



Standard Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels¹

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1. Scope

1.1 This test method covers the determination of the cold filter plugging point (CFPP) temperature of diesel and domestic heating fuels using either manual or automated apparatus.

NOTE 1—This test method is technically equivalent to test methods IP 309 and EN 116.

1.2 The manual apparatus and automated apparatus are both suitable for referee purposes.

1.3 This test method is applicable to distillate fuels, including those containing a flow-improving or other additive, intended for use in diesel engines and domestic heating installations.

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:

- D 2500 Test Method for Cloud Point of Petroleum Oils²
- D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products³
- D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products³
- D 5771 Test Method for Cloud Point of Petroleum Products (Optical Detection Stepped Cooling Method)⁴
- D 5772 Test Method for Cloud Point of Petroleum Products (Linear Cooling Rate Method)⁴
- D 5773 Test Method for Cloud Point of Petroleum Products (Constant Cooling Rate Method)⁴
- E 1 Specification for ASTM Thermometers⁵

2.2 IP Standards:⁶

IP 309 Diesel and domestic heating fuels - Determination of cold filter plugging point

Specifications for IP Standard Thermometers

2.3 ISO Standards:⁷

IP 3310 Test sieves - Technical requirements and testing - Part 1: Metal cloth

2.4 European Standards:⁸

EN 116 Diesel and domestic heating fuels - Determination of cold filter plugging point

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *cold filter plugging point, n*—highest temperature, expressed in multiples of 1°C, at which a given volume of fuel fails to pass through a standardized filtration device in a specified time when cooled under the conditions prescribed in this test method.

3.1.2 *certified reference material, n*—a stable petroleum product with a method-specific nominal CFPP value established by a method-specific interlaboratory study following RR:D02-1007⁹ guidelines or ISO Guides 34 and 35.⁷

4. Summary of Test Method

4.1 A specimen of the sample is cooled under specified conditions and, at intervals of 1°C, is drawn into a pipet under a controlled vacuum through a standardized wire mesh filter. The procedure is repeated, as the specimen continues to cool, for each 1°C below the first test temperature. Testing is continued until the amount of wax crystals that have separated out of solution is sufficient to stop or slow down the flow so that the time taken to fill the pipet exceeds 60 s or the fuel fails to return completely to the test jar before the fuel has cooled by a further 1°C.

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.07.0D 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.

⁴ *Annual Book of ASTM Standards*, Vol 05.03.

⁵ *Annual Book of ASTM Standards*, Vol 14.03.

⁶ Available from Institute of Petroleum, 61 New Cavendish St., London, W. I., England.

⁷ Available from American National Standards Institute, 11 W. 42nd St., New York, 10036.

⁸ Available from European Committee for Standardization, Central Secretariat, Rue Bréderode 2, B-1000, Brussels, Belgium.

⁹ Available from ASTM Headquarters.