



Designation: D6751 – 23a

Standard Specification for Biodiesel Fuel Blendstock (B100) for Middle Distillate Fuels¹

This standard is issued under the fixed designation D6751; 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.

1. Scope*

1.1 This specification covers six grades of biodiesel (B100) for use as a blend component with middle distillate fuels. These grades are described as follows:

1.1.1 *Grade No. 1-B S15*—A special purpose biodiesel blendstock intended for use in middle distillate fuel applications which can be sensitive to the presence of partially reacted glycerides, including those applications requiring good low temperature operability, and also requiring a fuel blend component with 15 ppm sulfur (maximum).

1.1.2 *Grade No. 1-B S15 LM*—A special purpose biodiesel blendstock intended for use in middle distillate fuel applications which can be sensitive to the presence of partially reacted glycerides, including those applications requiring good low temperature operability, and also requiring a fuel blend component with 15 ppm sulfur (maximum) and combined sodium, potassium, calcium, and magnesium of 4 ppm (maximum). LM indicates Low Metals suitable for diesel engine applications with modern exhaust aftertreatment.

1.1.3 *Grade No. 1-B S500*—A special purpose biodiesel blendstock intended for use in middle distillate fuel applications which can be sensitive to the presence of partially reacted glycerides, including those applications requiring good low temperature operability, and also requiring a fuel blend component with 500 ppm sulfur (maximum).

1.1.4 *Grade No. 2-B S15*—A general purpose biodiesel blendstock intended for use in middle distillate fuel applications that require a fuel blend component with 15 ppm sulfur (maximum).

1.1.5 *Grade No. 2-B S15 LM*—A general purpose biodiesel blendstock intended for use in middle distillate fuel applications that require a fuel blend component with 15 ppm sulfur (maximum) and combined sodium, potassium, calcium, and magnesium of 4 ppm (maximum). LM indicates Low Metals suitable for diesel engine applications with modern exhaust aftertreatment.

1.1.6 *Grade No. 2-B S500*—A general purpose biodiesel blendstock intended for use in middle distillate fuel applications that require a fuel blend component with 500 ppm sulfur (maximum).

1.2 This specification prescribes the required properties of diesel fuels at the time and place of delivery. The specification requirements may be applied at other points in the production and distribution system when provided by agreement between the purchaser and the supplier.

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

NOTE 1—The generation and dissipation of static electricity can create problems in the handling of distillate fuel oils with which biodiesel may be blended. For more information on the subject, see Guide D4865.

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

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

D93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

D130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

D189 Test Method for Conradson Carbon Residue of Petroleum Products

D445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D524 Test Method for Ramsbottom Carbon Residue of Petroleum Products

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

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

- D613** Test Method for Cetane Number of Diesel Fuel Oil
- D664** Test Method for Acid Number of Petroleum Products by Potentiometric Titration
- D874** Test Method for Sulfated Ash from Lubricating Oils and Additives
- D974** Test Method for Acid and Base Number by Color-Indicator Titration
- D975** Specification for Diesel Fuel
- D976** Test Method for Calculated Cetane Index of Distillate Fuels
- D1160** Test Method for Distillation of Petroleum Products at Reduced Pressure
- D1266** Test Method for Sulfur in Petroleum Products (Lamp Method)
- D1796** Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)
- D2274** Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)
- D2500** Test Method for Cloud Point of Petroleum Products and Liquid Fuels
- 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
- D2880** Specification for Gas Turbine Fuel Oils
- D3120** Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry
- D3242** Test Method for Acidity in Aviation Turbine Fuel
- D3828** Test Methods for Flash Point by Small Scale Closed Cup Tester
- D4057** Practice for Manual Sampling of Petroleum and Petroleum Products
- D4177** Practice for Automatic Sampling of Petroleum and Petroleum Products
- D4294** Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry
- D4530** Test Method for Determination of Carbon Residue (Micro Method)
- D4737** Test Method for Calculated Cetane Index by Four Variable Equation
- D4865** Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems
- D4951** Test Method for Determination of Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry
- D5453** Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
- D5771** Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Optical Detection Stepped Cooling Method)
- D5772** Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Linear Cooling Rate Method)
- D5773** Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Constant Cooling Rate Method)
- D6217** Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration
- D6450** Test Method for Flash Point by Continuously Closed Cup (CCCFP) Tester
- D6469** Guide for Microbial Contamination in Fuels and Fuel Systems
- D6584** Test Method for Determination of Total Monoglycerides, Total Diglycerides, Total Triglycerides, and Free and Total Glycerin in B-100 Biodiesel Methyl Esters by Gas Chromatography
- D6890** Test Method for Determination of Ignition Delay and Derived Cetane Number (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber
- D7039** Test Method for Sulfur in Gasoline, Diesel Fuel, Jet Fuel, Kerosine, Biodiesel, Biodiesel Blends, and Gasoline-Ethanol Blends by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry
- D7042** Test Method for Dynamic Viscosity and Density of Liquids by Stabinger Viscometer (and the Calculation of Kinematic Viscosity)
- D7344** Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure (Mini Method)
- D7345** Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure (Micro Distillation Method)
- D7397** Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Miniaturized Optical Method)
- D7501** Test Method for Determination of Fuel Filter Blocking Potential of Biodiesel Fuel Blendstock (B100) by Cold Soak Filtration Test (CSFT)
- D7668** Test Method for Determination of Derived Cetane Number (DCN) of Diesel Fuel Oils—Ignition Delay and Combustion Delay Using a Constant Volume Combustion Chamber Method
- D7689** Test Method for Cloud Point of Petroleum Products and Liquid Fuels (Mini Method)
- D7945** Test Method for Determination of Dynamic Viscosity and Derived Kinematic Viscosity of Liquids by Constant Pressure Viscometer
- D8183** Test Method for Determination of Indicated Cetane Number (ICN) of Diesel Fuel Oils using a Constant Volume Combustion Chamber—Reference Fuels Calibration Method
- 2.2 Government Standard:**
- 40 CFR Part 79** Registration of Fuels and Fuel Additives Section 211(b) Clean Air Act³
- 2.3 Other Documents:**
- AOCS Standard Procedure Ck 2-09**⁴ Determination of Various Properties of Biodiesel by the QTA System Method⁵
- UOP 389** Trace Metals in Oils by Wet Ashing and ICP-OES⁶

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401.

⁴ Available from AOCS Headquarters, 2710 S. Boulder, Urbana, IL 61802–6996. Download Product Code: MC-CK209 from www.aocs.org.

⁵ QTA is a registered trademark of the Cognis Corporation, 5051 Estecreek Drive, Cincinnati, OH 45232-1446.

⁶ Available from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA. Visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org.