



Standard Test Method for Particulate Contamination in Aviation Fuels by Laboratory Filtration¹

This standard is issued under the fixed designation D 5452; 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 test method covers the gravimetric determination by filtration of particulate contaminant in a sample of aviation turbine fuel delivered to a laboratory.

1.1.1 The sample is filtered through a test membrane and a control membrane using vacuum. The mass change difference identifies the contaminant level per unit volume.

1.2 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

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.* For specific hazard statements, see 4.2, 7.3, 7.5, 11.3, and X1.7.2. Before using this standard, refer to supplier's safety labels, material safety data sheets, and technical literature.

2. Referenced Documents

2.1 ASTM Standards:

- D 56 Test Method for Flash Point by Tag Closed Tester²
- D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester²
- D 1193 Specification for Reagent Water³
- D 1535 Practice for Specifying Color by the Munsell System⁴
- D 1655 Specification for Aviation Turbine Fuels²
- D 2244 Test Method for Calculation of Color Differences

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.J0 on Aviation Fuels.

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This standard has been separated from D 2276 and has been modified primarily to establish improved safety measures. Last previous edition was D 2276–89.

² Annual Book of ASTM Standards, Vol 05.01.

³ Annual Book of ASTM Standards, Vol 11.01.

⁴ Annual Book of ASTM Standards, Vol 06.01.

from Instrumentally Measured Color Coordinates⁴

D 2276 Test Method for Particulate Contaminant in Aviation Fuel by Line Sampling²

D 3828 Test Methods for Flash Point by Small Scale Closed Tester⁵

D 4306 Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination⁵

D 4865 Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems⁵

3. Terminology

3.1 Definitions:

3.1.1 *bond*, *v*—to connect two parts of a system electrically by means of a bonding wire to eliminate voltage differences.

3.1.2 *ground*, *vt*—to connect electrically with ground (earth).

3.1.3 *membrane filter*, *n*—a porous article of closely controlled pore size through which a liquid is passed to separate matter in suspension.

3.1.3.1 *Discussion*—RR:D02–1012 contains information on membrane filters that meet the requirements therein.

3.1.4 *particulate*, *adj*—of or relating to minute separate particles.

3.1.4.1 *Discussion*—Solids generally composed of oxides, silicates, and fuel insoluble salts.

3.1.5 *volatile fuels*—relatively wide boiling range volatile distillate.

3.1.5.1 *Discussion*—These are identified as Jet B in Specification D 1655 or the military grade known as JP-4. Any fuel or mixture having a flash point less than 38°C must be considered volatile.

4. Summary of Test Method

4.1 A known volume of fuel is filtered through a pre-weighed test membrane filter and the increase in membrane filter mass is weight determined after washing and drying. The change in weight of a control membrane located immediately

⁵ Annual Book of ASTM Standards, Vol 05.02.