Designation: D3206 – 17

Standard Test Method for Soil Resistance of Floor Polishes[1]

This standard is issued under the fixed designation D3206; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of soil resistance of floor polishes on test tile only. A carpet covered roller is used to simulate the action of foot traffic. A synthetic soil is employed in conjunction with the roller.

1.2 *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.*

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1436 Test Methods for Application of Emulsion Floor Polishes to Substrates for Testing Purposes

D3153 Test Method for Recoatability of Water-Emulsion Floor Polishes

E97 Method of Test for Directional Reflectance Factor, 45-Deg 0-Deg, of Opaque Specimens by Broad-Band Filter Reflectometry (Withdrawn 1991)[3]

3. Significance and Use

3.1 This test method measures the ability of a floor polish to resist soiling by a standard soil that approximates dirt carried in from the outside.

4. Apparatus

4.1 *Official Vinyl Composition Tile (OVCT)*[4]—white, 304.8 by 304.8 mm (12 by 12 in.).

4.2 *Washability Apparatus*—The Gardner straight line washability machine.

4.3 *Roller.* [4]

4.4 *Carpeting.* [5]

4.5 *Standard Soiling Compound*—A soiling compound, such as AATCC (American Association of Textile Colorist and Chemist) synthetic soil formula.[6]

4.6 *Reflectometer,* equipped with a search unit for measuring diffused reflectance and a green filter.

4.7 *Pipet,* 2 mL.

5. Procedure

5.1 Clean the test tile in accordance with Test Method D3153, paragraph 9.1.2. Rinse well and allow to dry. Apply 2 mL of polish by following Method B of Test Methods D1436. After 3 h, apply a second coat, also 2 mL. Age the tiles for 48 h at room temperature.

5.2 Sprinkle carefully, as evenly as possible, exactly 2 g of soil across that portion of the tile over which the roller will track. Run the machine for 300 cycles (600 passes). During the cycling, it may be necessary to occasionally brush the soil back onto the track as it will be scattered by the motion of the roller. At the end of the test, wipe the surface with tissue to remove any loose soil. Wipe firmly, but do not bear down.

NOTE 1—Before new carpeting on the roller is used for the first time, it should be "broken in" by running over a blank tile with approximately 4 g of soil for 500 or more cycles.

[1] This test method is under the jurisdiction of ASTM Committee D21 on Polishes and is the direct responsibility of Subcommittee D21.04 on Performance Tests

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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.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] OVCT tile may be obtained through Armstrong Flooring from various home improvement stores. The following Armstrong tile substrates have been found to perform adequately for this test method: Armstrong Excelon Feature Tile: Chalk II (56830), http://www.armstrong.com/commflooringna/product_details_toolbox_magnify.jsp?item_id=47408.

[5] Obtain tight weave short pile carpet from local store.

[6] Prepared soils are available from Textile Innovations Corporation, P.O. Box 8, Windsor NC 27983 or SDL Atlas Textile Testing Solutions: SDL Atlas LLC, 3934 Airway Drive, Rock Hill, SC 29732.

6. Evaluation of Results

6.1 Measure 45-deg, 0-deg directional (diffuse) luminous (green filter) reflectance with instrument of type specified in Test Method E97. Set the clean tile, with two coats of polish, at 100 with the green filter. After the test, take five readings and average.

7. Calculation and Report

7.1 Calculate the quantitative degree of soiling as follows:

$$P = 100 - A \quad (1)$$

where:

P = percentage of soiling, and
A = average of five readings.

7.2 Results may also be reported in a comparative manner by both examining the soiled test polish and rating it *versus* a standard polish. In this case no glossmeter or reflectometer is required.

8. Precision and Bias

8.1 When performed as described, the test method will differentiate between polishes that resist dirt pick-up well and those that do not. The test is more accurate when performed with a control sample whose soil resistance is known. Replicate tests show good reproducibility.

8.2 Since there is no accepted reference material for determining the soil resistance of polish films, bias has not been determined.

9. Keywords

9.1 carpet; dirt; luminous; OVCT; polishes; reflectance; reflectometer; reflectometry; soiling; soil resistance; washability