



Standard Practice for Calibration of the James Static Coefficient of Friction Machine¹

This standard is issued under the fixed designation D 6205; 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 practice covers the testing of the James Machine for reproducibility and repeatability of static coefficient of friction, relative to a standard reference interface consisting of the working surfaces of Borco² board and standard leather shoe sole material. The practice provides basis data on the stability of the James Machine to ensure accurate static coefficient of friction determinations over time and repeated use and for determining if the James Machine is mechanically calibrated and properly aligned.

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 2047 Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine³

D 2825 Terminology Relating to Polishes and Related Materials³

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁴

E 178 Practice for Dealing with Outlying Observations⁴

E 456 Terminology Relating to Quality Statistics⁴

2.2 Federal Specification:

KK-L-165C Leather, Cattlehide, Vegetable Tanned and Chrome Tanned, Impregnated, and Soles⁵

3. Terminology

3.1 *Definitions:* For general definitions, see Test Method

D 2047 and Terminology D 2825.

3.1.1 *James Static Coefficient of Friction (JSCOF), n*—static coefficient of friction as measured by the James machine in accordance with Test Method D 2047.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *Borco, n*—special 5-ply vinyl drawing board cover.

3.2.2 *reference surface, Borco standard leather system, n*—working interface of the set consisting of the white side of the Borco material, mounted as described in this practice, and the standard leather shoe sole material, mounted on a precision shoe pad as described in this practice.

3.2.3 *standard test sequence, n*—series of not less than eight consecutive James Static Coefficient of Friction (JSCOF) determinations made on the Borco/standard leather system in accordance with this practice.

4. Summary of Practice

4.1 The performance of the James Machine, in the standard configuration for the determination of James Static Coefficient of Friction (JSCOF), is tested relative to a standard working interface consisting of the surface of white Borco material in contact with a standard leather shoe pad. The static coefficient of friction values generated provide a basis to establish the reproducibility and repeatability of the mechanical configuration of the James Machine and determine whether the machine remains within the calibration limits.

5. Significance and Use

5.1 This practice is used to calibrate the James Machine for determination of static coefficient of friction of polish surfaces in accordance with Test Method D 2047. Over considerable time and repeated use the James Machine tends to become somewhat mechanically out of calibration, giving self-evident anomalous JSCOF readings. The periodic accumulation and comparison of data generated by this practice provides an indication of when the machine is no longer within the calibration limits and can no longer be expected to provide accurate and reliable data.

6. Interferences (Troubleshooting)

6.1 Deviations in calibration data and anomalies in machine reproducibility and repeatability are due to the following interferences:

6.1.1 *Contamination of the Test Surfaces*—These are most

¹ This practice is under the jurisdiction of ASTM Committee D-21 on Polishes and is the direct responsibility of Subcommittee D21.06 on Slip Resistance.

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² Borco is a registered trademark for a Danish product imported into the United States by Sierra Group, a division of Wallace Leisure Products, Inc. Available from Papyro-Tex A/S, DK-2730, Herlev, Denmark; distributed in North America through drafting and office supply stores under the trade names “Borco,” “Vyco,” and “Altex” board covers.

³ *Annual Book of ASTM Standards*, Vol 15.04.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.

⁵ Available from Standardization Documents Order Desk, Bldg 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.