SLOVENSKI STANDARD
SIST EN 985:1999

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Tekstilne talne obloge - Preskus s stolom na kolescih

Textile floor coverings - Castor chair test

Textile Bodenbeläge - Stuhlrollenprüfung

Revetements de sol textiles - Essai a l'appareil a roulettes

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English version

Textile floor coverings - Castor chair test

Revêtements de sol textiles - Essai à l'appareil à roulettes

Textile Bodenbeläge - Stuhlrollenprüfung

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CEN

European Committee for Standardization
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Central Secretariat: rue de Stassart,36 B-1050 Brussels

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Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 134 "Resilient and textile floor coverings", the secretariat of which is held by BSI.

This European Standard shall be given the status of a National Standard, either by publication of an identical text or by endorsement, at the latest by June 1995, and conflicting national standards shall be withdrawn at the latest by June 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

1 Scope

This European Standard specifies three methods for assessing the wear behaviour of textile floor coverings under the movement of a castor chair.

- Test A : Assessment of the wear behaviour of textile floorcovering under the castor chair,
- Test B : Assessment of the change in colour (glossing) of flat needled floorcoverings,
- Test C : Assessment of the general structural integrity of textile floor coverings.

2 Normatives references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publication are listed hereafter. For dated references, subsequent amendements to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication incorporated referred to applies.

pr EN 1471	Textile floor coverings - Assessment of changes in appearance
EN 20139	Textiles - Standard atmospheres for conditioning and testing (ISO 139 : 1973)
ISO 1957	Machine-made textile floor coverings-Sampling and cutting specimens for physical tests

3 Principle

A textile floorcovering is submitted for a prescribed number of cycles to the action of three castors which produce an eccentric turning motion.

At the end of each test:

- the change in appearance in accordance with prEN 1471 is assessed after 5000 cycles and 25000 cycles (Test A);

- the change in colour by means of grey scales is assessed after 750 cycles (Test B);

- the extent of deterioration of the specimen is assessed after 10 000 or 25 000 cycles (Test C)

4 Test apparatus

4.1 Test apparatus fitted with castors, with the following specifications (see figure 1)

4.1.1 A rotating circular test platform, (P), on which the test specimens are placed. The diameter of the platform is 800 mm ± 5 mm

4.1.2 A castor assembly (R), comprising a vertical shaft, set in a bearing and a plate on which the castors are mounted. This castor assembly is offset at a distance of 198 mm +/- 1 mm from the centre of the rotating test platform.

The three castors are each arranged concentrically at 120 • intervals around the centre of the plate at a distance of 130 mm ± 1 mm from the centre of the plate and are free to rotate, so that they follow the rotation of the castor assembly.

The stressed area is determined by the distance between the axes of revolution of the castor chair assembly and the specimen table and by the distance of the castors from the centre of the plate. This area is approximately 0,3 m².

The apparatus is provided with a lifting device to raise the castor assembly above the testing platform when the apparatus is stopped.

The castor assembly is loaded with a mass, M 90 kg ± 1 kg equally divided over the three castors.

The distance (under load) between castor mounting plate (R) and load/drive plate (C) shall be more than 3 mm (see figure 1).

4.1.3 Drive mechanism

The drive to the specimen plate and to the castor assembly is interlocked and fitted with a reversing mechanism.

The number of revolutions is set by means of a pre–set counter.

The rotation speed of the rotating platform shall be (19 ± 1) min^{-1} and that of the castor assembly (50 ± 1) min^{-1}

The direction of rotation of the rotating platform shall reverse after approximately 3 min. The time in the stop position is about (5 ± 1) s.

The relationship between the rotation speed of the specimen table and that of the castor assembly causes a sharp reverse movement of the castors within the stressed area.

4.1.4 Suction device (A)

A suction device is mounted over the entire width of the stressed area, the height of this device being adjustable. The suction capacity is between 25 l/s to 30 l/s

4.1.5 Castors

The castors, shall have the following dimensions (see figure 2).

diameter	: 50 mm ± 2 mm;
width	: 20 mm;
radius of curvature of castor tread	: 100 mm;
crank distance	: 32 mm.

The distance between any two castor mountings is 225 mm.

The castors treads are made of polyamide having a Shore A hardness between 90 and 100.

After about 2 000 000 revolutions of the test platform, replace the castors, or earlier if necessary.

4.1.6 Specimen support

A circular sheet of rigid plastic (e.g. polymethylmethacrylate), 8 mm thickness and with a diameter of 800 mm, on which the specimen(s) is placed.

The support itself shall be laid on the test platform with holes in the support locating on studs on the turntable to prevent slippage.

4.1.7 Metal ring (optional)

A metal ring 10 mm in height and 700 mm in diameter can be used to hold loose laid tiles in position during the test.

4.2 Brush vacuum cleaner

Use a vacuum cleaner with rotating brush driven by an independent motor.

4.3 Large dimension grey–scale range, including the half degrees, in accordance with pr EN 1471.

5 Sampling

Take the specimens from the sample, in accordance with ISO 1957.

Cut either 3 semi–circles or 6 quadrants of radius about 350 mm. The quadrant edges shall be parallel to or at right angles to the direction of manufacture. Cut also a reference specimen of 200 mm x 200 mm. In all cases mark the direction of manufacture.

Attach two half circles or four quadrant specimens to the support over their whole area with double-sided adhesive, for example, ensuring that there are no gaps between the test specimens.

6 Conditioning

Condition the test specimens in the standard atmosphere for testing as defined in EN 20139 for a minimum of 24h.

7 Procedure

The tests are performed in the standard atmosphere for textiles.

7.1 Mounting of the specimens

Place the specimen support with attached specimens onto the test platform ensuring that the holes in the specimen support engage the studs in the turntable.

7.2 Verification of the castors

Check that the castors rotate freely and remove any remains of fibres which may be trapped therein, for example with compressed air.

7.3 Setting the apparatus

Lower the castors slowly until they come into contact with the specimens and until the wheel becomes idle. Place the suction device as close as possible to the specimen but without touching it. Start the vacuum cleaner and leave it to operate throughout the whole of the test.

7.4 Test A – Assessment of the wear behaviour of textile floorcoverings under the castor chair

7.4.1 Test procedure – Stage 1

Set the counter at 5000 cycles and start the machine.

After the platform has rotated for 5 000 revolutions, the machine stops ; then remove half of the test specimen for the short term evaluation and leave the other half for stage 2 of the test.

Brush vacuum the fatigued specimen (5 000 cycles) immediately after removal from the castor chair test device. Brush them four times in both directions with the brush vacuum cleaner using a slow movement and ending in the direction of the pile. Condition the specimen in the standard atmosphere for at least 24 hours, laying the specimen flat with the use surface uppermost or hanging them freely.

7.4.2 Test procedure - Stage 2

Place unworn specimens of the same textile floor covering or of an equivalent textile floor covering on the test platform to replace the half removed for the stage 1 test.

Set the counter at 20000 cycles and start the machine.

When the apparatus stops, remove the specimens which have been mounted since the beginning of stage 1. These have therefore been subjected to 25 000 cycles. Brush them as done at the end of the Stage 1 test.

7.5 Test B – Assessment of the change in colour (glossing) of flat needled floorcoverings

Set the counter at 750 cycles and start the apparatus. As soon as the apparatus stops, remove the specimens and condition them in the standard atmosphere for textiles for a minimum of 24h.

7.6 Test C – Assessment of the general structural integrity

Set the counter at 10 000 or 25 000 cycles as indicated in the specifications, and start the apparatus.

Examine the test specimens periodically during the course of the test and after the number of rotational cycles indicated in the specifications. Note the emergence and extent of signs of deterioration.

8 Assessment

8.1 Test A

Place, side by side and in the same reference direction, the fatigued specimens and the reference specimen and carry out the assessment in accordance with pr EN 1471[1] ignoring the inner and outer rings produced by the castor action. If evidence of destruction (i.e. delamination) is observed the product has failed the test ; (if it happens during the test, stop the machine). Note the type of destruction in the test report.

8.2 Test B

Place, side by side and in the same reference direction, the fatigued specimens and the reference specimen and carry out the assessment of the change of the colours by means of the grey scale in accordance with pr EN 1471. Record the number of the grey scale standards representing the contrast nearest to that existing between the reference specimen and the specimen submitted to the test.

8.3 Test C

During the course of the test, note the emergence and extent of signs of deterioration such as :

- loosening, swelling, tearing of the covering,
- loss of cohesion, flaking off or loss of cohesion of the foam backing,
- loss of cohesion and powdering of the impregnation and/or coating binders, etc.,
- any destruction of the material as a whole.

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1) For flat needled floorcoverings, carry out the assessment by means of grey scale.