



Standard Specification for Fuel Oils¹

This standard is issued under the fixed designation D396; 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 standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This specification (see **Note 1**) covers grades of fuel oil intended for use in various types of fuel-oil-burning equipment under various climatic and operating conditions. These grades are described as follows:

1.1.1 Grades No. 1 S5000, No. 1 S500, No. 2 S5000, and No. 2 S500 are middle distillate fuels for use in domestic and small industrial burners. Grades No. 1 S5000 and No. 1 S500 are particularly adapted to vaporizing type burners or where storage conditions require low pour point fuel.

1.1.2 Grades No. 4 (Light) and No. 4 are heavy distillate fuels or middle distillate/residual fuel blends used in commercial/industrial burners equipped for this viscosity range.

1.1.3 Grades No. 5 (Light), No. 5 (Heavy), and No. 6 are residual fuels of increasing viscosity and boiling range, used in industrial burners. Preheating is usually required for handling and proper atomization.

NOTE 1—For information on the significance of the terminology and test methods used in this specification, see **Appendix X1**.

NOTE 2—A more detailed description of the grades of fuel oils is given in **X1.3**.

1.2 This specification is for the use of purchasing agencies in formulating specifications to be included in contracts for purchases of fuel oils and for the guidance of consumers of fuel oils in the selection of the grades most suitable for their needs.

1.3 Nothing in this specification shall preclude observance of federal, state, or local regulations which can be more restrictive.

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

NOTE 3—The generation and dissipation of static electricity can create problems in the handling of distillate burner fuel oils. For more information on the subject, see Guide **D4865**.

¹ This specification is under the jurisdiction of ASTM Committee **D02** on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee **D02.E0** on Burner, Diesel, Non-Aviation Gas Turbine, and Marine Fuels.

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2. Referenced Documents

2.1 ASTM Standards:²

- D56** Test Method for Flash Point by Tag Closed Cup Tester
- D86** Test Method for Distillation of Petroleum Products at Atmospheric Pressure
- D93** Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
- D95** Test Method for Water in Petroleum Products and Bituminous Materials by Distillation
- D97** Test Method for Pour Point of Petroleum Products
- D129** Test Method for Sulfur in Petroleum Products (General Bomb Method)
- D130** Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test
- D445** Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
- D473** Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method
- D482** Test Method for Ash from Petroleum Products
- D524** Test Method for Ramsbottom Carbon Residue of Petroleum Products
- D975** Specification for Diesel Fuel Oils
- D1266** Test Method for Sulfur in Petroleum Products (Lamp Method)
- D1298** Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
- D1552** Test Method for Sulfur in Petroleum Products (High-Temperature Method)
- D2500** Test Method for Cloud Point of Petroleum Products
- D2622** Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
- D2709** Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge
- D2887** Test Method for Boiling Range Distribution of Petroleum Fractions by Gas Chromatography

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.

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