



Standard Test Method for Boiling Range Distribution of Petroleum Distillates with Final Boiling Points up to 538 °C by Ultra Fast Gas Chromatography (UF GC)¹

This standard is issued under the fixed designation D7798; 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 and biodiesel formulations, B5, B10, and B20. It is applicable to petroleum distillates having a final boiling point not greater than 538 °C or lower at atmospheric pressure as measured by this test method. The difference between the initial boiling point and the final boiling point shall be greater than 55 °C.

1.2 The test method is not applicable for analysis of petroleum distillates containing low molecular weight components (for example naphthas, reformates, gasolines, full range crude oils). Materials containing heterogeneous mixtures (for example, alcohols, ethers, acids or esters, except biodiesels) or residue are not to be analyzed by this test method. See Test Methods [D3710](#), [D7096](#), [D6352](#), or [D7169](#).

1.3 This test method uses the principles of simulated distillation methodology. This test method uses gas chromatographic components that allow the entire analysis from sample to sample to occur in 5 min or less. In these instruments the column is heated directly at rates 10 to 15 times that of a conventional gas chromatograph and thus the analysis time is reduced from sample to sample.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4.1 *Exception*—[Appendix X1](#) includes temperatures in Fahrenheit for information only.

1.5 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

- [D86](#) Test Method for Distillation of Petroleum Products at Atmospheric Pressure
- [D1160](#) Test Method for Distillation of Petroleum Products at Reduced Pressure
- [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)
- [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
- [D6300](#) Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products and Lubricants
- [D6352](#) Test Method for Boiling Range Distribution of Petroleum Distillates in Boiling Range from 174 °C to 700 °C by Gas Chromatography
- [D6708](#) Practice for Statistical Assessment and Improvement of Expected Agreement Between Two Test Methods that Purport to Measure the Same Property of a Material
- [D7096](#) Test Method for Determination of the Boiling Range Distribution of Gasoline by Wide-Bore Capillary Gas Chromatography
- [D7169](#) Test Method for Boiling Point Distribution of Samples with Residues Such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography
- [E355](#) Practice for Gas Chromatography Terms and Relationships
- [E594](#) Practice for Testing Flame Ionization Detectors Used

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.

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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.