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METHOD OF TEST FOR RESIDUE BY EVAPORATION OF LATEX MODIFIED ASPHALTIC EMULSION

A. SCOPE

This test method describes the procedure to determine the percentage of asphalt and latex (combined) in an asphaltic emulsion. The residue from this test may then be used for additional testing. This test is a modification to Section 7 of AASHTO T 59-15.

B. REFERENCES

AASHTO T 59-15 – Standard Test Method for Emulsified Asphalts
AASHTO M 231-95 (2015) – Weighing Devices used in the Testing of Materials

C. APPARATUS

1. A flat bottom, cylindrical, seamless tin 12 oz. container commonly known as a 12 oz. tin container (see Diagram 1).

Diagram 1

2. A balance or scale conforming to the requirements of AASHTO M 231, Class G 2.
3. A thermostatically controlled oven capable of maintaining a temperature of 138°± 3°C (280°± 5°F).
4. Forceps capable of gripping the edge of the container.
5. Three glass or metal stirring rods with flame polished or rounded ends with an approximate length of six inches.

D. PROCEDURE

1. Determine the mass of each container and stirring rod to the nearest 0.1 g (M_b).
2. Weigh 40 g ± 0.1 g of thoroughly mixed asphaltic emulsion containing latex into each of three containers.
3. Confirm the oven has a temperature of 118°C (245°F).
4. Place the containers and stirring rods in oven, which has been adjusted to have a temperature of 118°C (245°F), for 30 min.
5. Increase the temperature of the oven to 138° ± 3°C (280° ± 5°F) for 1 ½ hours.
6. After 1 ½ hours, remove each container and stirring rod with the forceps.
7. Stir the contents of each container until foaming stops.
8. Return each container and stirring rod to the oven for one hour. After one hour, remove the containers and stirring rods from the oven and allow them to cool to room temperature before weighing.
9. Weigh and record the mass of each assembly (stirring rod, container, and asphalt residue), (M_a).

E. CALCULATIONS

Calculate the percentage of residue for each sample, as follows:

$$\text{Residue, \%} = 2.5 \times (M_a - M_b)$$

Where:

M_a = Weight of the container, stirring rod, and asphaltic emulsion residue in grams, and
M_b = Tare weight of the container and stirring rod in grams.

F. REPORTING OF RESULTS

Report the percentage of residue by evaporation as the average of the three results from the three containers.

G. PRECAUTIONS

Exercise care with regard to eye and skin protection as there a possibility of splattering.

H. HEALTH AND SAFETY

It is the responsibility of the user of this test method to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Prior to handling, testing or disposing of any materials, testers must be knowledgeable about safe laboratory practices, hazards and exposure, chemical procurement and storage, and personal protective apparel and equipment.

Caltrans Laboratory Safety Manual is available at:

http://www.dot.ca.gov/hq/esc/ctms/pdf/lab_safety_manual.pdf

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(California Test 331 contains 2 pages)