

BS EN 1269:2015



BSI Standards Publication

Textile floor coverings — Assessment of impregnations in needed floor coverings by means of a soiling test

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National foreword

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When EN 1269 was at the prEN formal vote stage the UK committee voted against it because they considered that a precision clause was needed, i.e. a clause providing any available interlaboratory trial results obtained comparing methods A and B.

The UK participation in its preparation was entrusted to Technical Committee PRI/3, Textile floor coverings.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Textile floor coverings - Assessment of impregnations in needed floor coverings by means of a soiling test

Revêtements de sol textiles - Évaluation des
imprégnations des revêtements de sol aiguilletés au
moyen d'un essai d'encrassement

Textile Bodenbeläge - Beurteilung von
Ausrüstungsmitteln in Nadelvliesbelägen durch die
Anschmutzneigung

This European Standard was approved by CEN on 26 September 2015.

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European foreword

This document (EN 1269:2015) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile and laminate floor coverings”, the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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1 Scope

This European Standard specifies two methods for the evaluation of impregnations or other treatments in needed floorcoverings by means of a soiling test.

There is no correlation known between the two soiling methods.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 985, *Textile floor coverings — Castor chair test*

EN 1471:1996, *Textile floor coverings — Assessment of changes in appearance*

EN ISO 139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139)*

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

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

3 Principle

In both tests a fixed quantity of standard artificial soil is scattered over the surface of the specimens which is also subjected to the rolling action of castors or of tetrapod feet for a specified time. After vacuum cleaning, the degree of colour change is assessed by comparing the contrast between treated and untreated test specimens with the contrast of the grey scale.

Depending on the type of apparatus available, either method A or method B can be used.

4 Apparatus

4.1 Method A

4.1.1 Castor chair apparatus,

As described in EN 985, with a total load of 60 daN.

4.1.2 Soil distributor

The soil distributor uses two sieves, one inside and resting on the other to distribute the soil evenly on the part of the circular specimen that is subjected to the wear action of the castors. The whole distributor is placed vertically above the specimen with the sieves in the horizontal position.

The soil is placed in the inner sieve which is vibrated relative to the larger outer sieve thereby achieving even distribution of the soil on the specimen below the two sieves.

The mesh size of both sieves is 0,5 mm (module 31 of ISO 565). The base of each sieve (each of which has walls) is in the shape of a regular trapezium in order to correspond to a sector of the treated area of the test specimen.

The outer (lower) sieve has following base dimensions:

- distance between the parallel sides: 220 mm;
- length of the parallel sides: 100 mm, 45 mm.

Its underside is 40 mm above the specimen.

The dimensions of the inner (upper) sieve are not specified but shall be smaller than the base sieve to permit movement relative to the lower sieve.

4.2 Method B

4.2.1 Drum

A rigid cylindrical drum with bottom and lid shall be used. The inner diameter is (205 ± 5) mm and the inner height of the drum is (200 ± 10) mm.

The drum is made of polyvinylchloride (PVC), with a thickness of at least 6 mm. The bottom and lid are attached to the wall by appropriate means. The lid of the drum is preferably made of transparent material, e.g. Polymethylmethacrylate (PMMA.).

4.2.2 Tetrapod

A tumbler consisting of a central metal sphere with four outer feet arranged in the shape of a regular tetrahedron. Each foot is covered with a spherical polyurethane cap. In operation the tetrapod tumbles inside the rotating drum so that the feet impact on the test specimen lining the drum.

Tetrapod specifications:

- total mass: $(1\ 000 \pm 25)$ g;
- angle between any two legs: $109,5^\circ$;
- length of the foot: (62 ± 2) mm;
- diameter of the foot: (47 ± 2) mm;
- length of the metal leg: 32 mm;
- diameter of the metal leg: 25 mm;
- socket depth of the foot: 20 mm;
- free standing height tetrapod: (124 ± 2) mm;
- material of the feet: polyurethane elastomer;
- hardness of the foot top: (75 ± 5) shore.

4.2.3 Driving system

The drum lies loose on rollers mounted on a support and drive shaft. The drum is prevented from moving in its axial direction by smooth running wheels fixed between the shafts or by a suitable profile on the rollers. It is important that the axis of the drum rotation is horizontal, which should be checked by placing a spirit level along the upper surface of the drum when in position. The rotational frequency of the drum shall be (50 ± 2) cycles per minute.

A counter is incorporated in the system, so that the number of rotations of the drum can be recorded. The counter may be pre-set to stop the apparatus after a given number of revolutions.

NOTE Longer driving rollers can be used to rotate a number of drums at the same time provided that all the requirements of this standard are met.

4.3 Equipment common to both methods

4.3.1 Standard soil

The soil shall have the following composition (% by mass):

- Quartz silica: 88,30 %;
- Kaolin: 9,35 %;
- Yellow ferrous oxide: 0,20 %;
- Black ferrous oxide: 0,60 %;
- Paraffin oil: 1,55 %.

The soil shall have following colourimetric characteristics:

- L: $46,5 \pm 1,5$;
- a: $4,2 \pm 0,3$;
- b: $11,5 \pm 0,5$.

Since the colourimetric characteristics of the soil change with time and exposure to light, the soil shall be kept in the dark and its colourimetric characteristics (L, a, b) shall be checked every 6 months against the specified tolerances.

4.3.2 Vacuum cleaner

A household type apparatus shall be used, equipped with a smooth, approximately 2 500 mm² section nozzle having the following characteristics:

- partial vacuum = $(1\,900 \pm 190)$ mm water column;
- air flow rate = (30 ± 3) dm³/s

4.3.3 Large dimension grey scales

A set of large dimension grey scales including half degrees according to ISO 105-A02.

4.3.4 Apparatus

An observation device according to Clause 5 in EN 1471:1996.

5 Sampling and preparation of the specimens

5.1 Sampling and selection of the specimens

Take a representative sample of four different coloured samples from the commercial range of the floor covering in accordance with the methods given in ISO 1957.

5.2 Preparation of the specimen

5.2.1 Method A

From each sample to be examined, cut two test specimens in the shape of a quadrant having a radius of 350 mm. The edges of the quadrant are cut parallel with and at right angles to the direction of manufacture. One of the two specimens is kept as a reference specimen for the evaluation. Mark the two specimens with an arrow on the back (e.g. the direction of production) to permit alignment in the same direction for assessment.

The quadrants are fixed onto the support (dimensionally stable flat plastic disk) using two strips of double-sided adhesive tape laid overlapping the joints.

In the case of self-adhesive tiles place them on the support without any additional adhesive.

5.2.2 Method B

From each sample to be examined, cut two test specimens of (640 × 190) mm. The length is taken in the direction of production. One of the two specimens is kept as a reference specimen for assessment, the other one is used for the soiling test in the tetrapod-drum. Cover the long sides of this specimen with a 20 mm wide tape.

6 Conditioning

Condition the test specimens in the standard atmosphere specified in EN ISO 139, for at least 24 h.

7 Procedure

7.1 Method A

- a) Clean the specimens using the vacuum cleaner (4.3.2) before placing them onto the castor chair apparatus. Place the soil distributor above the specimen.
- b) Weigh out 10 g of standard soil (4.3.1); rotate the support plate of the apparatus without lowering the castor device; carefully put the standard soil into the inner sieve by means of a spatula, so that it is evenly distributed over the whole surface of the sieve.
- c) Vibrate the sieve so as to spread out the soil evenly over the whole surface of the specimen.
- d) Lower the castor apparatus with a total loading of 60 daN until it rests on the support and then rotate the plate 100 cycles without reversal so as to spread out the soil and make it penetrate.
- e) Raise the castors and remove the specimen support from the apparatus.
- f) Clean the specimen with the vacuum cleaner (4.3.2) using a forwards and backwards motion for 5 s in each direction. Repeat this 10 times. Examine the treated specimen and if the soil is not distributed evenly on the specimen repeat the test with a new specimen.
- g) On the same specimens a second soil treatment shall be applied. Repeat all of the operation b) to f) by using the opposite direction of rotation in d).
- h) Remove the specimens from the support and assess the colour change grade using the large grey scale (4.3.3). Each assessor shall assess the colour change in the worst direction with the large grey scale. For each specimen note the individual grade selected on the large grey scale.

7.2 Method B

- a) Weigh 10 g of standard soil. The test specimens may be soiled before or after they have been placed in the drum.
- b) Distribution of soil before placing in the drum: Spread the standard soil over the specimen, so that it is equally distributed over the whole surface of the specimen. Put the drum on its side and carefully place the soiled test specimen in the drum. Keep the drum in the horizontal position to prevent uneven distribution of the soil from edge to edge.

In the case of textile floorcoverings with pile, the pile lay should be placed in the opposite direction of rotation.

- c) Distribution of soil after placing in the drum: Put the drum on its side and place the specimen in the drum. Keep the drum in the horizontal position to prevent uneven distribution of the soil from edge to edge. Distribute the soil homogeneously over the test specimen, by rolling the drum forwards and backwards on a level table.
- d) Test: Mount the drum on the drive mechanism and set the number of revolutions at 3 000.
- e) After 3 000 cycles, take the specimen out of the drum. Clean the specimen with the vacuum cleaner (4.3.2) using a forwards and backwards motion for five seconds in each direction. Repeat this 10 times. Examine the treated specimen and if the soil is not distributed homogeneously on the specimen repeat the test on a new specimen until a homogeneous distribution is achieved.
- f) Assessment: Remove the specimens and assess the colour change grade using the large grey scale (4.3.3). Each assessor shall assess the colour change in the worst direction with the large grey scale. For each specimen note the individual grade selected on the large grey scale.

8 Expression of results

Record the colour change grade of each specimen, i.e. the contrast between the tested specimen and the reference specimen (5.2), using the grey scale (4.3.3).

Express the result by the worst assessment grade obtained from the different coloured specimens.

9 Test report

The test report shall contain the following information:

- a) a reference to this standard i.e. EN 1269;
- b) the method used (method A or B);
- c) the colour change grade of each specimen of each colourway;
- d) the result of the test according to Clause 8;
- e) any deviation from this standard which may have affected the results.

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