



Standard Specification for Fuel Oils¹

This standard is issued under the fixed designation D 396; 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 (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 1 and 2 are distillate fuels for use in domestic and small industrial burners. Grade 1 is particularly adapted to vaporizing type burners or where storage conditions require low pour point fuel.

1.1.2 Grades 4 (Light) and 4 are heavy distillate fuels or distillate/residual fuel blends used in commercial/industrial burners equipped for this viscosity range.

1.1.3 Grades 5 (Light), 5 (Heavy), and 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 All values are stated in SI units and are regarded as 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 D 4865.

2. Referenced Documents

2.1 ASTM Standards:

D 56 Test Method for Flash Point by Tag Closed Tester²

D 86 Test Method for Distillation of Petroleum Products²

D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester²

D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation²

D 97 Test Method for Pour Point of Petroleum Oils²

D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)²

D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test²

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)²

D 473 Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method²

D 482 Test Method for Ash from Petroleum Products²

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products²

D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)²

D 1298 Practice for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method²

D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)²

D 2622 Test Method for Sulfur in Petroleum Products by X-Ray Spectrometry³

D 2709 Test Method for Water and Sediment in Distillate Fuels by Centrifuge³

D 3245 Test Method for Pumpability of Industrial Fuel Oils³

D 3828 Test Methods for Flash Point by Small Scale Closed Tester³

D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter³

D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products³

D 4294 Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry³

D 4865 Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems⁴

D 5949 Test Method for Pour Point of Petroleum Products

¹ This specification is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.E on Burner, Diesel, Non-aviation Gas Turbine, and Marine Fuels.

Current edition approved Apr. 10, 1998. Published September 1998. Originally published as D 396 – 34 T. Last previous edition D 396 – 96.

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.