



Designation: D8467 – 22

# Standard Test Method for Determination of Emulsified Asphalt Residue By Quick Boil<sup>1</sup>

This standard is issued under the fixed designation D8467; 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 covers a quick and quantitative determination of residue in emulsified asphalts giving comparable results to Test Methods [D6934](#), [D6997](#), and [D7404](#).

1.2 Since a precision estimate for this standard has not been developed, the test method is to be used for research and informational purposes only. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

1.3 The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.

1.4 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.

1.5 *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.*

1.6 *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>

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

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

<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.

[D6997](#) Test Method for Distillation of Emulsified Asphalt  
[D7404](#) Test Method for Determination of Emulsified Asphalt Residue by Moisture Balance Analyzer

## 3. Summary of Test Method

3.1 A known mass of emulsified asphalt is heated to evaporate water present, then re-weighed to determine the percentage of asphalt residue by mass percent.

## 4. Significance and Use

4.1 This test method can be used for quantitative determination of residue in emulsified asphalts.

NOTE 1—The quality of results produced by this standard is dependent on the competence of the personnel performing the procedure and the 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 guidance provide a means of evaluating and controlling some of those factors.

## 5. Apparatus

5.1 Metal container or other suitable container with a minimum capacity of 300 mL.

5.2 Balance, capable of weighing the metal container and emulsified asphalt to within 0.1 g.

5.3 Hot plate.

5.4 Oven (optional), capable of maintaining a temperature of approximately 135 to 163 °C.

5.5 Tongs or similar tool.

5.6 Screen (optional), to prevent splatter.

## 6. Conditioning

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

6.2 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.

6.3 Emulsified asphalts with viscosity testing requirements of 25 °C shall be conditioned to 25 ± 3 °C in the original sample container to achieve homogeneity. After the sample reaches 25 ± 3 °C, stir the sample to achieve homogeneity.

NOTE 2—Emulsified asphalts with viscosity testing requirements of 25 °C may be heated and stirred as specified in 6.2, if necessary.

6.4 Emulsified asphalts presented for testing at an elevated temperature, such as from a storage tank or process sample ports, may be tested at an elevated temperature. Conditioning as in 6.2 and 6.3 is not required.

## 7. Procedure

7.1 Determine the combined mass of the metal container and screen, if used, to the nearest 0.1 g. Record mass as *A*.

7.2 Tare the balance and pour 30 to 60 g of emulsified asphalt into the metal container. Determine the sample mass to the nearest 0.1 g. Record mass as *B*.

7.3 Carefully heat, using a hot plate or oven or both, until all water is evaporated from the sample. Ensure sample does not splatter out of the metal container. If excess splattering occurs, resulting in the loss of sample, the test is invalid and should be repeated. Use tongs or similar tool to hold and agitate the metal container as necessary.

7.4 Evaporation is complete when all boiling ceases in the sample. Care should be taken to avoid overheating the sample, which may result in a loss of residual asphalt, indicated by asphalt fumes or smoke.

7.5 Allow the metal container, residue, and screen (if used) to cool to ambient temperature and determine the mass to the nearest 0.1 g. Record mass as *C*.

## 8. Calculation

8.1 Calculate the percent residue in the sample as follows:

$$\text{Residue, \%} = ((C - A) / B) \times 100 \quad (1)$$

where:

- A* = mass of empty metal container, g,
- B* = mass of emulsified asphalt added to metal container, g, and
- C* = mass of metal container and residue after evaporation, g.

## 9. Report

9.1 Report the percentage of residue to the nearest whole number.

## 10. Precision and Bias

10.1 A precision estimate for this standard has not been developed. The test method is to be used for research and informational purposes only. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

10.2 The bias of this test method cannot be determined because no material having an accepted reference value is available.

## 11. Keywords

11.1 asphalt emulsion; emulsified asphalt; evaporation; residue

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