ISO 139.

Preconditioning in a dry atmosphere before conditioning in the standard atmosphere for testing is not required.

7 Test specimens

For specimens with a pile, lightly brush the use-surface, firstly against, then with, the direction of pile lean, using the straightedge (4.3).

Cut out at least five specimens, each measuring 250 mm × 250 mm, following the sampling procedure specified in ISO 1957. Allow the specimens to condition in the standard atmosphere for testing textiles, flat, singly and use-surface uppermost, for at least 24 h.

* 1 kPa = 10^3 N/m^2

8 Procedure

8.1 General

Conduct the test in the standard atmosphere for testing textiles. Make all determinations of thickness to the nearest 0,1 mm.

In order to ensure that the specimen is held flat, place a guard ring centrally on the specimen so that its centre coincides with that of the presser foot. Keep the guard ring in the same position throughout the entire test procedure.

8.2 Measurement of initial thickness

Determine the initial thickness in the centre of the specimen under the standard pressure before the application of the specified pressure using the method specified in ISO 1765.

8.3 Measurement of thickness under pressure

Immediately after the determination of the initial thickness (see 8.2) apply a pressure of 220 kPa to the specimen without shock. Ensure that the specimen is neither touched nor moved during the procedure. After exerting this pressure for a period of 2 h, measure the thickness under that pressure. Then remove the pressure on the specimen without touching or removing the specimen.

8.4 Measurement of thickness after recovery

Measure the thickness of the specimen after recovery periods of 15 min, 30 min and 60 min, using the method specified in ISO 1765.

9 Expression of results

9.1 Calculate the following values for each specimen tested, and also the arithmetic means of the measurements on all specimens tested, to the nearest 0,1 mm :

a) initial thickness under the standard pressure;

b) thickness under the pressure of 220 kPa;

c) thickness after recovery for 15 min
for 30 min
for 60 min

9.2 Using the values determined as described in 9.1, calculate the following values for all specimens :

a) the thickness loss as the difference between the initial thickness and the thickness under the pressure of 220 kPa;

b) the thickness loss after recovery as the differences between the initial thickness and the three values of thickness after recovery for 15, 30 and 60 min.

The ability of recovery of a textile floor covering can be indicated by a diagram showing the remaining compression after the removal of pressure at the various times of recovery.

9.3 Example

Initial thickness under the standard pressure	10,3 mm
Thickness under the pressure of 220 kPa	5,6 mm
Thickness after 60 min recovery	9,1 mm
Thickness loss	10,3 − 5,6 = 4,7 mm
Thickness loss after recovery	10,3 − 9,1 = 1,2 mm

10 Test report

The test report shall include the following particulars :

a) that the procedure was conducted in accordance with this International Standard, and details of any operations not included, or optional;

b) the number of specimens tested;

c) arithmetic means of the initial thickness of the specimens tested;

d) arithmetic means of the thickness under pressure of the specimens tested;

e) arithmetic means of the thickness at various times of recovery of the specimens tested (if required, the confidence interval should be recorded);

f) thickness loss;

g) thickness loss after recovery.