Designation: E102/E102M – 93 (Reapproved 2021)

Standard Test Method for Saybolt Furol Viscosity of Bituminous Materials at High Temperatures[1]

This standard is issued under the fixed designation E102/E102M; 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 empirical procedures for determining the Saybolt Furol viscosities of bituminous materials at specified temperatures between 120 and 240 °C [248 and 464 °F].

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* See 8.1.

1.4 *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:*[2]

D88/D88M Test Method for Saybolt Viscosity

D92 Test Method for Flash and Fire Points by Cleveland Open Cup Tester

D140/D140M Practice for Sampling Asphalt Materials

E1 Specification for ASTM Liquid-in-Glass Thermometers

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 *Definitions:*

3.1.1 *Furol*—an acronym of "fuel and road oils."

3.1.2 *Saybolt Furol viscosity*—the corrected efflux time in seconds of 60 mL of sample flowing through a calibrated Furol orifice under specified conditions. The viscosity value is reported in Saybolt Furol seconds, abbreviated SFS, at a specified temperature.

4. Summary of Test Method

4.1 The efflux time in seconds of 60 mL of sample, flowing through a calibrated orifice, is measured under carefully controlled conditions. The time is corrected by an orifice factor and reported as the viscosity of the sample at that temperature.

5. Significance and Use

5.1 This test method is useful in characterizing certain bituminous materials, as one element in establishing uniformity of shipments and sources of supply.

5.2 This test method is an extension of Test Method D88/D88M.

6. Apparatus

6.1 *Saybolt Furol Viscometer and Bath,* as shown and described in Test Method D88/D88M, Fig. 1 and Annex A1. An external heater may also be used, but if so, it shall be more than 51 mm [2 in.] from the viscometer. An aluminum-block, constant-temperature bath is also acceptable, and no stirring device is required with this type of bath.

6.2 *Displacement Ring,* as shown in Fig. 1, constructed of the same corrosion-resistant metal as the viscometer.

6.3 *Cover*—A metal cover for the viscometer, cylindrical with a flat top, approximately 57 mm [2¼ in.] in diameter and 7 mm [¼ in.] deep (Note 1). One hole slightly larger than the diameter of a viscosity thermometer shall be drilled in the center of the cover, and two smaller holes to permit the vertical rods of the displacement ring to pass through the cover.

NOTE 1—The cover of a 90-mL [3-oz] Gill-style ointment box fulfills these requirements.

6.4 *Thermometer Support,* as shown in Test Method D88/D88M, Fig. 3.

[1] This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.05 on Solvent-Bearing Bituminous Compounds for Roofing and Waterproofing.

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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.