

## Colorado Procedure – Laboratory 2212-15

### *Standard Method of Test for*

## Residue by Evaporation of Asphalt Emulsion

### 1. SCOPE

- 1.1 This procedure describes the method of test to determine the percent residue of asphalt emulsion and to provide emulsion residue for further testing. The results of this test or tests on the residue may be used for acceptance, but not for rejection. If this test or subsequent tests on the emulsion residue fail to meet specifications, the test must be repeated using residue by distillation (AASHTO T 59) to determine conformance with the specifications.

### 2. REFERENCE DOCUMENTS

- 2.1 AASHTO T 59: Emulsified Asphalts

### 3. APPARATUS

- 3.1 Disposable aluminum cake pan of approximate dimensions 4" wide by 8" long by 2.5" deep.
- 3.2 Heating plate that is capable of maintaining a temperature of 400°F.
- 3.3 Thermometer capable of measuring temperatures of up to 700°F (ASTM 10F).
- 3.4 Balance having sufficient capacity and sensitive to 0.1 grams.

### 4. TEST PROCEDURE

- 4.1 Weigh an empty aluminum pan with the thermometer in it and record on worksheet.
- 4.2 Pour  $200 \pm 1$  g of thoroughly mixed emulsion into the pan.
- 4.3 Weigh the aluminum pan, thermometer, and emulsion and record on worksheet.
- 4.4 Place the aluminum pan with the thermometer and emulsion onto the hot- plate fully preheated to 250°F.
- 4.5 Stir occasionally and take care to avoid boil over or splatter. If any emulsion is lost, the test is invalid and must be repeated with a new emulsion sample and pan.
- 4.6 Heat emulsion sample to 250°F then increase the hot plate temperature to 400°F.
- 4.7 Stir occasionally, take a temperature reading periodically, and adjust heat as needed to bring emulsion temperature to 400°F.

- 4.8 Once the emulsion temperature has reached 390°F, start the 15-minute timer. Maintain the temperature at 400°F ± 10° for 15 minutes.
- 4.9 Remove pan, emulsion, and thermometer from heating plate, weigh, and record weight.
- 4.10 Pour residue into appropriate molds for further testing.

## 5. CALCULATIONS AND REPORT

- 5.1 Record and report results on an emulsified asphalt worksheet.
- 5.2 Calculate percent residue using the following equation:

$$\text{Percent residue} = [(d - a)/(c - a)] 100$$

Where:

a = weight of pan and thermometer

c = weight of pan, thermometer, and emulsion before evaporation

d = weight of pan, thermometer, and emulsion after evaporation