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Textile floor coverings — Determination of resistance to damage at cut edges using the modified Vettermann drum test

Revêtements de sol textiles — Détermination de la résistance des joints par l'essai au tambour Vettermann modifié

[Revision of second edition (ISO 10833:2001)]

ICS 59.080.60

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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 2.

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.

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

ISO 10833 was prepared by Technical Committee ISO/TC 219, *Floor coverings*, and by Technical Committee CEN/TC 134, *Resilient, textile and laminate floor coverings* in collaboration.

This third edition cancels and replaces the second edition (ISO 10883 : 2001), which has been technically revised.

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Textile floor coverings — Determination of resistance to damage at cut edges using the modified Vettermann drum test

1 Scope

This International Standard describes a method to determine the susceptibility of textile floor coverings to mechanical damage at cut edges.

It is applicable to all textile floor coverings both as sheet materials and as tiles.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 atmosphere for conditioning and testing*

ISO 9405, *Textiles — Assessment of changes in appearance*

ISO 1957, *Machine made textile floor coverings : sampling and cutting specimens for physical tests*

ISO 2424, *Textile floor coverings - Vocabulary*

ISO 10361 : 1990, *Textile floor coverings - Production of changes in appearance by means of a Vettermann drum and hexapod tumbler testers*

3 Terms and definitions

For the purposes of this International Standard the following terms and definitions apply in addition to those in ISO 2424.

3.1

delamination

separation of the use-surface and/or foundation/primary substrate of a textile floor covering from the secondary substrate

3.2

fraying

loss of pile or substrate material of a textile floor covering from a cut edge

3.3

tufting out

loss of tufts from the use-surface of a textile floor covering

3.4 sprouting

release and appearance during use of extra long tuft legs which were accidentally trapped within the pile of a textile floor covering during manufacture.

3.5 laddering/shooting

loss of consecutive loops of the same column from the use-surface of a textile floor covering.

4 Principle

A metal ball with six rubber studs rolls freely inside a rotating drum which is lined with the textile floor covering specimens.

On sheet materials a cut is made along the length of the specimens at an acute angle such that the cut edges are stressed in the test.

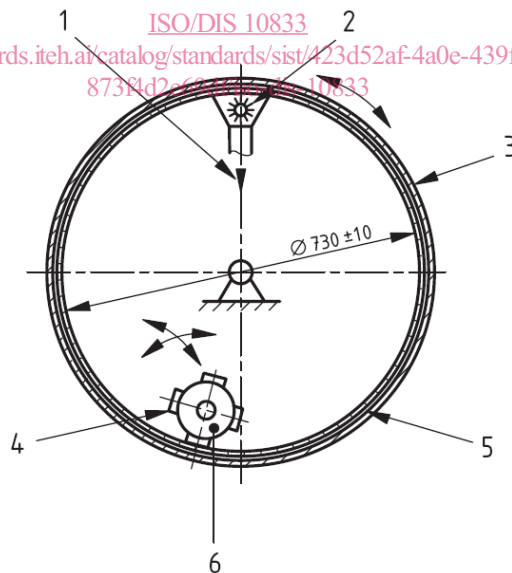
Tiles are put together so that the original edges of the tiles form the joint which is stressed in the test.

After the test the appearance of the fatigued cut edges is assessed.

5 Apparatus

5.1 Drum tester, conforming to 5.1.1 of ISO 10361, including a vacuum cleaner with an air change rate at the nozzle of 25 to 40 l/s.

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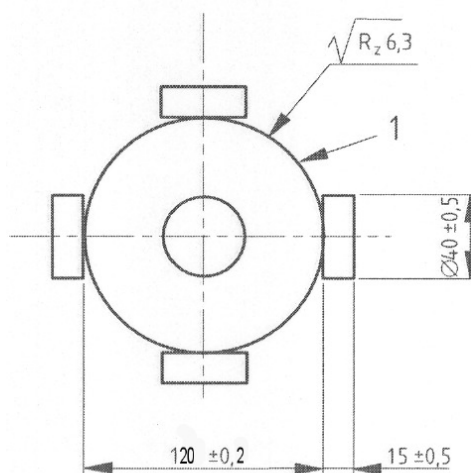
Key

- | | | | |
|---|------------------------------|---|----------------------------------|
| 1 | Extraction of brushed fibres | 4 | Rubber stud |
| 2 | Circular brush | 5 | Fixing plate in vulcanized fibre |
| 3 | Metal drum | 6 | Steele ball (see Figure 2) |

Figure 1 — Vettermann drum

5.2 Metal ball, fitted with six cylindrical rubber studs these being fitted so as to be equally spaced from each other on the surface of the ball. The mass of the ball without rubber studs shall be $(7\ 000 \pm 100)$ g. The diameter of the ball shall be $(120 \pm 0,2)$ mm.

Dimensions in millimetres



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Key

- 1 Ball <https://standards.iteh.ai/catalog/standards/sist/423d52af-4a0e-439f-9676-873f4d2e69df/iso-dis-10833>

Figure 2 — Ball

5.3 Rubber studs, conforming to ISO 10361 that are replaced before each test.

5.4 External vacuum cleaner, upright type with rotating brush and beater bar.

5.5 Single sided adhesive tape, of width at least 50 mm.

5.6 Double sided adhesive tape, of width at least 50 mm.

6 Sampling and preparation of specimens

6.1 Sampling

6.1.1 General

Sampling shall be carried out in accordance with ISO 1957.

6.1.2 Sheet materials

Take four test specimens approximately 570 mm long (in the direction of manufacture) and approximately 265 mm wide. The longitudinal edge of the specimens shall be parallel to the direction of manufacture.

6.1.3 Tiles

Take at least four tiles of dimensions 500 mm x 500 mm or of lesser dimensions, but not smaller than 265 mm X 265 mm.

Before cutting mark the corners of the tiles and the direction of manufacture on the back of the specimen as shown in figure 3.

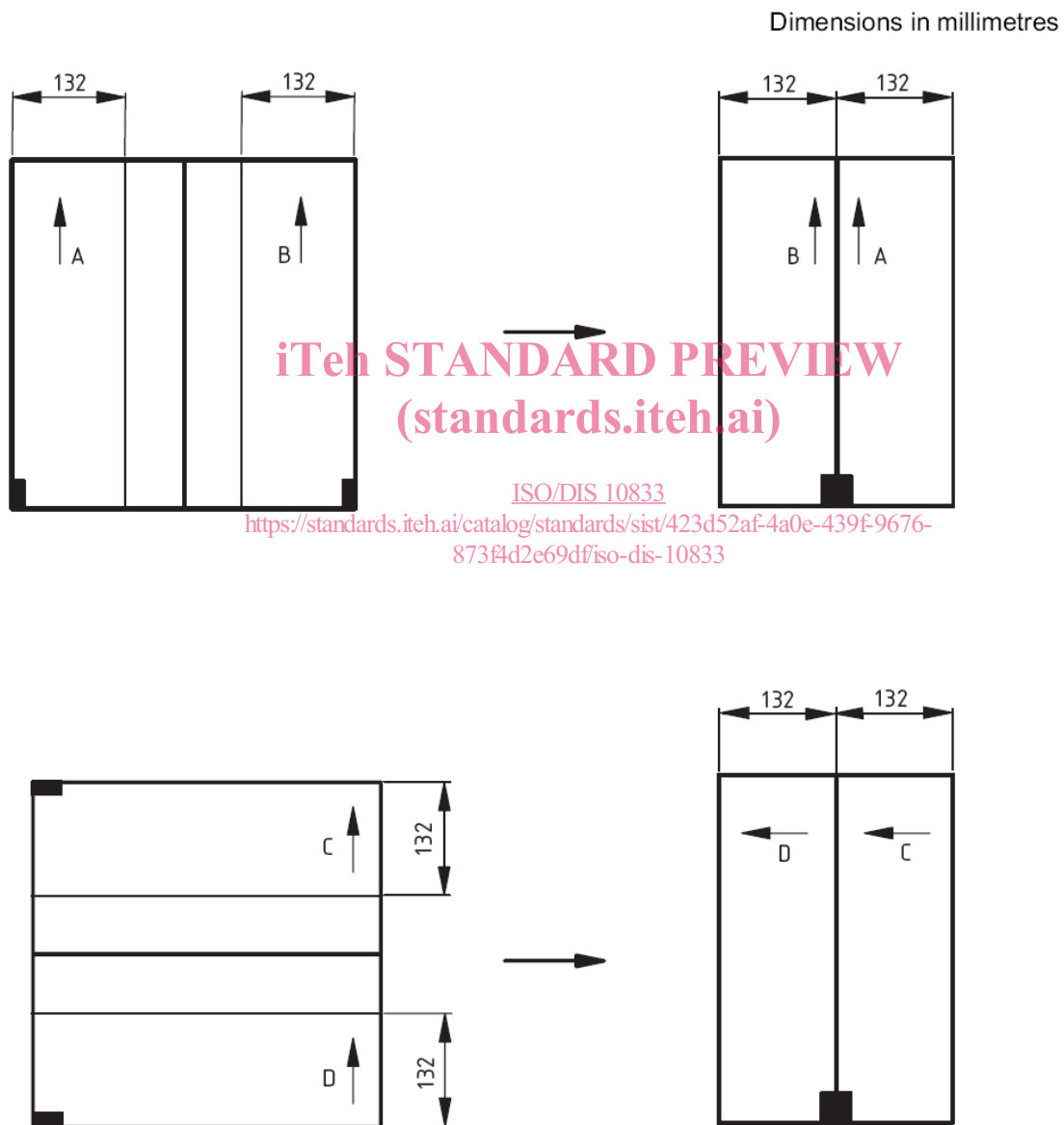


Figure 3 — Specimen preparation by cutting of tiles

From the tiles cut a total of eight specimens of width approximately 132 mm, four of them in the direction of manufacture and four crosswise, as shown in figure 3.

Ensure that the drum is filled to capacity using fillers of similar height and construction.

6.2 Preparation of specimens

6.2.1 Sheet materials

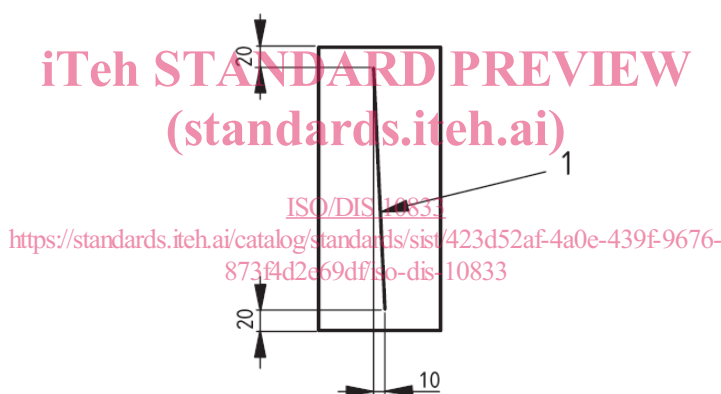
Make a cut in the centre of the test specimens making an acute angle with the direction of manufacture (see figure 4). The cut shall cross at least one pile row. The cut shall be made with a sharp cutting tool (carpet knife or a press cutter) cutting from the pile side through pile and backing.

Connect the two sides of the cut test specimens on the back with a single sided adhesive tape of at least 50 mm width. Apply the adhesive tape firmly. Ensure that the two edges are as close as possible.

Attach double-sided adhesive tape along the entire specimen length and positioned over the one sided tape.

Cover both ends of the test specimens with a 50 mm wide single sided adhesive tape to prevent fraying during the test.

Dimensions in millimetres



Key

1 Cut

Figure 4 — Setting of the cut in specimens of sheet materials

If necessary remove frayed and sprouting parts of damaged tufts with a sharp cutting tool.

6.2.2 Tiles

Prepare four test specimens of each floor covering as shown in figure 3, two to test the original tile cut edges in the direction of manufacture (pieces A and B) and two in the transverse direction (pieces C and D).

Make up four composite test specimens with the original cut edge in the centre.

Position the edges in the centre of the specimen as close to each other as possible and fix in position by the single sided adhesive tape.

Attach double-sided adhesive tape along the entire specimen length and position over the single-sided tape.

If necessary remove frayed and sprouting parts of damaged tufts with a sharp cutting tool.