



Designation: D946/D946M – 20

Standard Specification for Penetration-Graded Asphalt Binder for Use in Pavement Construction¹

This standard is issued under the fixed designation D946/D946M; 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 asphalt binder for use in the construction of pavements.

NOTE 1—For asphalt binders graded by viscosity at 60 °C, see Specification [D3381/D3381M](#). For performance-graded asphalt binder, see Specification [D6373](#).

1.2 This specification covers the following penetration grades:

40–50,	120–150, and
60–70,	200–300
85–100,	

1.3 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.

1.4 *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)

[D92](#) Test Method for Flash and Fire Points by Cleveland Open Cup Tester

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.

[D113](#) Test Method for Ductility of Asphalt Materials
[D140/D140M](#) Practice for Sampling Asphalt Materials
[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
[D2872](#) Test Method for Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)
[D3381/D3381M](#) Specification for Viscosity-Graded Asphalt Binder for Use in Pavement Construction
[D6373](#) Specification for Performance Graded Asphalt Binder
[D7553](#) Test Method for Solubility of Asphalt Materials in N-Propyl Bromide

3. Manufacture

3.1 Asphalt binder shall be prepared by the refining of crude petroleum by suitable methods.

4. Properties

4.1 The asphalt binder shall be homogeneous and shall not foam when heated to 175 °C [350 °F].

4.2 The asphalt binder shall conform to the requirements given in [Table 1](#) or [Table 2](#), as specified by the purchaser. If no table is specified, the default shall be [Table 1](#). [Table 2](#) requirements limit the temperature susceptibility of asphalt over [Table 1](#) requirements. Asphalt binders that meet [Table 2](#) requirements will also meet [Table 1](#) requirements of the same grade.

5. Methods of Sampling and Testing

5.1 The material shall be sampled and the properties enumerated in this specification shall be determined in accordance with the following ASTM methods:

5.1.1 *Sampling*—Practice [D140/D140M](#).

5.1.2 *Penetration*—Test Method [D5/D5M](#).

5.1.3 *Softening Point*—Test Method [D36/D36M](#).

5.1.4 *Flash Point*—Test Method [D92](#).

5.1.5 *Ductility*—Test Method [D113](#).

5.1.6 *Thin Film Oven Test*—Test Method [D1754/D1754M](#).

5.1.7 *Solubility in Trichloroethylene*—Test Method [D2042](#).

5.1.8 *Solubility in N-Propyl Bromide*—Test Method [D7553](#).