



Designation: D 97 – 02

An American National Standard



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Standard Test Method for Pour Point of Petroleum Products¹

This standard is issued under the fixed designation D 97; 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.

This test method has been adopted for use by government agencies to replace Method 201 of Federal Test Methods Standard No. 791b, and Method 4452 of Federal Test Method Standard No. 141A.

This test method was adopted as a joint ASTM-IP Standard in 1965.

1. Scope

1.1 This test method is intended for use on any petroleum product.² A procedure suitable for black specimens, cylinder stock, and nondistillate fuel oil is described in 8.8. A procedure for testing the fluidity of a residual fuel oil at a specified temperature is described in the appendix.

1.2 *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 specific hazard statements, see Section 7.

2. Referenced Documents

2.1 ASTM Standards:

- D 117 Guide for Sampling, Test Methods, Specifications, and Guide for Electrical Insulating Oils of Petroleum Origin³
- D 396 Specification for Fuel Oils⁴
- D 1659 Test Method for Maximum Fluidity Temperature of Residual Fuel Oil⁵
- D 2500 Test Method for Cloud Point of Petroleum Oils⁴
- D 3245 Test Method for Pumpability of Industrial Fuel Oils⁶

E 1 Specification for ASTM Thermometers⁷

E 77 Test Method for Inspection and Verification of Thermometers⁷

2.2 IP Standards:

Specifications for IP Standard Thermometers⁸

3. Terminology

3.1 Definitions:

3.1.1 *black oil, n*—lubricant containing asphaltic materials. Black oils are used in heavy-duty equipment applications, such as mining and quarrying, where extra adhesiveness is desired.

3.1.2 *cylinder stock, n*—lubricant for independently lubricated engine cylinders, such as those of steam engines and air compressors. Cylinder stock are also used for lubrication of valves and other elements in the cylinder area.

3.1.3 *pour point, n*—in petroleum products, the lowest temperature at which movement of the test specimen is observed under prescribed conditions of test.

3.1.4 *residual fuel, n*—a liquid fuel containing bottoms remaining from crude distillation or thermal cracking; sometimes referred to as heavy fuel oil.

3.1.4.1 *Discussion*—Residual fuels comprise Grades 4, 5, and 6 fuel oils, as defined in Specification D 396.

4. Summary of Test Method

4.1 After preliminary heating, the sample is cooled at a specified rate and examined at intervals of 3°C for flow characteristics. The lowest temperature at which movement of the specimen is observed is recorded as the pour point.

5. Significance and Use

5.1 The pour point of a petroleum specimen is an index of the lowest temperature of its utility for certain applications.

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.07 on Flow Properties.

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In the IP, this test method is under the jurisdiction of the Standardization Committee.

² Statements defining this test and its significance when applied to electrical insulating oils of mineral origin will be found in Guide D 117.

³ Annual Book of ASTM Standards, Vol 10.03.

⁴ Annual Book of ASTM Standards, Vol 05.01.

⁵ Discontinued; see 1984 Annual Book of ASTM Standards, Vol 05.01.

⁶ Annual Book of ASTM Standards, Vol 05.02

⁷ Annual Book of ASTM Standards, Vol 14.03.

⁸ Methods for Analysis and Testing, IP Standards for Petroleum and its Products, Part I, Vol 2.