



Standard Test Method for Determination of Water Separation Characteristics of Aviation Turbine Fuel by Small Scale Water Separation Instrument¹

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1. Scope*

1.1 This test method covers a procedure to rate the ability of aviation turbine fuels to release entrained and emulsified water when passed through a water-coalescing filter.

1.2 Results are expressed as a Water Separation Index (WSI).

1.3 The values stated in SI units are to be regarded as standard.

1.3.1 *Exception*—Units in WSI are included.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

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

[D1655 Specification for Aviation Turbine Fuels](#)

[D2550 Method of Test for Water Separation Characteristics of Aviation Turbine Fuels](#) (Withdrawn 1989)³

[D3602 Test Method for Water Separation Characteristics of Aviation Turbine Fuels](#) (Withdrawn 1994)³

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.J0.05 on Fuel Cleanliness.

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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.

³ The last approved version of this historical standard is referenced on www.astm.org.

[D3948 Test Method for Determining Water Separation Characteristics of Aviation Turbine Fuels by Portable Separometer](#)

[D4057 Practice for Manual Sampling of Petroleum and Petroleum Products](#)

[D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products](#)

[D4306 Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination](#)

[D6300 Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products, Liquid Fuels, and Lubricants](#)

[D7224 Test Method for Determining Water Separation Characteristics of Kerosine-Type Aviation Turbine Fuels Containing Additives by Portable Separometer](#)

3. Terminology

3.1 *Definitions:*

3.1.1 *surfactant, n*—in petroleum fuels, surface active material (or surface active agent) that could disarm (deactivate) filter separator (coalescing) elements so that free water is not removed from the fuel in actual service.

3.1.1.1 *Discussion*—Technically, surfactants affect the interfacial tension between water and fuel, which affects the tendency of water to coalesce into droplets.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *sonicator, n*—a device that applies ultrasonic sound energy to the test specimen.

3.2.1.1 *Discussion*—The sonicator is used to emulsify the water and aviation fuel.

3.2.2 *water separation index (WSI), n*—a numerical rating indicating the ease of separating water from fuel by coalescence.

3.2.2.1 *Discussion*—A high WSI indicates a fuel that separates water easily and is relatively free from surfactants.

4. Summary of Test Method

4.1 A fixed volume of test specimen is poured into the test beaker. The apparatus is purged with the test specimen. A precise amount of water containing a specific dye is added to

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