



Standard Test Method for Viscosity of Emulsified Asphalt by Saybolt Furol Viscometer¹

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1. Scope

1.1 This test method utilizes the Saybolt Furol viscometer to measure the consistency of emulsified asphalt. It is applicable to all the emulsified asphalts specified in Specifications [D977](#) and [D2397](#).

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 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.*

2. Referenced Documents

2.1 ASTM Standards:²

- [D88 Test Method for Saybolt Viscosity](#)
- [D244 Test Methods and Practices for Emulsified Asphalts](#)
- [D977 Specification for Emulsified Asphalt](#)
- [D2397 Specification for Cationic Emulsified Asphalt](#)
- [E1 Specification for ASTM Liquid-in-Glass Thermometers](#)
- [E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves](#)

3. Significance and Use

3.1 Viscosity has significance in the use of emulsified asphalt because it is a property which affects their utility. When used in application types of construction, the material must be thin enough to be uniformly applied through the spray bar of distributor, yet thick enough so that it will not flow from the crown or grade of the road. For mixing grade emulsions, the viscosity may affect mixability and resulting thickness of film on the aggregate. The viscosity of many emulsions is affected

by shear. Therefore, strict adherence to test procedure is necessary to achieve precision.

4. Sample Conditioning for Testing

4.1 All emulsified asphalts shall be properly stirred to achieve homogeneity before testing.

4.2 All emulsified asphalts with the viscosity testing requirements of 50°C shall be heated to $50 \pm 3^\circ\text{C}$ in the original sample container in a water bath or oven. The container should be vented to relieve pressure. After the sample reaches $50 \pm 3^\circ\text{C}$, stir the sample to achieve homogeneity.

4.3 Emulsified asphalts with a viscosity testing requirements to 25°C should be mixed or stirred at $25 \pm 3^\circ\text{C}$ in the original sample container to achieve homogeneity.

NOTE 1—Emulsified asphalts with viscosity testing requirements of 25°C may be heated and stirred as specified in [4.2](#), if necessary. In the event the [4.2](#) method is used, the sample should be cooled to $25 \pm 3^\circ\text{C}$ before testing.

5. Apparatus

5.1 *Viscometer*—A Saybolt Furol viscometer conforming to the requirements specified in Test Method [D88](#).

5.2 *Sieve*—A850- μm sieve or a 20-mesh strainer of wire cloth, framed or unframed. Refer to Specification [E11](#).

5.3 *Thermometers*—ASTM No. 17C or 17F for tests at 25°C (77°F) and ASTM No. 19C or 19F for tests at 50°C (122°F), conforming to the requirements of Specification [E1](#), or any other thermometric device of equal accuracy.

5.4 *Water Bath or Oven*, capable of maintaining the required testing temperature within the limits specified in Table 2 of Test Method [D88](#).

5.5 *Receiving Flask*, as shown in Test Method [D88](#).

6. Hazards

6.1 **Warning**—Mercury has been designated by EPA and many state 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

¹ This test method is under the jurisdiction of ASTM Committee [D04](#) on Road and Paving Materials and is the direct responsibility of Subcommittee [D04.42](#) on Emulsified Asphalt Test.

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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.