Designation: D2625 – 94 (Reapproved 2015)

Standard Test Method for Endurance (Wear) Life and Load-Carrying Capacity of Solid Film Lubricants (Falex Pin and Vee Method)[1]

This standard is issued under the fixed designation D2625; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This test method (see Note 1) covers the determination of the endurance (wear) life and load-carrying capacity of dry solid film lubricants in sliding steel-on-steel applications.

NOTE 1—Reference may be made to Coordinating Research Council, Inc. (CRC) Report No. 419, "Development of Research Technique for Measuring Wear Life of Bonded Solid Lubricant Coatings for Airframes, Using the Falex Tester." See also Military Specification MIL-L-8937 (ASG), Jan. 22, 1963, and Methods 3807 and 3812 of Federal Test Method 791a.

1.2 The values stated in SI units are to be regarded as the standard except where equipment is supplied using inch-pound units and would then be regarded as standard. The metric equivalents of inch-pound units given in such cases in the body of the standard may be approximate.

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]

B16/B16M Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines

F22 Test Method for Hydrophobic Surface Films by the Water-Break Test

2.2 *U.S. Military Specifications:*[3]

MIL-L-8937

MIL-P-16232F Phosphate Coatings, Heavy, Manganese or Zinc Base (for Ferrous Metals)

2.3 *Other Standards:*[4]

42USC7671a Clean Air Act Amendments of 1990

Federal Test Method 791a Methods 3807 and 3812

3. Terminology

3.1 *Definitions:*

3.1.1 *dry solid film lubricants*—dry coatings consisting of lubricating powders in a solid matrix bonded to one or both surfaces to be lubricated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *direct load, n*—the load that is applied linearly, bisecting the angle of the vee block corrected to either the 800 lbf (3550 N) gauge reference or the 3000 lbf (13 300 N) gauge reference.

3.2.1.1 *Discussion*—This load is equivalent to the true load times the cos 42°.

3.2.2 *endurance (wear) life*—the length of test time before failure under a constant loaded condition, in minutes, in which the applied test lubricant performs its function.

3.2.3 *gauge load, n*—the value obtained from the gauge while running the test after being corrected to the standard curve using the calibration procedure for the 4500 lbf (20 000 N) reference gauge.

3.2.3.1 *Discussion*—The gauge reading is irrespective of the particular gauge used, and corrections are made by comparison to the Brinell ball impression diameters on a standard reference copper test coupon with a Rockwell hardness range of HB 37 to HB 39. An electronic calibration instrument[5] is available which can be used in place of the copper coupon.

[1] This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.L0.05 on Solid Lubricants.

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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] Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://dodssp.daps.dla.mil.

[4] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

[5] Trademark of and available from Falex Corp., 1020 Airpark Dr., Sugar Grove, IL 60554. A new model of the Falex Pin and Vee Block Test Machine has been available since 1983. Certain operating procedures are different for this new model. Consult instruction manual of machine for this information. 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.

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