Designation: D3705 – 14

Standard Test Method for Misting Properties of Lubricating Fluids[1]

This standard is issued under the fixed designation D3705; 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 the determination of the misting characteristics of lubricating fluids.

NOTE 1—This test method should not be used to evaluate fluids containing solid additives such as graphite.

1.2 The values stated in SI units are to be regarded as standard.

1.2.1 Inch-pound units are used to describe the various tube fittings shown in Fig. 1.

1.2.2 Inch-pound thread is shown in Fig. 2.

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.* For specific warning statements, see Sections 7 and 8.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D91 Test Method for Precipitation Number of Lubricating Oils

D235 Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)

D4175 Terminology Relating to Petroleum, Petroleum Products, and Lubricants

3. Terminology

3.1 For definitions of terms used in this test method, refer to Terminology D4175.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *line condensate, n*—in a mist lubrication system, oil mist which has coalesced in the distribution lines and is not available for lubrication purposes.

3.2.2 *reclassified oil, n*—in a mist lubrication system, lubricant that has coalesced into larger droplets at the points of required lubrication.

3.2.2.1 *Discussion*—Mist lubrication systems are designed so that the oil mist will coalesce in the appropriate area and provide lubrication in the right place.

4. Summary of Test Method

4.1 The mist generator is charged with oil and installed in the mist system. The unit is operated for 19 h; the mist generator, line condensate bottles, and reclassified oil collector are weighed before and after the test. The output from the generator and percentages of reclassified oil, line condensate, and stray mist are determined from changes in weight.

NOTE 2—Line condensate is the commonly accepted term used to describe the oil that coalesces in the mist distribution lines. In this test, the oil that coalesces in the 38 mm (1½ in.) tubing and the diagonal 19 mm (¾ in.) tubing is collected and weighed as line condensate. Oil that coalesces in the vertical 19 mm (¾ in.) tubing becomes part of the reclassified oil.

5. Significance and Use

5.1 This test provides a guide for evaluating the misting characteristics of oils for use in industrial mist lubrication systems. The degree of correlation between this test and service performance has not been fully determined.

6. Apparatus

6.1 The basic system consists of the following:

6.1.1 *Oil Mist Generator,* Alemite No. 383802-B4[3,4] (Fig. 1, item 23) with special ASTM-ASLE mist head 383803–B4 (Fig. 1, item 22). The oil mist generator is attached to the manifold so that it may be easily disconnected in order to determine its mass before and after the test.

6.1.2 *Air Temperature Regulator,* Alemite thermo-aire No. 383808–A4[4,5] (Fig. 1, item 24).

[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.L0.01 on Metal Removal Fluids and 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] The sole source of supply of known to the committee at this time is Alemite Co., Stewart Warner, 1826 West Diversey Parkway, Chicago, IL 60614.

[4] 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.

[5] The sole source of supply of Alemite thermo-aire unit No. 383808-A4 known to the committee at this time is Alemite Co., Stewart Warner, 1826 West Diversey Parkway, Chicago, IL 60614.

***A Summary of Changes section appears at the end of this standard**

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