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Textile floor coverings — Production of changes in appearance by means of Vettermann drum and hexapod tumbler tester

Revêtements de sol textiles — Production de changements d'aspect au moyen d'essais au tambour Vettermann et au tambour pour hexapode

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

This third edition cancels and replaces the second edition (ISO 10361:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

— The main changes in this document were made regarding the material of the studs. In this standard we propose to replace the current used materials rubber or PU into stainless steel to avoid problems with consistency of the raw materials and abrasion of studs during the test.

A list of all parts in the ISO 10361- series can be found on the ISO website.

Introduction

This International Standard describes two instruments used for fatiguing textile floor covering specimens and producing changes in appearance in a laboratory simulation of wear.

This International Standard was originally published as a type 2 Technical Report. ISO/TC 219 decided to revise the document for publication as an International Standard.

Textile floor coverings — Production of changes in appearance by means of Vettermann drum and hexapod tumbler tester

1 Scope

This International Standard describes procedures that use the mechanical action of a Vettermann drum or a hexapod tumbler tester to produce changes in appearance (surface structure and colour) to all types of textile floor coverings. It does not include pilling or colour changes due to other actions.

Changes produced by these drum testers are assessed in accordance with the applicable assessment standard.

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.

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*

ISO 9405, *Textile floor coverings — Assessment of changes in appearance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2424 apply.

4 Principle

A steel ball or a hexapod with studs rolls randomly inside a rotating drum which is lined with the textile floor covering specimens.

After fatiguing, the change in appearance of the specimens is assessed in accordance with the applicable assessment standard.

5 Method A — Vettermann drum method

5.1 Apparatus

5.1.1 Vettermann drum tester

with a metal drum of the following dimensions (see Figure 2):

— internal diameter: (730 ± 10) mm;

— internal depth: (270 ± 5) mm;

— effective depth: (240 ± 7) mm;

— thickness of curved surface: (8 ± 0,5) mm.

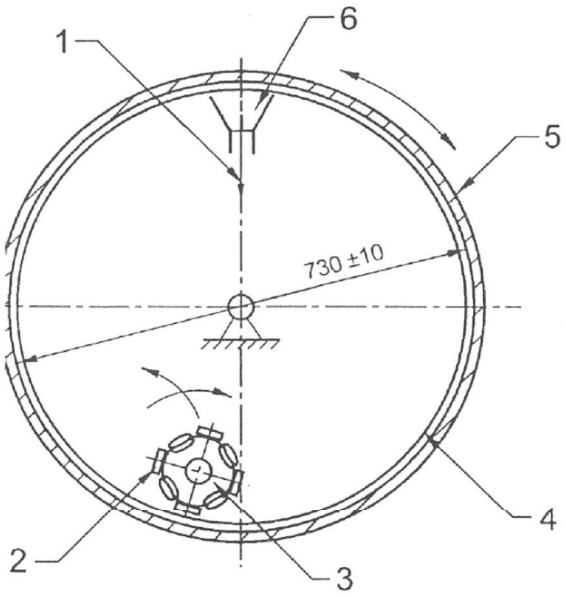
The drum shall be capable of rotating at a speed of (16 ± 1) r/min and shall have facilities for reversing the direction of rotation every 300 ± 30 seconds with 2 ± 1 s stationary time stationary time. The drum system shall incorporate a revolution counter, and specimens shall be held in place by four adjustable retaining segments [thickness (15 ± 1) mm] on each side wall of the drum.

Loose pile fibres shall be extracted by a vacuum cleaner. Figure 2 illustrates the drum in cross-section.

A vulcanized fibre backing sheet of size 2 320 mm × 270 mm × 1,5 mm thick and of density 1,1 g/cm^3 to 1,3 g/cm^3 at 20 °C is loosely laid inside the drum shell on the working side. The sheet remains permanently in the drum.

To avoid damage on metal studs and internal elements of the drum please protect the wooden side plates with a resilient/soft material (see Figure 1).

Figure 1 — Example of resilient/ soft material for protection of the drum (vettermann drum tester)



Key

1 extraction of fibres
2 Stainless steel stud
3 steel ball
4 vulcanized-fibre backing sheet
5 metal drum
6 vacuum cleaner

Figure 2 — Vettermann drum tester

5.1.2 Steel ball

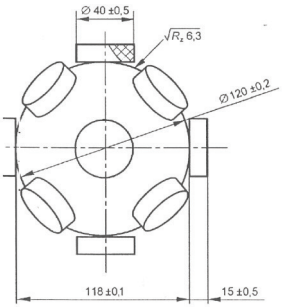
fitted with 14 stainless steel studs located so as to be equally spaced on the ball surface. The studs shall be replaceable and screwed into flat faces machined into the surface of the ball (Figure 3).

— diameter of the ball: (120 ± 0,2) mm

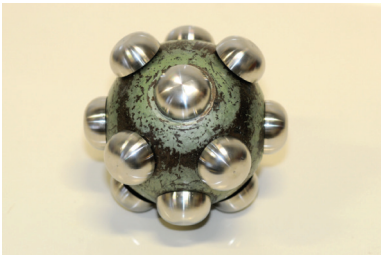
— distance between diametrically opposed flat stud-mounting faces: (118 ± 0,1) mm

— mass without studs: (6 800 ± 100) g

— mass with 14 studs: (8 000 ± 100) g



a)



b)

Figure 3 — schematic view (a) and photograph (b) of steel ball