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.

Designation: D7619 – 17

Standard Test Method for Sizing and Counting Particles in Light and Middle Distillate Fuels, by Automatic Particle Counter[1,2]

This standard is issued under the fixed designation D7619; 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 test method uses a specific automatic particle counter[2] (APC) to count and measure the size of dispersed dirt particles, water droplets and other particles, in light and middle distillate fuel, and bio fuels such as biodiesel and biodiesel blends, in the overall range from 4 µm(c) to 100 µm(c) and in the size bands ≥4 µm(c), ≥6 µm(c), and ≥14 µm(c).

NOTE 1—ASTM and military specification fuels falling within the scope of this test method include Specifications: D975 grades 1D and 2D, D1655, D3699, D4814 (see 14.1.1.1), D6751, D7467, distillate grades of D396 and D2880, MIL-DTL-83133, and MIL-DTL-16884.

NOTE 2—For the purposes of this test method, water droplets are counted as particles, and agglomerated particles are detected and counted as a single larger particle. Dirt includes biological particles. Although the projected area of a particle is measured, this is expressed as the diameter of a sphere for the purposes of this test method.

NOTE 3—The notation (c), used with particle sizes, is used to denote that the apparatus has been calibrated in accordance with ISO 11171. Strictly this only applies to particles up to 50 µm.

NOTE 4—This test method may be used for particle sizes bands up to 100 µm(c), however the precision has only been determined for the size bands ≥4 µm(c), ≥6 µm(c), and ≥14 µm(c). All measurements are per millilitre.

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

1.3 *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.*

1.4 *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:*[3]

D396 Specification for Fuel Oils
D975 Specification for Diesel Fuel Oils
D1655 Specification for Aviation Turbine Fuels
D2880 Specification for Gas Turbine Fuel Oils
D3699 Specification for Kerosine
D4057 Practice for Manual Sampling of Petroleum and Petroleum Products
D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products
D4814 Specification for Automotive Spark-Ignition Engine Fuel
D5854 Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products
D6300 Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products and Lubricants
D6751 Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels
D7467 Specification for Diesel Fuel Oil, Biodiesel Blend (B6 to B20)

2.2 *ASTM Adjuncts:*[4]

ADJ6300 D2PP Determination of Precision and Bias data for Use in Test Methods for Petroleum Products

2.3 *ISO Standards:*[5]

ISO 11171 Hydraulic Fluid Power—Calibration of Automatic Particle Counters for Liquids
ISO 4406 Hydraulic Fluid Power—Fluids—Method for Coding Level of Contamination by Solid Particles

[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 on Stability, Cleanliness and Compatibility of Liquid Fuels.

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[2] The sole source of the apparatus known to the committee at this time is SETA-AvCount, available from Stanhope-Seta, London Street, Chertsey, Surrey KT16 8AP UK. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration of a meeting of the responsible technical committee,[1] which you may attend.

[3] 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.

[4] Out of print.

[5] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

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

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