



Designation: **D6936—17** **D6936 – 23**

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

This standard is issued under the fixed designation D6936; 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 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

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.*

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*.<sup>2</sup> <https://standards.iteh.ai/catalog/standards/astm/2d723851-5089-41fc-ba9a-65660f3a3b4f/astm-d6936-23>

[D511 Test Methods for Calcium and Magnesium In Water](#)

[D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials](#)

[D6934 Test Method for Residue by Evaporation of Emulsified Asphalt](#)

[D6997 Test Method for Distillation of Emulsified Asphalt](#)

[E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves](#)

### 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.

NOTE 1—The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the

<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 Test.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

capability, calibration, and maintenance of the equipment used. Agencies that meet the criteria of Specification **D3666** are generally considered capable of competent and objective testing, sampling, inspection, etc. Users of this standard are cautioned that compliance with Specification **D3666** alone does not completely ensure reliable results. Reliable results depend on many factors; following the suggestions of Specification **D3666** or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.

#### 4. Sample Conditioning for Testing

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

4.1.1 All emulsified asphalts with viscosity testing requirements of 50 °C shall be heated to 50 ± 3 °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 ± 3 °C, stir the sample to achieve homogeneity.

4.1.2 Emulsified asphalts with viscosity testing requirements of 25 °C should be ~~mixed or stirred at~~ stirred until the emulsion reaches 25 ± 1 °C in the original sample container to achieve homogeneity. The sample container may be heated in a water bath or oven if the emulsion is below 25 ± 1 °C then stirred to achieve homogeneity. If the sample is above 25 ± 1 °C, then it may be cooled in a water bath until the emulsion reaches the correct temperature then the emulsion is stirred to achieve homogeneity.

~~NOTE 2—Emulsified asphalts with viscosity testing requirements of 25 °C may be heated and stirred as specified in 4.1.1, if necessary. In the event the 4.1.1 method is used, the sample should be cooled to 25 ± 1 °C before testing.~~

#### 5. Apparatus and Reagents

5.1 ~~Wire Cloth—1.40 mm~~ 1.40 mm wire cloth that is at least 125 mm square, unframed, and having wire diameters and openings that conform to Specification **E11**.

5.2 ~~Beaker—Metal beaker or other suitable metal container with a minimum 300 mL~~ 300 mL capacity.

5.3 ~~Stirring Rod—Metal rod with rounded ends, approximately 10 mm in diameter.~~

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

5.5 ~~Calcium Chloride Solution (1.11 g/L)—1.11 g of calcium chloride (CaCl<sub>2</sub>) dissolved in distilled or deionized water and diluted to 1 L. The 1.11 g/L calcium chloride solution may be standardized to be a 0.02 ± 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 (CaCl<sub>2</sub>) dissolved in distilled or deionized water and diluted to 1 L. The 5.55 g/L calcium chloride solution may be standardized to be a 0.10 ± 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 ~~Diocetyl 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 or dark impermeable plastic~~ air-tight/airtight 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).

5.8 ~~Balance, capable of weighing 500 ± 0.1 g.~~

5.9 ~~Oven, capable of maintaining a temperature of 163 ± 3 °C~~