



Standard Test Method for Measuring the Coefficient of Friction for Evaluation of Slip Performance of Footwear and Test Surfaces/Flooring Using a Whole Shoe Tester¹

This standard is issued under the fixed designation F2913; 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 method² determines the dynamic coefficient of friction between footwear and floorings under reproducible laboratory conditions for evaluating relative slip performance. The method is applicable to all types of footwear, outsole units, heel top-pieces (top-lifts) and sheet soling materials, also to most types of indoor floorings, including matting and stair nosing, and surface contaminants on the flooring surface, including but not limited to liquid water, ice, oil and grease. The method may also be applied to surfaces such as block pavers, turf and gravel.

1.2 Special purpose footwear or fittings containing spikes, metal studs or similar may be tested on appropriate surfaces but the method does not fully take account of the risk of tripping due to footwear/ground interlock.

1.3 The values stated in the ASTM test method in metrics are to be regarded as the standard. The values in parentheses are for information.

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:³

F1646 Terminology Relating to Safety and Traction for Footwear

¹ This test method is under the jurisdiction of ASTM Committee F13 on Pedestrian/Walkway Safety and Footwear and is the direct responsibility of Subcommittee F13.30 on Footwear.

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² This standard is derived from SATRA TM144, Friction {Slip Resistance} of Footwear and Floorings, copyright SATRA Technology Centre, Kettering Northamptonshire, NN16 8SD, United Kingdom.

³ 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.

2.2 Other References:

BS EN ISO 4287 Geometrical product specification (GPS). Surface texture: Profile method. Terms, definitions and surface texture parameters⁴

EN 10088-2 Stainless steels - Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes⁵

3. Terminology

3.1 For general definitions of terms, refer to the Terminology **F1646**.

3.2 Definitions:

3.2.1 *slider*—a 76 ± 1 mm circular test specimen cut from sheet material.

3.2.1.1 *Discussion*—Should a shape and or size of slider other than a 76 mm circular shape be used, it shall be documented within the test report (see **14.1.2.1**).

3.2.2 *slider 96*—a pre-described rectangular test specimen intended for use in calibration of the test surface (see **10.6.1**).

4. Summary of Test Method

4.1 The footwear item and underfoot surface are brought into contact, subjected to a specified vertical force for a short period of static contact then moved horizontally relative to one another at a constant speed. The horizontal frictional force is measured at a given time after movement starts and the dynamic coefficient of friction is calculated for the particular conditions of the test.

5. Significance and Use

5.1 This non-proprietary laboratory test method allows preliminarily for the reproducible testing of whole footwear and footwear-related soling materials for evaluating relative slip performance. Other ASTM test methods generally employ a standardized test foot primarily for evaluation of flooring materials.

⁴ Available from British Standards Institution (BSI), 389 Chiswick High Rd., London W4 4AL, U.K., <http://www.bsigroup.com>.

⁵ Available from European Committee for Standardization (CEN), Avenue Marnix 17, B-1000, Brussels, Belgium, <http://www.cen.eu>.