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Standard Test Method for STAINING PROPERTIES OF ASPHALT¹

This standard is issued under the fixed designation D 1328; 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 staining properties of asphalt by the modified pressure method.

1.2 This test method is applicable to asphalts having ring-and-ball softening points of 65°C (150°F) or greater, and should not be used for testing asphalts having softening points below 65°C, except for those having a penetration of 35 or less.

1.3 The values stated in SI units are to be regarded as the standard. The values stated in inch-pound units are provided for information.

1.4 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Applicable Documents

2.1 ASTM Standards:

D36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)²

D140 Methods of Sampling Bituminous Materials³

3. Summary of Method

3.1 The asphalt is placed in a specially designed mold and pressed against a stack of standard papers by application of gas pressure. The number of papers stained by exuded oil is designated as the Stain Index of the asphalt.

4. Significance and Use

4.1 This test method measures the tendency for oil components to separate spontaneously from bitumens.

4.2 The Stain Index is related to the thermodynamic stability of the asphalt. Higher Stain Index values indicate lower stability.

5. Apparatus and Materials

5.1 *Stain Molds*, as shown in Fig. 1.

5.2 *Mold Assembly Jig*, as shown in Fig. 2.

5.3 *Pressure Vessel*, as shown in Fig. 3.

5.4 *Source of Gas Pressure and Regulating Equipment (Compressed Air or Nitrogen)*—Metal tubing, 6 mm (¼ in.) in outside diameter, and compression fitting to connect to the pressure vessel. A shut-off valve should be installed between the source of gas pressure and the pressure gage to permit testing for leaks.

5.5 *Electric Oven*, with temperature control of $\pm 1.5^\circ\text{C}$ ($\pm 3^\circ\text{F}$) at 100°C (212°F), of sufficient size to permit the assembly of the pressure vessel and molds therein.

5.6 *Standard Paper*—The test paper shall be a porous, uncoated, and unfilled paper approximately 15 μm (0.6 mil) thick; typically a cigarette paper. It shall be agreed upon by buyer and seller. The paper used by different laboratories for comparative tests shall be obtained from the same source and shall be from the same lot.

5.7 *Torque Wrench*, 0 to 3.4 N·m (30 lbf·in.).

5.8 *Open-End Crowfoot Attachment for Torque Wrench*.

5.9 *American Swiss Arch Punch*, No. 5, with a 19-mm (¾-in.) hole for cutting disks of test paper.

5.10 *Vulcanized Rubber Sheet*, 1.5-mm (⅛-in.)

¹ This test method is under the jurisdiction of ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.02 on Prepared Roofings, Shingles, and Siding Materials.

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² Annual Book of ASTM Standards, Vol 04.04.

³ Annual Book of ASTM Standards, Vols 04.03 and 04.04.