Designation: D 2746 – 97 (Reapproved 2002)

Standard Test Method for Staining Tendency of Asphalt (Stain Index)[1]

This standard is issued under the fixed designation D 2746; 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 tendency of asphalt and the assignment of a stain index proportional to the extent of staining observed.

1.2 This test method is applicable to asphalts having ring-and-ball softening points of 185°F (85°C) or greater.

NOTE 1—This test method may be modified for use with other bituminous materials with softening points less than 185°F (85°C) by using a different temperature than specified in Section 7 by agreement of the interested parties. The report of results from such a test may cite this method but must clearly state the temperature employed in the exception and acknowledge that the interpretation of results in Section 9 and the precision and bias stated in Section 10 may not apply.

1.3 The values stated in U.S. customary units are to be regarded as the standard.

1.4 *This standard does not purport to address 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:*

D 36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)[2]

D 140 Practice for Sampling Bituminous Materials[3]

E 1 Specification for ASTM Thermometers[4]

3. Summary of Test Method

3.1 A horizontal disc of asphalt, cast in a brass retaining ring, is placed on a sheet of filter paper supported on a flat plate and heated at 175°F (79.4°C) for 120 h. The diameter of the resulting stained circle on the paper is compared to the inside diameter of the brass ring to determine the staining characteristic of the asphalt. The stain index is the difference between the diameter of the stained circle and the initial disc diameter measured in 1⁄64ths of an inch.

4. Significance and Use

4.1 This test method measures the tendency for oil components to separate spontaneously from asphalt. The separation of oil components can cause staining in asphalt roofing products and adjacent materials in storage and use.

4.2 The stain index is related to the thermal stability of the asphalt. Higher stain index values indicate lower stability and greater tendency for staining.

4.3 Use this procedure to determine the staining tendency of asphalt and to compare the results against a material for which the staining tendency is known.

5. Apparatus

5.1 *Rings*—Square shouldered brass retaining rings conforming to the dimensions required for use in the ring-and-ball softening point apparatus (see Fig. 1 (a) of Test Method D 36).

5.1.1 The inside diameter of the ring to be placed in contact with the filter paper during the test is 40⁄64ths of an inch (15.9 mm).

NOTE 2—This test method depends on accurate measurement of diameter and precise alignment of the face and rim of the ring on a flat surface. Therefore, deformed rings must not be used.

5.2 *Pouring Plate*—A flat, smooth, brass plate approximately 2 by 3 in. (50 by 75 mm).

5.3 *Paper*—Filter paper of the standard double acid-washed analytical grade.[5]

5.3.1 The filter paper must be of sufficient area to accommodate the number of samples and the known material arranged as described in 7.3.

5.4 *Support Plate*—A flat, clean, smooth metal plate approximately 1⁄16 in. (1.5 mm) thick and area at least sufficient to support the size of filter paper being used.

5.5 *Oven*—A constant temperature oven capable of maintaining the test temperature of 175°F (79.4°C) within ±2°F (±1.1°C).

5.6 *Thermometer*—An ASTM high softening point thermometer having a range from 85 to 392°F (30 to 200°C), and conforming to the requirements for Thermometer 16F (or 16C) as prescribed in Specification E 1.

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

Current edition approved June 10, 1997. Published January 1998. Originally published as D 2746 – 91. Last previous edition D 2746 – 91.

[2] *Annual Book of ASTM Standards*, Vol 04.04.

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

[4] *Annual Book of ASTM Standards*, Vol 14.03.

[5] The sole source of supply of the paper known to the committee at this time is Whatman No. 40 filter paper, available from laboratory supply and service companies. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.