



Designation: D3278 – 20

Standard Test Methods for Flash Point of Liquids by Small Scale Closed-Cup Apparatus¹

This standard is issued under the fixed designation D3278; 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 These test methods cover procedures for determining whether a material does or does not flash at a specified temperature or for determining the lowest finite temperature at which a material does flash when using a small scale closed-cup apparatus.² The test methods are applicable to paints, enamels, lacquers, varnishes, and related products having a flash point between 0 and 110°C (32 and 230°F) and viscosity lower than 150 St at 25°C (77°F).

NOTE 1—Tests at higher or lower temperatures are possible.

NOTE 2—More viscous materials may be tested in accordance with **Annex A4**.

NOTE 3—Organic peroxides may be tested in accordance with **Annex A5**, which describes the applicable safety precautions.

NOTE 4—The U.S. Department of Labor (OSHA, Hazard Communications), the U.S. Department of Transportation (RSPA), and the U.S. Environmental Protection Agency (EPA) have specified Test Methods D3278 as one of several acceptable methods for the determination of flash point of liquids in their regulations.

NOTE 5—These test methods are similar to International Standards ISO 3679 and ISO 3680.

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

1.3 *This standard should be used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled 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 the test may be used as elements of a fire-hazard or a fire-risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard or fire risk of a particular end use.*

¹ These test methods are under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.21 on Chemical Analysis of Paints and Paint Materials.

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² Small scale closed-cup apparatus has been found suitable for this purpose.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. For specific hazard statements, see 8.1 and 11.2.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:³

D56 Test Method for Flash Point by Tag Closed Cup Tester
D93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

D850 Test Method for Distillation of Industrial Aromatic Hydrocarbons and Related Materials

D1015 Test Method for Freezing Points of High-Purity Hydrocarbons (Withdrawn 2019)⁴

D1078 Test Method for Distillation Range of Volatile Organic Liquids

2.2 ISO Standards:⁵

ISO 3679 Paints, varnishes, petroleum and related products—Determination of flash point—Rapid equilibrium method

ISO 3680 Paints, varnishes, petroleum and related products—Flash/no flash test—Rapid equilibrium method

3. Terminology

3.1 Definitions:

³ 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.

⁴ The last approved version of this historical standard is referenced on www.astm.org.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.