



Designation: D7807 – 20

Standard Test Method for Determination of Boiling Range Distribution of Hydrocarbon and Sulfur Components of Petroleum Distillates by Gas Chromatography and Chemiluminescence Detection¹

This standard is issued under the fixed designation D7807; 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 covers the determination of the boiling range distribution of petroleum products. The test method is applicable to petroleum products and fractions having a final boiling point of 538 °C (1000 °F) or lower at atmospheric pressure as measured by this test method. This test method is limited to samples having a boiling range greater than 55 °C (100 °F), and having a vapor pressure sufficiently low to permit sampling at ambient temperature.

1.1.1 The applicable sulfur concentration range will vary to some extent depending on the boiling point distribution of the sample and the instrumentation used; however, in most cases, the test method is applicable to samples containing levels of sulfur above 10 mg/kg.

1.2 This test method requires the use of both FID and SCD for detection. The hydrocarbon simulated distillation data obtained from the FID signal should be performed according to Test Method [D2887](#) Procedure B.

1.3 The test method is not applicable for analysis of petroleum distillates containing low molecular weight components (for example, naphthas, reformates, gasolines, crude oils). Materials containing heterogeneous components (for example, alcohols, ethers, acids, or esters) or residue are not to be analyzed by this test method. See Test Methods [D3710](#), [D7096](#), [D5307](#), [D7169](#), or [D7500](#).

1.4 This test method does not purport to identify all sulfur species in a sample. The detector response to sulfur is equimolar for all sulfur compounds within the scope (1.1) of this test method. Thus, unidentified sulfur compounds are determined with equal precision to that of identified substances. Total sulfur content is determined from the total area of the sulfur detector.

1.4.1 This test method uses the principles of simulated distillation methodology.

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

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

[D86](#) Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure

[D1160](#) Test Method for Distillation of Petroleum Products at Reduced Pressure

[D2622](#) Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry

[D2887](#) Test Method for Boiling Range Distribution of Petroleum Fractions by Gas Chromatography

[D2892](#) Test Method for Distillation of Crude Petroleum (15-Theoretical Plate Column)

[D3120](#) Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry

[D3710](#) Test Method for Boiling Range Distribution of Gasoline and Gasoline Fractions by Gas Chromatography (Withdrawn 2014)³

[D4626](#) Practice for Calculation of Gas Chromatographic Response Factors

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 [D02.04.0H](#) on Chromatographic Distribution Methods.

Current edition approved May 1, 2020. Published June 2020. Originally approved in 2019. Last previous edition approved in 2019 as D7807 – 19. DOI: 10.1520/D7807-20.

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.

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