Designation: D5417 – 05

Standard Practice for Operation of the Vettermann Drum Tester[1]

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1. Scope

1.1 This practice describes the equipment and operation of the Vettermann drum tester for testing pile yarn floor covering to produce changes in appearance and color due to changes in surface structure by mechanical action.

1.2 This practice is only applicable for use in testing unused pile floor covering of all types. It is not applicable for use in testing used pile yarn floor coverings.

1.3 The values stated in inch-pound units are to be regarded as the standard for all measurements except mass. The SI (metric) units for all measurements except mass are provided for information only.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D123 Terminology Relating to Textiles

D1776 Practice for Conditioning and Testing Textiles

D5684 Terminology Relating to Pile Floor Coverings

3. Terminology

3.1 For definitions of terms relating to Pile Floor Coverings, D13.21, refer to Terminology D5684.

3.1.1 The following terms are relevant to this standard: carpet, finished, finished pile yarn floor covering, floor covering, lengthwise direction, pile, pile lay, pile yarn floor covering, pitch, practice, primary backing, secondary backing, textile floor covering, texture, tufted fabric.

3.2 For all other terminology related to textiles, refer to Terminology D123

4. Summary of Practice

4.1 The test specimen is mounted in the rotatable drum with the pile surface towards the center of the drum and the edges under the retaining segments. A steel ball, with 14 rubber studs rolls randomly inside the drum on the pile surface for a specified number of revolutions.

5. Significance and Use

5.1 This equipment may be used to bring about the changes in texture on the surface of pile floor covering caused by mechanical action.

5.2 The acceptance criteria of this practice shall be set by mutual agreement between the purchaser and the supplier.

6. Apparatus and Material

6.1 *Vettermann Drum Tester (See Fig. 1):*

6.1.1 *Drum,* incorporating a revolution counter and four adjustable retaining segments (thickness: 15 ± 1 mm (0.6 ± 0.03 in.) on each side wall of the drum. A free-running circular brush mounted in such a way that it lightly contacts the surface of specimens and loose fibers are continuously extracted by a vacuum cleaner. A vulcanized fiber backing sheet 2320 by 270 by 1.5 mm (93.3 by 10.6 by 0.06 in.) is loosely laid inside the drum. This sheet remains permanently in the drum.

6.1.2 The Vettermann drum dimensions are as follows:

Internal diameter	730 ± 10 mm	(28.7 ± 0.39 in.)
Internal depth	270 ± 5 mm	(10.6 ± 0.20 in.)
Effective depth	240 ± 7 mm	(9.4 ± 0.28 in.)
Thickness of curved surface	8 ± 0.5 mm	(0.31 ± 0.02 in.)

6.1.3 *Driving System,* with a speed of 1.65 rad/s (16 ± 1 rpm) and the direction of rotation is reversed every five minutes, stopping between reversals for approximately 1 s time intervals, with approximately one second stationary time.

[1] This practice is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.21 on Pile Floor Coverings.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.