Designation: D 2994 – 98

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 Test Methods for Rubberized Tar[1]

This standard is issued under the fixed designation D 2994; 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 These test methods cover the following procedures for rubberized tar:

	Section
Nonimmersed Penetration	6
Immersed Penetration	7
Volume and Weight Change	9
Flow	10
Softening Point	11
Viscosity	12
Water Content	13
Homogeneity	14

1.2 These test methods should not be used in the acceptance or rejection of materials since their precision statements have not been determined.

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:*

D 5 Test Method for Penetration of Bituminous Materials[2]
D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation[3]
D 362 Specification for Industrial Grade Toluene[4]
D 1015 Test Method for Freezing Points of High-Purity Hydrocarbons[3]
D 1217 Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer[3]
D 1218 Test Method for Refractive Index and Refractive Dispersion of Hydrocarbon Liquids[3]
D 2398 Test Method for Softening Point of Bitumen in Ethylene Glycol (Ring-and-Ball)[5]
D 2700 Test Method for Knock Characteristics of Motor and Aviation Type Fuels by the Motor Method[6]
E 1 Specification for ASTM Thermometers[7]

3. Significance and Use

3.1 These test methods measure the properties of rubberized tar that determine its suitability as a road binder that is not sensitive to the spillage of fuel oil.

4. Apparatus

4.1 *Melting Unit*— The unit for melting laboratory samples shall be of the double-boiler type, employing a high flash-point oil as the heat transfer medium. The unit shall be equipped with mechanical agitators in the materials chamber and in the oil bath; and two metal thermometers, of the recalibrating dial type, in the range from 10 to 177°C graduated in 5°F (3°C) subdivisions.[8] A melting unit suitable for the purpose is shown in Fig. 1.[9]

4.2 *Oven*, thermostatically controlled, capable of maintaining a temperature of 100 ± 2°F (38± 1°C).

4.3 *Water Bath*, with mechanical stirrer, thermometer, heating element, and thermostatic controls capable of maintaining a water temperature of 77 ± 0.2°F (25 ± 0.1°C).

4.4 *Viscometer*, Brookfield, Model LVF or LVT.

4.5 *Thermometer*, glass, in the range from 30 to 200°C and graduated in 0.5°C subdivisions conforming to the requirements for ASTM Thermometer 16C given in Specification E 1.

4.6 *Metal Panels*— Bright tin-coated panels at least 102 mm wide and 152 mm long. The panels shall be free of any foreign material (dust, oil, etc.), shall not be warped or bent, and shall be discarded after each flow test.

4.7 *Molds*—Durable metal or plastic molds with an opening 60 mm long, 40 mm wide, and 4.2 mm deep.

4.8 *Containers*, approximately 54 mm in diameter and 35 mm deep. (Three-ounce seamless ointment boxes meet these requirements.)

4.9 *Laboratory Balances*, 2-kg and 750-g capacity, sensitive to 0.1 g and 2 mg, respectively.

4.10 *Oil Bath*, with a mechanical stirrer, thermometer, heating element, and thermostatic controls capable of maintaining bath temperatures between 90 ± 3°C and 150± 3°C.

---

[1] These test methods are under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and are the direct responsibility of Subcommittee D04.43 on Specifications and Test for Tar and Tar Products.

Current edition approved January 10, 1998. Published February 1999. Originally published as D 2994 – 71. Last previous editions D 2994 – 87 (1991).

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

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

[4] *Annual Book of ASTM Standards*, Vol 06.04.

[5] Discontinued; see 1984 *Annual Book of ASTM Standards*, Vol 04.04.

[6] *Annual Book of ASTM Standards*, Vol 05.04.

[7] *Annual Book of ASTM Standards*, Vol 14.03.

[8] Model BLM-100 Laboratory Melter, without the oil bath stirrer, available from the Berry Corp., Stone Rd., Lexington, KY 40503, has been found suitable for this purpose.

[9] Detailed drawings of the melting unit are available at a nominal charge from ASTM Headquarters, 100 Barr Harbor Drive, West Conshohocken, PA 19428. Request Adjunct No. 12-429940-00.