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Standard Test Method for MIST SPRAY FLAMMABILITY OF HYDRAULIC FLUIDS¹

This standard is issued under the fixed designation D 3119; 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 one aspect of the flammability of hydraulic fluids. It is particularly useful for rating the relative flammability of mists of fire resistant hydraulic fluids. Many fluids having a useful degree of fire resistance burn when subjected to this procedure. Caution should be exercised in evaluating the flammable characteristics for fluids of different viscosities.

1.2 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautionary statements, see 5.1 and 5.2.

NOTE 1—Other ASTM procedures useful for determining aspects of the relative flammability of hydraulic fluids are Test Method D 92, Test Method D 2155, and Method D 2882. A variety of other tests, many of which simulate specific flammability hazards, are commonly used for rating the relative flammability of fire-resistant fluids.

1.3 *This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.*

2. Applicable Documents

2.1 ASTM Standards:

D 92 Test Method for Flash and Fire Points by Cleveland Open Cup²

D 2155 Test Method for Autoignition Temperature of Liquid Petroleum Products³

D 2882 Method for Vane Pump Testing of Petroleum Hydraulic Oils⁴

2.2 U.S. Military Standard:

MIL-C-81302B Cleaning Compound, Solvent, Trichlorotrifluoroethane

3. Summary of Method

3.1 The fluid to be tested is preheated, and then placed in a rotary-type ("airless") electric paint spray gun, and sprayed into the flame of a laboratory burner. The flammability of the sample is then rated by the operator on a relative scale. Fluids to be compared in relative flammability shall be tested by a single operator on a single day, using the same apparatus.

NOTE 2 Caution—This test should never be performed on any flammable liquid or on any combustible liquid having a fire point below 93°C. (200°F.) by the Cleveland Open Cup test method (D 92). A serious fire or explosion could result if such materials were tested by this procedure. Because of the danger of ignition of solvent vapors by the electric arc present in the motor of the spray gun, only fire resistant cleaning solvents should be used. An accident has been reported which involved the ignition of hexane vapors in a similar apparatus.

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.N on Hydraulic Fluids.

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² Annual Book of ASTM Standards, Vol 05.01.

³ Discontinued; see 1980 Annual Book of ASTM Standards, Part 24.

⁴ Annual Book of ASTM Standards, Vol 05.02.