



Standard Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)¹

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INTRODUCTION

This test method covers an alternative procedure for the determination of pour point of petroleum products using an automatic apparatus.

1. Scope *

1.1 This test method covers the determination of pour point of petroleum products by an automatic instrument that tilts the test jar during cooling and detects movement of the surface of the test specimen with an optical device.

1.2 This test method is designed to cover the range of temperatures from -57 to $+51^{\circ}\text{C}$; however, the range of temperatures included in the 1992 interlaboratory test program only covered the temperature range from -39 to $+6^{\circ}\text{C}$, and the range of temperatures included in the 1998 interlaboratory test program was -51 to -11°C . (see 13.4).

1.3 Test results from this test method can be determined at 1 or 3°C intervals.

1.4 This test method is not intended for use with crude oils.

NOTE 1—The applicability of this test method on residual fuel samples has not been verified. For further information on applicability, refer to 13.4.

1.5 The values stated in SI units are regarded as standard.

1.6 *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 97 Test Method for Pour Point of Petroleum Products²

D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products³

D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products³

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.OD on Wax Related Viscometric Properties of Fuels and Oils.

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² Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 05.02.

2.2 IP Standard:

IP15 Test Method for Pour Point of Petroleum Products⁴

3. Terminology

3.1 Definitions:

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

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *no-flow point, n*—in petroleum products, the temperature of the test specimen at which a wax crystal structure or viscosity increase, or both, impedes movement of the surface of the test specimen under the conditions of the test.

3.2.1.1 *Discussion*—The no-flow point occurs when, upon cooling, the formation of wax crystal structures or the viscosity increase, or both, has progressed to the point where the applied observation device no longer detects movement under the conditions of the test. The preceding observation temperature, at which flow of the test specimen is last observed, is the pour point.

3.2.2 *tilting*—technique of movement where the test jar in a vertical position is moved towards a horizontal position to induce specimen movement.

3.2.2.1 *Discussion*—When the test jar is tilted and held in a horizontal position for 5 s without detection of specimen movement, this is the no-flow point and the test is complete.

4. Summary of Test Method

4.1 After preliminary heating, the test specimen is inserted into the automatic pour point apparatus. After starting the program, the specimen is cooled according to the cooling profile listed in Table 1 and examined at either 1 or 3°C intervals. The lowest temperature at which movement of specimen is detected, by the automatic equipment, is displayed as the pour point.

NOTE 2—If the automatic pour apparatus's preheat option is utilized,

⁴ Available from Institute of Petroleum, 61 New Cavendish St., London, England W1M 8AR.

*A Summary of Changes section appears at the end of this standard.

