



Designation: D 5892 – 96a

AMERICAN SOCIETY FOR TESTING AND MATERIALS
100 Barr Harbor Dr., West Conshohocken, PA 19428
Reprinted from the Annual Book of ASTM Standards. Copyright ASTM

Standard Specification for Type IV Polymer-Modified Asphalt Cement for Use in Pavement Construction¹

This standard is issued under the fixed designation D 5892; 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 cements that have been modified by the addition of an appropriate polymer for use in pavement construction. It was developed to provide a reference for specifying polymer-modified asphalt and reflects the properties of currently available commercial products. This specification is not intended to be a performance-based specification.

1.2 This specification covers asphalt cements that have been modified by dispersing non-crosslinked styrene-butadiene-styrene (SBS) block copolymers. However, any polymer may be used that will give the required test results when blended with the desired asphalt.

1.3 The following safety hazards caveat pertains only to the test methods portion, Section 6, of this specification: *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:

- D 5 Test Method for Penetration of Bituminous Materials²
- D 36 Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)³
- D 92 Test Method for Flash and Fire Points by Cleveland Open Cup⁴
- D 113 Test Method for Ductility of Bituminous Materials²
- D 140 Practice for Sampling Bituminous Materials²
- D 1754 Test Method for Effect of Heat and Air on Asphaltic Materials (Thin-Film Oven Test)²
- D 2170 Test Method for Kinematic Viscosity of Asphalts (Bitumens)²
- D 2872 Test Method for Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test)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 D04.45 on Modified Asphalt Specifications.

Current edition approved Aug. 10, 1996. Published October 1996. Originally published as D 5892 – 96. Last previous edition D 5892 – 96.

² Annual Book of ASTM Standards, Vol 04.03.

³ Annual Book of ASTM Standards, Vol 04.04.

⁴ Annual Book of ASTM Standards, Vol 05.01.

D 4957 Test Method for Apparent Viscosity of Asphalt Emulsion Residues and Non-Newtonian Bitumens by Vacuum Capillary Viscometer²

D 5546 Test Method for Solubility of Polymer-Modified Asphalt Materials in 1,1,1-Trichloroethane²

E 11 Specification for Wire-Cloth Sieves for Testing Purposes⁵

3. Manufacture

3.1 The asphalt cement used to prepare the polymer-modified asphalt cement shall be prepared by the refining of crude petroleum by suitable means.

3.2 Polymer-modified asphalt Types A through F represent different grades of asphalt and different levels of polymer used in their manufacture.

4. Physical Requirements

4.1 The polymer-modified asphalt cement shall be homogeneous and free from water and shall not foam when heated to 175°C (347°F).

4.2 The polymer-modified asphalt cement shall conform to the requirements of Table 1.

4.3 The polymer modifier and asphalt cement shall be preblended and dispersed uniformly prior to use.

5. Methods of Sampling and Testing

5.1 Sample and test the polymer-modified asphalt cement in accordance with the following test methods:

5.1.1 *Sampling*—Practice D 140.

5.1.2 *Penetration*—Test Method D 5.

5.1.3 *Viscosity at 60°C (140°F)*—Test Method D 4957.

5.1.4 *Viscosity at 135°C (275°F)*—Test Method D 2170.

5.1.5 *Flash Point, Cleveland Open Cup*—Test Method D 92.

5.1.6 *Rolling Thin-Film Oven Test*—Test Method D 2872.

5.1.7 *Thin-Film Oven Test*—Test Method D 1754.

5.1.8 *Solubility of Polymer-Modified Asphalt Cement in 1,1,1-Trichloroethane*—Test Method D 5546.

6. Test Methods for Type IV Polymer-Modified Asphalt Binder

6.1 *Summary of the Separation Test:*

⁵ Annual Book of ASTM Standards, Vol 14.02.