



Designation: D8267 – 24

Standard Test Method for Determination of Total Aromatic, Monoaromatic and Diaromatic Content of Aviation Turbine Fuels Using Gas Chromatography with Vacuum Ultraviolet Absorption Spectroscopy Detection (GC-VUV)¹

This standard is issued under the fixed designation D8267; 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 is a standard procedure for the determination of total aromatic, monoaromatic and diaromatic content in aviation turbine fuels using gas chromatography and vacuum ultraviolet detection (GC-VUV).

1.2 Concentrations of compound classes and certain individual compounds are determined by percent mass or percent volume.

1.2.1 This test method is developed for testing aviation turbine engine fuels having concentration test results ranging from 0.487 % to 27.876 % by volume total aromatic compounds, 0.49 % to 27.537 % by volume monoaromatics and 0.027 % to 2.523 % by volume diaromatics.

NOTE 1—Samples with a final boiling point greater than 300 °C that contain triaromatics and higher polyaromatic compounds are not determined by this test method.

1.3 Individual hydrocarbon components are not reported by this test method, however, any individual component determinations are included in the appropriate summation of the total aromatic, monoaromatic or diaromatic groups.

1.3.1 Individual compound peaks are typically not baseline-separated by the procedure described in this test method, that is, some components will coelute. The coelutions are resolved at the detector using VUV absorbance spectra and deconvolution algorithms.

1.4 This test method has been tested for aviation turbine engine fuels including synthetic alternative jet fuels. This test method may apply to other hydrocarbon streams boiling between hexane (68 °C) and heneicosane (356 °C), but has not been extensively tested for such applications.

1.5 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

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 D02.04.01 on Gas Chromatography Methods.

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1.6 *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.*

1.7 *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

- D1840 Test Method for Naphthalene Hydrocarbons in Aviation Turbine Fuels by Ultraviolet Spectrophotometry
- D4057 Practice for Manual Sampling of Petroleum and Petroleum Products
- D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants
- D4307 Practice for Preparation of Liquid Blends for Use as Analytical Standards
- D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance
- D6300 Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products, Liquid Fuels, and Lubricants
- D6379 Test Method for Determination of Aromatic Hydrocarbon Types in Aviation Fuels and Petroleum Distillates—High Performance Liquid Chromatography Method with Refractive Index Detection
- D6730 Test Method for Determination of Individual Components in Spark Ignition Engine Fuels by 100-Metre

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