



Standard Test Method for Determining Filterability of Middle Distillate Fuel Oils¹

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1. Scope*

1.1 This test method covers a procedure for determining the filterability of distillate fuel oils within the viscosity range from 1.70 to 6.20 mm²/s (cSt) at 40°C.

NOTE 1—ASTM specification fuels falling within the scope of this test method are Specification D396 Grade Nos. 1 and 2, Specification D975 Grades 1-D, low sulfur 1-D, 2-D, and low sulfur 2-D, and Specification D2880 Grade Nos. 1-GT and 2-GT.

1.2 This test method is not applicable to fuels that contain undissolved water.

1.3 The values stated in SI units are to be regarded as standard.

1.3.1 Units of pressure are also provided in inch-pound for information.

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.*

2. Referenced Documents

2.1 ASTM Standards:²

- D396 Specification for Fuel Oils
- D975 Specification for Diesel Fuel Oils
- D2880 Specification for Gas Turbine Fuel Oils
- D4057 Practice for Manual Sampling of Petroleum and Petroleum Products
- D4176 Test Method for Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures)
- D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products
- D4860 Test Method for Free Water and Particulate Contamination in Middle Distillate Fuels (Clear and Bright Numerical Rating)

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.14 on Stability and Cleanliness of Liquid Fuels.

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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.

2.2 ASTM Adjuncts:

ADJ6300 D2PP, Version 4.43, Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *filterability*, *n*—a measure of the rapidity with which a standard filter medium is plugged by insoluble matter in fuel and may be described as a function of pressure or volume:

3.1.2 *filterability (by pressure)*, *n*—the pressure drop across a filter medium when 300 mL of fuel is passed at a rate of 20 mL/min.

3.1.3 *filterability (by volume)*, *n*—the volume of fuel passed when a pressure of 104 kPa (15 psig) is reached.

3.1.3.1 *Discussion*—Filterability by volume is used when less than 300 mL passes at a pressure up to 104 kPa (15 psig).

3.1.4 *filterability quality factor (F-QF)*, *n*—a value that defines the filter plugging tendency of a fuel caused by particulates.

3.1.4.1 *Discussion*—The F-QF value is calculated using the volume and pressure attained at the end of the test cycle, according to one of two equations, depending on the outcome of the test. (See Section 10, Calculations.)

4. Summary of Test Method

4.1 A sample is passed at a constant rate (20 mL/min) through a standard porosity filter medium. The pressure drop across the filter and the volume of filtrate are monitored. The test is concluded either when the pressure drop across the filter exceeds 104 kPa (15 psig) or when 300 mL have passed through the filter.

4.2 Results are reported as either the volume that has passed through the filter when a pressure of 104 kPa (15 psig) has been reached or the pressure drop when 300 mL have passed through the filter.

4.3 Verification of the apparatus is required when there is a doubt of a test result, or when the apparatus has not been used

³ Available from ASTM International Headquarters. Order Adjunct No. ADJD6300.

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