Designation: D3381/D3381M – 18

Standard Specification for Viscosity-Graded Asphalt Binder for Use in Pavement Construction[1]

This standard is issued under the fixed designation D3381/D3381M; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification covers asphalt binders graded by viscosity at 60 °C [140 °F] for use in pavement construction. Four sets of limits are offered in this specification. The purchaser shall specify the applicable table of limits. In the event the purchaser does not specify limits, Table 1 shall apply. For asphalt binders graded by penetration at 25 °C [77 °F], see Specification D946/D946M. If needed, volume corrections for asphalt binders should be made according to Practice D4311/D4311M.

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 nonconformance with the standard.

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D5/D5M Test Method for Penetration of Bituminous Materials

D36/D36M Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)

D70 Test Method for Density of Semi-Solid Asphalt Binder (Pycnometer Method)

D92 Test Method for Flash and Fire Points by Cleveland Open Cup Tester

D95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation

D113 Test Method for Ductility of Asphalt Materials

D140/D140M Practice for Sampling Asphalt Materials

D946/D946M Specification for Penetration-Graded Asphalt Binder for Use in Pavement Construction

D1754/D1754M Test Method for Effects of Heat and Air on Asphaltic Materials (Thin-Film Oven Test)

D2042 Test Method for Solubility of Asphalt Materials in Trichloroethylene

D2170/D2170M Test Method for Kinematic Viscosity of Asphalts

D2171/D2171M Test Method for Viscosity of Asphalts by Vacuum Capillary Viscometer

D2872 Test Method for Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)

D4311/D4311M Practice for Determining Asphalt Volume Correction to a Base Temperature

D7553 Test Method for Solubility of Asphalt Materials in N-Propyl Bromide

3. Manufacture

3.1 The asphalt binder shall be prepared from crude petroleum by suitable methods.

4. Physical Requirements

4.1 The asphalt binder shall be homogeneous, free from water, and shall not foam when heated to 177 °C [350 °F].

4.2 The asphalt binders shall conform to the requirements given in Table 1, Table 2, Table 3, or Table 4, as specified by the purchaser.

5. Methods of Sampling and Testing

5.1 Sample and test asphalt binders in accordance with the following methods:

5.1.1 *Sampling*—Practice D140/D140M.

5.1.2 *Water*—Test Method D95.

5.1.3 *Viscosity at 60 °C [140 °F]*—Test Method D2171/D2171M.

[1] This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.40 on Asphalt Specifications.

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[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.