Designation: D7654/D7654M – 10

Standard Specification for Asphalt Used in Roofing Measured by Dynamic Shear Rheometer[1]

This standard is issued under the fixed designation D7654/D7654M; 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 specification covers two types of asphalt intended for use in built-up roof construction, construction of some modified bitumen systems, construction of bituminous vapor retarder systems, and for adhering insulation boards used in various types of roof systems. The specification is intended for general classification purposes only and does not imply restrictions on the slope at which an asphalt must be used.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with 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:*[2]

D5 Test Method for Penetration of Bituminous Materials
D92 Test Method for Flash and Fire Points by Cleveland Open Cup Tester
D140 Practice for Sampling Bituminous Materials
D1079 Terminology Relating to Roofing and Waterproofing
D2042 Test Method for Solubility of Asphalt Materials in Trichloroethylene
D6510 Guide for Selection of Asphalt Used in Built-Up Roofing Systems
D7175 Test Method for Determining the Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer

3. Terminology

3.1 For definition of terms used in this specification, refer to Terminology D1079.

3.2 *Definitions:*

3.3 Viscosity, Eta* @ 70°C [158°F], Pa.s

3.3.1 *Definition:* Eta* = G* / Angular Velocity. Complex dynamic shear viscosity is the ratio of the complex shear modulus (G*) divided by the rate of shear in radians/second. In the SI, the unit of viscosity is in the pascal second (Pa.s).

4. Classification

4.1 Materials covered by this specification are of two types:

4.1.1 Type III (VG).

4.1.2 Type IV (VG).

5. Materials and Manufacture

5.1 The asphalt shall be prepared from crude petroleum.

6. Physical Properties

6.1 Asphalts shall be homogeneous and free of water.

6.2 Asphalts of each type must conform to the physical properties described in Table 1.

7. Sampling

7.1 Sample the material and determine the properties enumerated in this specification in accordance with the following methods:

7.1.1 *Sampling*—Practice D140.

7.1.2 *Flash Point*—Test Method D92.

7.1.3 *Penetration*—Test Method D5.

7.1.4 *Solubility*—Test Method D2042.

7.1.5 *Rheological Properties of Asphalt Binder Using a Dynamic Shear Rheometer*—Test Method D7175.

7.1.5.1 *Handling Protocol:*

(1) Heat samples to 190 ± 5°C [375 ± 10°F] for preparing test specimen.

(2) Hold samples under heat for a period of not more than 1.5 h.

[1] This specification is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.03 on Surfacing and Bituminous Materials for Membrane Waterproofing and Built-up Roofing.

Current edition approved Aug. 1, 2010. Published September 2010. DOI:10.1520/D7654_D7654M-10.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.