1855 Moisture Content of Hot Mix Asphalt by Oven Method

AASHTO T 329 (Mn/DOT Modified)

1855.1 Scope

This method is used to determine the moisture content of hot mix asphalt.

1855.2 Apparatus

A. Balance - Conforming to the requirements of AASHTO M 231 with a readability and sensitivity of 0.1 gram and an accuracy of 0.1 gram or 0.1%. The balance must have a minimum capacity of 5000 grams.

B. Oven - Thermostatically controlled to 110 ± 5 °C (230 ± 9 °F).

C. Metal Can with Lid – minimum size is a quart.

1855.3 Sample

A. Obtain a representative sample of mixture from behind the paver.

B. The minimum size of the test sample shall be 900 grams.

1855.4 Procedure

A. Determine and record the weight of the can and lid to the nearest 0.1g.

B. Place the moist mixture into the can and seal with the lid. Transport back to lab.

C. Determine and record the weight of the can, lid and moist sample to the nearest 0.1g.

D. Remove lid and place can and lid into a preheated 230°oven.

Note1: Do not attempt to remove the mixture from the can for purposes of determining the moist and final dry weights of the test sample.

E. Dry to a constant weight. The sample shall be initially dried for 2 hours. Then continue drying for 30 minute intervals until a constant weight is reached.

Note 2: A constant weight is defined as the mass at which further drying does not alter the mass by more than 0.05 percent. (On a 1000 gram sample this amounts to a difference of 0.5 grams or less.)

F. After achieving the constant dry weight, cool the sample to approximately the same temperature as determined in step “C”.

G. Determine and record the total dry weight of the can, sample and lid to the nearest 0.1g.

1855.5 Calculations

A. Calculate the initial weight of the moist sample by subtracting the can and lid weight from the total weight of moist sample, can, and lid.

B. Calculate the final dry weight of the sample by subtracting the can and lid weight from the total weight of the dry sample, can and lid.

C. Calculate the moisture content as follows:

$$\text{Moisture Content \%} = \frac{Mi - Mf}{Mf} \times 100$$

Where: Mi = initial wt of moist sample
Mf = final dry wt of sample

D. Report moisture content to the nearest 0.1 percent

1855.6 Example

Initial weight of moist sample only = 1025.0 grams
Final weight of oven dried sample only = 1020.2 grams

Note: The metal can and lid weights are not included.

$$\text{Moisture Content \%} = \frac{1025.0 - 1020.2}{1020.2} \times 100 = 0.47\%$$

Calculation is rounded to 0.5%.