



# Standard Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination<sup>1</sup>

This standard is issued under the fixed designation D4306; 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 U.S. Department of Defense.*

## 1. Scope\*

1.1 This practice<sup>2</sup> covers the types of and preparation of containers found most suitable for the handling of aviation fuel samples for the determination of critical properties affected by trace contamination.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* For specific warning statements, see 5.1, 5.2, 5.3, 5.4, and 5.6.

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:<sup>3</sup>

**D2624** Test Methods for Electrical Conductivity of Aviation and Distillate Fuels

**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

**D4308** Test Method for Electrical Conductivity of Liquid Hydrocarbons by Precision Meter

**D5452** Test Method for Particulate Contamination in Aviation Fuels by Laboratory Filtration

2.2 SAE Standard:<sup>4</sup>

**MAP1794** Aircraft Recommended Practice, Ball-On-Cylinder (Boc) Aircraft Turbine Fuel Lubricity Tester

## 3. Significance and Use

3.1 General descriptions for the manual sampling of petroleum products are given in Practice **D4057**. However, a number of aviation fuel properties are established or affected by trace levels of polar or other compounds. Measurement significance therefore requires that the sample containers not add or adsorb any materials. This practice presents types and preparations of sampling containers found satisfactory for the determination of water separation, copper corrosion, electrical conductivity, thermal stability, lubricity, and trace metal content. The choice of construction materials is an important factor, particularly in the case of aviation turbine fuel, where thermal stability can be degraded by the presence of very low concentrations of copper. The use of copper or copper based alloys shall be eliminated from aviation sampling apparatus. An approval procedure for new containers is also given.

3.2 Two properties, particulate contamination and free water content, involve materials easily removed by any sampling container. These properties should be determined by placing the sample directly into the measuring apparatus and not using containers to transport the sample to the measuring equipment.

3.3 Recommendations in this practice provide guidance for immediate use and for storage of samples. Immediate use involves sample storage for periods less than 24 h.

## 4. Apparatus

### 4.1 Sampling Containers:

#### 4.1.1 Epoxy-Coated Containers:

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee **D02** on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee **D02.J0.04** on Additives and Electrical Properties.

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<sup>2</sup> The detailed data on which this practice is based may be found in SAE Practice MAP1794 and three research reports. Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Reports RR:D02-1169, RR:D02-1142, and RR:D02-1504.

<sup>3</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>4</sup> Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

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