



Designation: D7404 – 19

# Standard Test Method for Determination of Emulsified Asphalt Residue by Moisture Balance Analyzer<sup>1</sup>

This standard is issued under the fixed designation D7404; 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 rapid and quantitative determination of the residue in emulsified asphalts using a moisture balance analyzer. It is applicable to all nonsolvent-containing emulsion types.

1.2 The values stated in SI units are to be regarded as the standard.

1.3 A precision and bias statement for this test method has not been completed at this time. Therefore, this test method should not be used for acceptance or rejection of a material for purchasing purposes.

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>

[D977 Specification for Emulsified Asphalt](#)

[D2397/D2397M Specification for Cationic Emulsified Asphalt](#)

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

[D6997 Test Method for Distillation 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.

Current edition approved Nov. 1, 2019. Published November 2019. Originally approved in 2007. Last previous edition approved in 2016 as D7404 – 07 (2016). DOI: 10.1520/D7404-19.

<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.

## 3. Summary of Test Method

3.1 A sample of emulsified asphalt is placed in an open sample tray with an appropriate liquid transfer device capable of handling 1- to 3-mL sample sizes. The sample is heated to a preset temperature as required by emulsion type but never exceeding 163 °C to determine the percentage of asphalt residue.

## 4. Significance and Use

4.1 This test is used to indicate the compositional characteristics of emulsified asphalt and is applicable to anionic emulsified asphalts as described in Table 1 of Specification D977 and cationic emulsified asphalt as described in Table 1 of Specification D2397/D2397M except solvent-containing emulsions. The residue obtained from this test method may also be subjected to rheological characterizations.

## 5. Apparatus

5.1 *Glass Rods*, with flame-polished ends used for stirring the emulsion as described in Test Method D6934.

5.2 *Moisture Balance Analyzer*, equipped with a heating element and capable of running either isothermally or in a programmable temperature-gradient mode.<sup>3</sup>

## 6. Sample Conditioning for Testing

6.1 All emulsified asphalts shall be properly stirred to achieve homogeneity before testing as described in Test Method D6934.

6.2 A minimum of 1 g and up to 3 g is used to determine the emulsified asphalt residue.

## 7. Calibration and Standardization

7.1 Follow the manufacturer's guidelines for calibration and standardization.

## 8. Procedure

### 8.1 *Polymer-Modified Emulsified Asphalts:*

<sup>3</sup> The moisture balance analyzer is available commercially from different manufacturers.