
Standard Method of Test for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures

AASHTO Designation: T 305-22

Technically Revised: 2022

Editorially Revised: 2022

Technical Subcommittee: 2c, Asphalt–Aggregate Mixtures



**American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, D.C. 20004**

Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures

AASHTO Designation: T 305-22



Technically Revised: 2022

Editorially Revised: 2022

Technical Subcommittee: 2c, Asphalt–Aggregate Mixtures

1. SCOPE

- 1.1. This test method covers the determination of the amount of draindown material in an uncompacted asphalt mixture sample when the sample is held at elevated temperatures comparable to those encountered during the production, storage, transport, and placement of the mixture. The test is particularly applicable to mixtures such as porous asphalt (open-graded friction course) and Stone Matrix Asphalt (SMA).
- 1.2. The values stated in SI units are to be regarded as the standard.
- 1.3. *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*
- 1.4. *The quality of the results produced by this standard are 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 R 18 are generally considered capable of competent and objective testing/sampling/inspection/etc. Users of this standard are cautioned that compliance with R 18 alone does not completely assure reliable results. Reliable results depend on many factors; following the suggestions of R 18 or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.*
-

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- M 339M/M 339, Thermometers Used in the Testing of Construction Materials
 - R 18, Establishing and Implementing a Quality Management System for Construction Materials Testing Laboratories
 - R 47, Reducing Samples of Asphalt Mixtures to Testing Size
 - T 245, Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus
 - T 255, Total Evaporable Moisture Content of Aggregate by Drying
- 2.2. *ASTM Standards:*
- E1, Standard Specification for ASTM Liquid-in-Glass Thermometers
 - E11, Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
 - E1137/E1137M, Standard Specification for Industrial Platinum Resistance Thermometers

- 2.3. *International Electrotechnical Commission Standard:*
- IEC 60751: 2008 Industrial Platinum Resistance Thermometers and Platinum Temperature Sensors

3. TERMINOLOGY

- 3.1. *Definitions:*
- 3.1.1. *draindown material*—For the purpose of this test method, draindown material is considered to be that portion of material that separates itself from the sample as a whole and is deposited outside the wire basket during the test. The draindown material may be composed of either asphalt binder or a combination of asphalt binder and fine aggregate.
- 3.1.2. *draindown*—The process by which draindown material separates itself from the sample as a whole.

4. SUMMARY OF METHOD

- 4.1. A sample of the asphalt mixture to be tested is prepared in the laboratory or obtained from field production. The sample is placed in a wire basket, which is positioned on a plate or other suitable container of known mass. The sample, basket, and plate or container are placed in a forced-draft oven for 1 h at a preselected temperature. At the end of 1 h, the basket containing the sample is removed from the oven, along with the plate or container and the mass of the plate or container is determined. The amount of draindown material is then calculated.

5. SIGNIFICANCE AND USE

- 5.1. This test method can be used to determine whether the amount of draindown material measured for a given asphalt mixture is within acceptable levels. The test provides an evaluation of the draindown potential of an asphalt mixture during mixture design or during field production. This test is primarily used for mixtures with high coarse aggregate content such as porous asphalt (open-graded friction course) and SMA.

6. APPARATUS

- 6.1. *Forced-Draft Oven*—Capable of maintaining the temperature in a range from 120 to 175°C (250 to 350°F). The oven should maintain the set temperature to within $\pm 2^\circ\text{C}$ ($\pm 3.6^\circ\text{F}$). The oven(s) shall be capable of operation at the temperatures required as corrected, if necessary, by standardization. More than one oven may be used, provided each is used within its proper operating temperature range. The thermometer for measuring the temperature of materials shall meet the requirements of M 339M/M 339 with a temperature range of at least 110 to 185°C (230 to 365°F) and an accuracy of $\pm 0.5^\circ\text{C}$ ($\pm 0.9^\circ\text{F}$) (Note 1).
- Note 1**—Thermometer types suitable for use include ASTM E1 mercury thermometers; ASTM E1137/E1137M Pt-100 RTD platinum resistance thermometer, Class A; or IEC 60751: 2008 Pt-100 RTD platinum resistance thermometer, Class AA.
- 6.2. *Plates*—Or other suitable containers of appropriate size. The plates or containers used should be of appropriate durability to withstand the oven temperatures. Cake pans or pie tins are examples of suitable types of containers.