



Designation: D7875 – 24

Standard Test Method for Determination of Butanol and Acetone Content of Butanol for Blending with Gasoline by Gas Chromatography¹

This standard is issued under the fixed designation D7875; 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 butanol content of butanol for blending with gasoline by gas chromatography.

1.2 Butanol is determined from 95 % to 99.9 % by mass, acetone is determined from 0.02 % to 1.5 % by mass, ethanol is determined from 0.02 % to 1.5 % by mass, and methanol is determined from 0.02 % to 1.5 % by mass. Equations used to convert these individual components from mass percent to volume percent are provided. This test method has not been evaluated for use with the butanol isomer 2-methyl-2-propanol.

1.3 This test method identifies and quantifies acetone, ethanol, and methanol, but does not purport to identify all individual components that may be present in butanol for gasoline blending.

1.4 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 chromatographic values.

1.5 This test method is inappropriate for impurities that boil at temperatures higher than 225 °C or for impurities that cause poor or no response in a flame ionization detector, such as water.

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

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *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 Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

- [D1298](#) Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
- [D1364](#) Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)
- [D4052](#) Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter
- [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
- [D4626](#) Practice for Calculation of Gas Chromatographic Response Factors
- [D4806](#) Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel
- [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
- [D7862](#) Specification for Butanol for Blending with Gasoline for Use as Automotive Spark-Ignition Engine Fuel
- [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

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 [D02.04.0L](#) 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 www.astm.org/contact. 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