Designation: D139 – 07

StandardTest Method for Float Test for Bituminous Materials[1]

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1. Scope

1.1 This test method covers the float test for bituminous materials.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 **Warning—**Mercury has been designated by EPA and many state agencies as a hazardous material that can cause central nervous system, kidney, and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury-containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website (http://www.epa.gov/mercury/faq.htm) for additional information. Users should be aware that selling mercury or mercury-containing products, or both, in your state may be prohibited by state law.

1.4 *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.* For a specific precaution statement, see 6.1.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials

D244 Test Methods and Practices for Emulsified Asphalts

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D6997 Test Method for Distillation of Emulsified Asphalt

E1 Specification for ASTM Liquid-in-Glass Thermometers

2.2 *IEC Standard:*

IEC 60854 Methods of Measuring the Performance of Ultrasonic Pulse-Echo Diagnostic Equipment[3]

3. Summary of Test Method

3.1 A plug of bitumen is cast in a tapered collar. The assembled float and collar is then floated in the testing bath at the specified temperature. The time, in seconds, between placing the apparatus on the water and the water breaking through the material shall be taken as a measure of the consistency of the material under examination.

4. Significance and Use

4.1 The float test characterizes the flow behavior or consistency of certain bituminous materials.

4.2 This test method is useful in determining the consistency of bitumen as one element in establishing the uniformity of certain shipments or sources of supply.

5. Apparatus

5.1 *Float*—The float (Fig. 1) shall be made of aluminum or aluminum alloy and shall be in accordance with the following requirements:

	Min	Normal	Max
Mass of float, g	37.70	37.90	38.10
Total height of float, mm	34.0	35.0	36.0
Height of rim above lower side of shoulder, mm	26.5	27.0	27.5
Thickness of shoulder, mm	1.3	1.4	1.5
Diameter of opening, mm	11.0	11.1	11.2

5.2 *Collar*—The collar (Fig. 1) shall be made of brass and shall be in accordance with the following requirements:

	Min	Normal	Max
Mass of collar, g	9.60	9.80	10.00
Over-all height of collar, mm	22.3	22.5	22.7
Inside diameter at bottom, mm	12.72	12.82	12.92
Inside diameter at top, mm	9.65	9.70	9.75

The top of the collar shall screw up tightly against the lower side of the shoulder.

5.3 *Verification of Assembly*—The assembled float and collar, with the collar filled flush with the bottom and weighted to a total mass of 53.2 g, shall float upon water with the rim 8.5

[1] This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.44 on Rheological Tests.

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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] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.