



Standard Test Method for Determination of Fuel Methanol (M99) and Methanol Fuel Blends (M10 to M99) by Gas Chromatography¹

This standard is issued under the fixed designation D7920; 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.

^{ε1} NOTE—Section 16 was corrected editorially in September 2015.

1. Scope

1.1 This test method covers the determination of the methanol content, by gas chromatography, of M10 to M99 in methanol fuel blends, including fuel methanol (M99).

1.1.1 Methanol may be determined from 10 % to 99 % by volume.

1.2 This test method is designed to measure not only methanol in the blended gasoline but also the impurities in fuel methanol (M99) itself in the range of 5 mg/kg to 1000 mg/kg. However, not all impurities are measured nor detected by this test method.

1.2.1 Water cannot be determined by this test method and shall be measured by a procedure such as Test Method D1364 and the result used to correct the concentrations determined by this test method.

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

1.4 *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

D1364 Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D4175 Terminology Relating to Petroleum, Petroleum Products, and Lubricants

D4307 Practice for Preparation of Liquid Blends for Use as Analytical Standards

D4814 Specification for Automotive Spark-Ignition Engine Fuel

D4626 Practice for Calculation of Gas Chromatographic Response Factors

D5797 Specification for Fuel Methanol (M70-M85) for Automotive Spark-Ignition Engines

D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E355 Practice for Gas Chromatography Terms and Relationships

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

E1064 Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration

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

3. Terminology

3.1 This test method makes reference to many common chromatographic procedures, terms, and relationships. Detailed definitions can be found in Terminology D4175 and Practices D4626, E355, and E594.

3.2 Definitions:

3.2.1 *analyte, n*—a specific compound to be measured quantitatively in a mixture of compounds.

3.2.2 *analytical column, n*—a chromatographic column used to further separate a specific analyte from a mixture of compounds which can coelute in the primary column.

3.2.3 *analytical detector, n*—a device used to quantify the compounds of interest after they elute from the analytical column.

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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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.