Designation: F609 – 05

AnAmerican National Standard

Standard Test Method for Using a Horizontal Pull Slipmeter (HPS)[1]

This standard is issued under the fixed designation F609; 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 measurement of the slip index of footwear sole, heel, or related materials on dry walkway surfaces in the laboratory and in the field.

1.2 The dimensional values used in the test method are given in units of inches, pounds, or degrees Fahrenheit. Alternative equivalent values are in parentheses and are for informational purposes only.

1.3 *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]

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

F1646 Terminology Relating to Safety and Traction for Footwear

3. Terminology

3.1 For definitions of terms, refer to Terminology F1646.

4. Significance and Use

4.1 The Horizontal Pull Slipmeter[3] is a laboratory and field instrument designed to provide information about the slip index characteristics between walkway surfaces and a test foot material under dry conditions only. The HPS can not be used on wet surfaces. Slip index can be affected by surface roughness, presence of water, contaminants such as grease and other foreign materials, and floor surface wear over time. Slip index, as determined by the HPS, most likely will not give useful information for evaluating liquid contaminated surfaces, and therefore, will not provide an effective assessment of a potential slipping hazard on a walkway surface under these conditions.

4.2 The value reported by the Horizontal Pull Slipmeter is called the slip index. Slip index is ten times the static coefficient of friction. For example, a static coefficient of friction of 0.4 is displayed by a slip index of 4.0 when measured by the Horizontal Pull Slipmeter.

4.3 The HPS can be used on inclined surfaces. No adjustment for slope is needed for measurements in the direction perpendicular to the slope and when averaging four measurements at one location taken according to step 10.14.

5. Apparatus[4]

5.1 *Horizontal Pull Slipmeter*—See Fig. 1.

6. Reagents and Materials

6.1 *Silicon carbide abrasive paper,* No. 400 grit.

6.2 *Camel hair brush or other non-static bristle material.*

7. Test Foot

7.1 The test foot shall be Trademark Neolite[5] Test Liner that measure 0.5 in. (12.7 mm) in diameter and 0.25 in. (6.35 mm) to 0.2 in. (5.08 mm), but not less than 0.2 in. (5.08 mm) in thickness. When testing actual shoe materials, Neolite[5] should be replaced with the desired test materials.

7.2 A set of three test feet of the same material are required for performance of the test.

[1] This test method is under the jurisdiction of ASTM Committee F13 on Pedestrian/Walkway Safety and Footwearand is the direct responsibility of Subcommittee F13.10 on Traction.

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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 Horizontal Pull Slipmeter was developed by C. H. Irvine of Liberty Mutual Insurance Co., Hopkinton, MA.

[4] The sole source of supply of the apparatus known to the committee at this time is C.S.C Force Measurement Inc., 84 Ramah Circle North, Agawam, MA 01001. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend. Plans for the instrument may be obtained at a nominal cost from ASTM International Headquarters. Order ADJ12-606090-47.

[5] Neolite is a registered trademark with Goodyear Tire and Rubber Company. The sole source of supply of the apparatus known to the committee at this time is Smithers Scientific Services, Inc., 425 West Market Street, Akron, OH 44303, with an average specific gravity of 1.27 ± 0.02 and an average Shore A hardness of 93–96. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.