Designation: D6929 – 16

Standard Practice to Evaluate the Effect of Freezing on Emulsified Asphalts[1]

This standard is issued under the fixed designation D6929; 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 Emulsified asphalt is normally damaged by freezing temperatures, but specially formulated materials are expected to pass this practice.

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 practice 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. Significance and Use

2.1 Certain agencies who desire to use, store, or transport emulsified asphalt under less than ideal weather conditions may require that the product remain homogeneous (unbroken) after being subjected to a temperature of −18 °C.

3. Sample Conditioning

3.1 All emulsified asphalts shall be properly stirred to achieve homogeneity.

3.2 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.

3.3 Emulsified asphalts with viscosity testing requirements of 25 °C should be mixed or stirred at 25 ± 3 °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 3.2, if necessary. In the event the 3.2 method is used, the sample should be cooled to 25 ± 3 °C.

4. Apparatus

4.1 *Freezer*—Capable of maintaining a test temperature of −18 ± 5 °C.

4.2 *Metal Container*—such as a 500-mL press-top can.

4.3 *Glass Stirring Rod*—of optional size.

5. Procedure

5.1 Place approximately 400 g of the emulsified asphalt in a clean metal container.

5.2 Expose the emulsified asphalt in the closed container to an air temperature of −18 ± 5 °C for 12 to 18 consecutive hours.

5.3 At the expiration of the freezing period, permit the emulsified asphalt to thaw by exposure of the container to ambient temperature.

5.4 Repeat the freezing and thawing periods until the emulsified asphalt has been subjected to three cycles of freezing and thawing.

5.5 After the third cycle, the emulsified asphalt may be homogeneous or broken.

NOTE 2—An emulsified asphalt is considered broken when it may have separated into distinct layers which cannot be rendered homogeneous by stirring at laboratory conditions.

6. Report

6.1 Report the result of this practice as either *Homogeneous* or *Broken*.

7. Keywords

7.1 asphalt; broken; cationic emulsified asphalt; emulsified asphalt; freezing

[1] This practice 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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