



Designation: D 6390 – 99

Standard Test Method for Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures¹

This standard is issued under the fixed designation D 6390; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the amount of draindown 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 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials²

D 979 Practice for Sampling Bituminous Paving Mixtures³

D 1559 Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus³

D 4753 Test Method for Evaluating, Selecting, and Specifying Balances and Scales, for Use in Testing Soil, Rock, and Related Construction Materials⁴

E 11 Specification for Wire-Cloth Sieves for Testing Purposes⁵

3. Terminology

3.1 Definitions:

3.1.1 *draindown*—for the purpose of this test method, draindown is considered to be that portion of material which

separates itself from the sample as a whole and is deposited outside the wire basket during the test. The material which drains may be composed of either asphalt binder or a combination of asphalt binder, additives, or fine aggregate.

4. Summary of Test 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 force draft oven for one hour at a pre-selected temperature. At the end of one hour, the basket containing the sample is removed from the oven along with the plate or container and the mass of the plate or container containing the drained material, if any, is determined. The amount of draindown is then calculated.

5. Significance and Use

5.1 This test method can be used to determine whether the amount of draindown measured for a given asphalt mixture is within specified acceptable levels. The test provides an evaluation of the draindown potential of an asphalt mixture during mixture design and/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 stone matrix asphalt (SMA).

6. Apparatus

6.1 *Forced Draft Oven*, capable of maintaining the temperature in a range from 120 to 175°C. The oven should maintain the set temperature to within $\pm 2^\circ\text{C}$.

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.

6.3 *Standard basket* meeting the dimensions shown in Fig. 1. The basket shall be constructed using standard 6.3 mm sieve cloth as specified in Specification E 11.

6.4 *Balance*—A balance readable to 0.1g and conforming to the requirements of Specification D 4753, GP2.

¹ This test method is under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.25 on Analysis of Bituminous Mixtures.

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² *Annual Book of ASTM Standards*, Vol 04.02.

³ *Annual Book of ASTM Standards*, Vol 04.03.

⁴ *Annual Book of ASTM Standards*, Vol 04.08.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.