



Designation: D 6936 – 04

## Standard Test Method for Determining Demulsibility of Emulsified Asphalt<sup>1</sup>

This standard is issued under the fixed designation D 6936; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This test method, applicable to both anionic and cationic emulsified asphalts of the RS and MS type, measures the chemical breaking of the emulsified asphalt.

1.2 *This test method 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:<sup>2</sup>

E 11 Specification for Wire-Cloth and Sieves for Testing Purposes

D 511 Test Methods for Calcium and Magnesium in Water  
D 6934 Test Method for Residue by Evaporation of Emulsified Asphalt

D 6997 Test Method for Distillation of Emulsified Asphalt

### 3. Significance and Use

3.1 This test method is used to identify or classify an emulsified asphalt as an RS or MS by measuring the amount of available asphalt that is broken from the emulsified asphalt by utilizing specified amounts and concentrations of calcium chloride solution for anionic emulsified asphalts and dioctyl sodium sulfosuccinate for cationic emulsified asphalts.

### 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 viscosity testing requirements of 25°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 viscosity testing requirements of 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 and Reagents

5.1 *Wire Cloth*—1.40-mm wire cloth that is at least 125 mm square, unframed, and having wire diameters and openings that conform to Specification E 11.

5.2 *Beaker*—metal beaker of nominal 600-mL capacity.

5.3 *Stirring Rod*—metal rod with rounded ends, approximately 10 mm in diameter.

5.4 *Buret*—50-mL glass buret graduated in 0.1 mL intervals.

5.5 *Calcium Chloride Solution* (1.11 g/L)—1.11 g of calcium chloride ( $\text{CaCl}_2$ ) dissolved in distilled or deionized water and dilute to 1 L. The 1.11 g/L calcium chloride solution may be standardized to be a  $0.02 \pm 0.001$  N solution of calcium chloride in water. Although this solution will remain stable, it shall be stored in an airtight container when not in-use.

5.6 *Calcium Chloride Solution* (5.55 g/L)—5.55 g of calcium chloride ( $\text{CaCl}_2$ ) dissolved in distilled or deionized water and dilute to 1 L. The 5.55 g/L calcium chloride solution may be standardized to be a  $0.10 \pm 0.001$  N solution of calcium chloride in water. Although this solution will remain stable, it shall be stored in an airtight container when not in-use.

NOTE 2—Test Methods D511 is a method that could be used to standardize the solutions in 5.5 and 5.6.

5.7 *Dioctyl Sodium Sulfosuccinate Solution* (0.80%)—8.00 g of dioctyl sodium sulfosuccinate dissolved in 992 g of distilled or deionized water. This solution will degrade over time and shall be stored in a cool dark location when not in-use, in a dark glass air-tight container. It shall not be used for testing purposes if more than 90 days have elapsed since it was prepared.

NOTE 3—A test method that could be used to standardize this solution can be found in “The United States Pharmacopeia, The National Formulary” under the section on Docusate Sodium (444.56) as recommended by Cytec Industries (a manufacturer of this material).

<sup>1</sup> 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 Tests.

Current edition approved Aug. 1, 2004. Published August 2004.

<sup>2</sup> 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.