Designation: D7398 – 11 (Reapproved 2016)

Standard Test Method for Boiling Range Distribution of Fatty Acid Methyl Esters (FAME) in the Boiling Range from 100 °C to 615 °C by Gas Chromatography[1]

This standard is issued under the fixed designation D7398; 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 fatty acid methyl esters (FAME). This test method is applicable to FAMES (biodiesel, B100) having an initial boiling point greater than 100 °C and a final boiling point less than 615 °C at atmospheric pressure as measured by this test method.

1.2 The test method can also be applicable to blends of diesel and biodiesel (B1 through B100), however precision for these samples types has not been evaluated.

1.3 The test method is not applicable for analysis of petroleum containing low molecular weight components (for example naphthas, reformates, gasolines, crude oils).

1.4 Boiling range distributions obtained by this test method are not equivalent to results from low efficiency distillation such as those obtained with Test Method D86 or D1160, especially the initial and final boiling points.

1.5 This test method uses the principles of simulated distillation methodology. See Test Methods D2887, D6352, and D7213.

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

1.7 *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 and Liquid Fuels 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)

D4626 Practice for Calculation of Gas Chromatographic Response Factors

D6352 Test Method for Boiling Range Distribution of Petroleum Distillates in Boiling Range from 174 °C to 700 °C by Gas Chromatography

D6751 Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels

D7213 Test Method for Boiling Range Distribution of Petroleum Distillates in the Boiling Range from 100 °C to 615 °C by Gas Chromatography

E355 Practice for Gas Chromatography Terms and Relationships

E594 Practice for Testing Flame Ionization Detectors Used in Gas or Supercritical Fluid Chromatography

E1510 Practice for Installing Fused Silica Open Tubular Capillary Columns in Gas Chromatographs

3. Terminology

3.1 *Definitions:*

3.1.1 This test method makes reference to many common gas chromatographic procedures, terms, and relationships. Detailed definitions of these can be found in Practices E355, E594, and E1510.

[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.

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