Designation: D56 – 16a

Standard Test Method for Flash Point by Tag Closed Cup Tester[1]

This standard is issued under the fixed designation D56; 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.

INTRODUCTION

To ensure an acceptable precision, this dynamic flash point test method employs a prescribed rate of temperature rise for the material under test. The rate of heating may not in all cases give the precision quoted in the test method because of the low thermal conductivity of certain materials. To improve the prediction of flammability, Test Method D3941, which utilizes a slower heating rate, was developed. Test Method D3941 provides conditions closer to equilibrium where the vapor above the liquid and the liquid are at about the same temperature. If a specification requires Test Method D56, do not change to Test Method D3941 or other test method without permission from the specifier.

Flash point values are a function of the apparatus design, the condition of the apparatus used, and the operational procedure carried out. Flash point can therefore only be defined in terms of a standard test method, and no general valid correlation can be guaranteed between results obtained by different test methods, or with test apparatus different from that specified.

1. Scope*

1.1 This test method covers the determination of the flash point, by tag manual and automated closed testers, of liquids with a viscosity below 5.5 mm^2/s (cSt) at 40 °C (104 °F), or below 9.5 mm^2/s (cSt) at 25 °C (77 °F), and a flash point below 93 °C (200 °F).

1.1.1 For the closed-cup flash point of liquids with the following properties: a viscosity of 5.5 mm^2/s (cSt) or more at 40 °C (104 °F); a viscosity of 9.5 mm^2/s (cSt) or more at 25 °C (77 °F); a flash point of 93 °C (200 °F) or higher; a tendency to form a surface film under test conditions; or containing suspended solids, Test Method D93 can be used.

1.1.2 For cut-back asphalts refer to Test Methods D1310 and D3143.

NOTE 1—The U.S. Department of Transportation (RSTA)[2] and U.S. Department of Labor (OSHA) have established that liquids with a flash point under 37.8 °C (100 °F) are flammable as determined by this test method for those liquids that have a viscosity less than 5.5 mm^2/s (cSt) at 40 °C (104 °F) or 9.5 mm^2/s (cSt) or less at 25 °C (77 °F), or do not contain suspended solids or do not have a tendency to form a surface film while under test. Other flash point classifications have been established by these departments for liquids using this test method.

1.2 This test method can be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and cannot 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 method can be used as elements of fire risk assessment that takes into account all of the factors that are pertinent to an assessment of the fire hazard of a particular end use.

1.3 Related standards are Test Methods D93, D1310, D3828, D3278, and D3941.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.5 **WARNING**—Mercury has been designated by many regulatory agencies as a hazardous material that can cause central nervous system, kidney and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website—http://www.epa.gov/mercury/faq.htm—for additional information. Users should be aware that selling mercury

[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 D02.08 on Volatility.

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[2] For information on United States Department of Transportation regulations, see Codes of United States Regulation 49 CFR Chapter 1 and for information on United States Department of Labor regulations, see Code of United States Regulation 29 CFR Chapter XVII. Each of these items are revised annually and may be procured from the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

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

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