



Standard Specification for Gas Turbine Fuel Oils¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers the selection of fuels for gas turbines, excepting gas turbines used in aircraft, for the guidance of interested parties such as turbine manufacturers and the suppliers and purchasers of fuel oils. The specification sets forth the properties of fuels at the time and place of custody transfer to the user.

1.2 Three appendixes are provided for informational purposes only and do not constitute a requirement of this specification unless mutually agreed upon between the interested parties.

1.2.1 Appendix X1 describes the five grades of gas turbine fuels covered by this specification. Further, it states the significance of various test methods used in inspecting the fuels.

1.2.2 Appendix X2 discusses the sources of fuel contaminants and notes the significance of such contaminants in the operation of gas turbines and gas turbine fuel systems. The particular significance of trace metals in gas turbine fuels is noted. Upper limits of trace metals are recommended for the various grades of gas turbine fuels, but these recommended limits do not constitute a requirement of the specification unless mutually agreed upon by the interested parties. Limitations due to the use of used or recycled oil are also noted.

NOTE 1—The gas turbine operator should consult Practice D 4418 for methods of ensuring fuels of adequate cleanliness and for guidance on long-term storage of distillate fuels and on liquids from non-petroleum sources as gas turbine.

NOTE 2—Nothing in this specification shall preclude observance of federal, state, or local regulations which may be more restrictive.

NOTE 3—The generation and dissipation of static electricity can create problems in the handling of distillate gas turbine 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

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.

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² Annual Book of ASTM Standards, Vol 05.01.

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

D 97 Test Method for Pour Point of Petroleum Products²

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

D 396 Specification for Fuel Oils²

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

D 482 Test Method for Ash from Petroleum Products²

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products²

D 975 Specification for Diesel Fuel Oils²

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

D 1298 Test Method 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 1796 Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)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 3605 Test Method for Trace Metals in Gas Turbine Fuels by Atomic Absorption and Flame Emission Spectroscopy³

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

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

D 4294 Test Method for Sulfur in Petroleum Products by Energy-dispersive X-Ray Fluorescence Spectroscopy³

D 4418 Practice for Receipt, Storage, and Handling of Fuels for Gas Turbines³

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

D 5949 Test Method for Pour Point of Petroleum Products (Automatic Pressure Pulsing Method)⁴

D 5950 Test Method for Pour Point of Petroleum Products

³ Annual Book of ASTM Standards, Vol 05.02.

⁴ Annual Book of ASTM Standards, Vol 05.03.