



Designation: D 4103 – 90 (Reapproved 2002)

# Standard Practice for Preparation of Substrate Surfaces for Coefficient of Friction Testing<sup>1</sup>

This standard is issued under the fixed designation D 4103; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice covers procedures for the preparation of OVCT (Official Vinyl Composition Tile) and wood panels for subsequent use in tests to measure the coefficient of friction.

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.*

## 2. Referenced Documents

### 2.1 ASTM Standards:

D 1436 Test Method for Application of Emulsion Floor Polishes to Substrates for Testing Purposes<sup>2</sup>

## 3. Significance and Use

3.1 The reliability of any of the practices using panels prepared by these procedures may be dependent upon the manner and care in which the test panels are prepared. Having these practices in a single procedure eliminates the necessity for covering these details in all of the practices wherein the panels are used.

## 4. Test Panels (OVCT)

4.1 *Preparation of OVCT for Testing Emulsion Floor Polishes*—For interlaboratory and specification testing, tiles of OVCT shall be used.<sup>3</sup> The tiles are prepared for use as follows:

4.1.1 Thoroughly scrub all tiles using No. 00 steel wool and any suitable aqueous type wax remover or stripper. Scrub hard to help smooth out high and low spots on the tile. Rinse well with clear water, towel dry, and air dry for 15 to 30 min in a rack that allows air to reach both sides of the tile.

4.1.2 Apply two coats of any suitable floor polish using any method as prescribed in Section 5. Allow to dry 2 h between coats and a minimum of an overnight dry (15 to 16 h) after the second coat.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D21 on Polishes and is the direct responsibility of Subcommittee D21.06 on Slip Resistance.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 15.04.

<sup>3</sup> OVCT is Official Vinyl Composition Tile obtained from Chemical Specialties Manufacturers Assn., 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

4.1.3 The next day, strip off all the polish from the tiles following the procedure used in 4.1.1.

4.1.4 Repeat the coating (4.1.2) and stripping (4.1.1) operations four more times. A total of ten coats of polish will then have been applied and removed.

NOTE 1—These tiles may be used and reused for testing many times after having been prepared once in accordance with 4.1.1–4.1.4. Tiles should be discarded when they show excessive wear or when erratic results are obtained when used with testing devices. At least 25 tests can be run before this will be noticed.

4.1.5 When scrubbing the tiles it is often found that they become distorted and are no longer flat. Any of the devices used for measuring coefficient of friction will give poor reproducibility if the tiles are not flat. Therefore, it is recommended that the tiles be flattened prior to coating for a test. The following procedure is suggested:

4.1.5.1 Strip the tiles of any previous polish using the procedure given in 4.1.1. (If the procedures 4.1.1–4.1.4 have been followed exactly, this should not be necessary.) Rinse well with clear water, towel dry, and air dry for 15 to 30 min in a rack that allows air to reach both sides of the tile.

4.1.5.2 Pile the tiles face to face and back to back on a piece of glass slightly larger than the tiles.

4.1.5.3 Place the tiles on the glass in an oven at 105 to 115°F (40.6 to 46.1°C) for 2 to 2½ h.

4.1.5.4 Remove the entire pile from the oven and let cool, still on the glass, at least overnight (15 to 16 h) at room temperature (approximately 73°F (22.8°C)).

4.1.5.5 The tiles are now ready for coating with the test polishes.

## 5. Application of Test Polish

5.1 Apply one coat of the emulsion polish to be tested, using any of the five methods described in Method D 1436. After coating, place the tile in a vertical position. If at the end of 10 min there is a bead of polish at the bottom of the tile, wipe it off and allow the tile to dry in this vertical position for 2 h at standard conditions. (See Section 3 of Test Method D 1436.)

5.1.1 Reverse the tile, top to bottom (rotate tile 180°) and apply a second coat in accordance with Test Method D 1436 as the first. This rotation will equalize the film thickness. Allow the second coat to dry 18 to 24 h at standard conditions (see Section 3 of Test Method D 1436) before testing.