



Standard Test Method for Apparent Viscosity (Flow) of Roofing Bitumens Using the Parallel Plate Plastometer¹

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^{ε1} NOTE—Units information was editorially corrected in January 2014.

1. Scope

1.1 This test method covers the measurement of apparent viscosity of roofing bitumen by means of a parallel plate plastometer. This test method is applicable for a viscosity range from 10^2 to 10^9 Pa·s [10^3 to 10^{10} poises]. See [Note 1](#).

NOTE 1—This relatively simple test method of measuring viscosity uses pre-determined arbitrary shear stress levels. Since roofing bitumens are non-Newtonian, other viscosity test methods may give different results.

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 non-conformance with the standard.

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:²

[D140 Practice for Sampling Bituminous Materials](#)
[D312 Specification for Asphalt Used in Roofing](#)
[D450 Specification for Coal-Tar Pitch Used in Roofing, Dampproofing, and Waterproofing](#)
[D2171 Test Method for Viscosity of Asphalts by Vacuum Capillary Viscometer](#)
[D3205 Test Method for Viscosity of Asphalt with Cone and](#)

[Plate Viscometer](#) (Withdrawn 2000)³

3. Terminology

3.1 *Definitions*—See definitions of viscosity given in Test Methods [D2171](#) and [D3205](#).

4. Summary of Test Method

4.1 The sample is molded into a disc of specified dimensions, heated to the selected temperature, placed between the plates of the pre-heated apparatus and pressed under standard conditions for a measured time. The apparent viscosity is calculated from the final diameter of the pressed specimen disc.

5. Apparatus

5.1 *Parallel Plate Plastometer*—A modified form of Williams' plastometer as shown in [Fig. 1](#) and [Fig. 2](#). Mass of Platen A is 5000 ± 50 g [11.02 ± 0.11 lb].

5.2 *Ring Molds*, with an inside diameter of 25.40 ± 0.01 mm [1.0000 ± 0.0025 in.] and a height of 12.70 ± 0.01 mm [0.5000 ± 0.0025 in.] cut from copper or brass tubing.

5.3 *Constant Temperature Oven*, capable of maintaining test temperature within $\pm 0.1^\circ\text{C}$ [$\pm 0.2^\circ\text{F}$].

5.4 *Scale*, linearly graduated in millimetres over at least 150 mm [6 in.] and accurate to ± 0.5 mm [± 0.02 in.].

6. Sampling

6.1 Sample the material to be tested in accordance with Practice [D140](#).

7. Test Specimens

7.1 Prepare two molds by coating with a pasty mixture of talc in glycerine as a mold release agent. Coat all surfaces of each mold by brushing or applying the paste with a finger tip. Place the rings on a brass or aluminum plate coated with the release agent.

¹ This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.03 on Surfacing and Bituminous Materials for Membrane Waterproofing and Built-up Roofing.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.