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Standard Test Method for Pour Point of Crude Oils¹

This standard is issued under the fixed designation D5853; 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 This test method covers two procedures for the determination of the pour point temperatures of crude oils down to -36°C . Procedure A provides a measure of the maximum (upper) pour point temperature and is described in 9.1. Procedure B provides a measure of the minimum (lower) pour point temperature and is described in 9.2.

1.2 The use of this test method is limited to use for crude oils. Pour point temperatures of other petroleum products can be determined by Test Method D97.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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 specific hazard statements, see Section 7.

2. Referenced Documents

2.1 ASTM Standards:²

D97 Test Method for Pour Point of Petroleum Products

D130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

D323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

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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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.

D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

E1 Specification for ASTM Liquid-in-Glass Thermometers

E77 Test Method for Inspection and Verification of Thermometers

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *maximum (upper) pour point, n* —the pour point obtained after the test specimen has been subjected to a prescribed treatment designed to enhance gelation of wax crystals and solidification of the test specimen.

3.1.2 *minimum (lower) pour point, n* —the pour point obtained after the test specimen has been subjected to a prescribed treatment designed to delay gelation of wax crystals and solidification of the test specimen.

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

4. Summary of Test Method

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

5. Significance and Use

5.1 The pour point of a crude oil is an index of the lowest temperature of handleability for certain applications.

5.2 This is the only pour point method specifically designed for crude oils.

5.3 The maximum and minimum pour point temperatures provide a temperature window where a crude oil, depending on its thermal history, might appear in the liquid as well as the solid state.

5.4 The test method can be used to supplement other measurements of cold flow behavior. It is especially useful for the screening of the effect of wax interaction modifiers on the flow behavior of crude oils.

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