



Designation: D 3381 – 92 (Reapproved 1999)

Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction¹

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

1. Scope

1.1 This specification covers asphalt cements graded by viscosity at 140°F (60°C) for use in pavement construction. Three 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 cements graded by penetration at 77°F (25°C) (see Specification **D 946**). If needed, volume corrections for asphalt cements should be made according to Practice **D 4311**.

2. Referenced Documents

2.1 ASTM Standards:

- D 5** Test Method for Penetration of Bituminous Materials²
- D 92** Test Method for Flash and Fire Points by Cleveland Open Cup³
- D 95** Test Method for Water in Petroleum Products and Bituminous Materials by Distillation³
- D 113** Test Method for Ductility of Bituminous Materials²
- D 140** Practice for Sampling Bituminous Materials²
- D 946** Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction²
- D 1754** Test Method for Effect of Heat and Air on Asphaltic Materials (Thin-Film Oven Test)²
- D 2042** Test Method for Solubility of Asphalt Materials in Trichloroethylene²
- D 2170** Test Method for Kinematic Viscosity of Asphalts (Bitumens)²

¹ This specification is under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.40 on Asphalt Specifications.

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² *Annual Book of ASTM Standards*, Vol 04.03.

³ *Annual Book of ASTM Standards*, Vol 05.01.

- D 2171** Test Method for Viscosity of Asphalts by Vacuum Capillary Viscometer²
- D 2872** Test Method for Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)²
- D 4311** Practice for Determining Asphalt Volume Correction to a Base Temperature²

3. Manufacture

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

4. Physical Requirements

- 4.1 The asphalt cement shall be homogeneous, free from water, and shall not foam when heated to 347°F (175°C).
- 4.2 The asphalt cements shall conform to the requirements given in **Table 1**, **Table 2**, or **Table 3**, as specified by the purchaser.

5. Methods of Sampling and Testing

- 5.1 Sample and test asphalt cements in accordance with the following methods:
 - 5.1.1 *Sampling*—Practice **D 140**.
 - 5.1.2 *Water*—Test Method **D 95**.
 - 5.1.3 *Viscosity at 140°F (60°C)*—Test Method **D 2171**.
 - 5.1.4 *Viscosity at 275°F (135°C)*—Test Method **D 2170**.
 - 5.1.5 *Penetration*—Test Method **D 5**.
 - 5.1.6 *Flash Point, Cleveland Open Cup*—Test Method **D 92** (see **Table 1** and **Table 2**).
 - 5.1.7 *Solubility in Trichloroethylene*—Test Method **D 2042**.
 - 5.1.8 *Thin-Film Oven Test*—Test Method **D 1754** (see **Table 1** and **Table 2**).
 - 5.1.9 *Rolling Thin-Film Oven Test*—Test Method **D 2872** (see **Table 3**).
 - 5.1.10 *Ductility*—Test Method **D 113**.