



Designation: D4806 – 21a

Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel¹

This standard is issued under the fixed designation D4806; 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 specification covers nominally anhydrous denatured fuel ethanol intended to be blended with unleaded or leaded gasolines at 1 % to 15 % by volume for use as automotive spark-ignition engine fuel covered by Specification **D4814** as well as other fuel applications or specifications involving ethanol. The significance of this specification is shown in **Appendix X1**.

1.2 Jurisdictions may vary in their regulatory requirements for the allowable or prohibited types of denaturants, chemical composition of the denaturant or concentration of denaturant needed to denature the ethanol. The user is advised to check with the national and regional regulatory agencies where the ethanol is denatured and used.

1.2.1 Specific regulatory requirements for denatured fuel ethanol and acceptable denaturants from various jurisdictions are given in Appendixes for information.

1.3 The values stated in SI units are to be regarded as standard.

1.3.1 *Exception*—Values given in parentheses are provided for information only. Non-SI units are shown in the Appendix if they are in a direct quotation from government regulations. In most cases, U.S. federal regulations specify non-SI units.

1.4 The following safety hazards caveat pertains only to the method modification in **8.7** of this specification: *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.*

1.5 *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

- D86** Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure
- D381** Test Method for Gum Content in Fuels by Jet Evaporation
- D1298** Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
- D1613** Test Method for Acidity in Volatile Solvents and Chemical Intermediates Used in Paint, Varnish, Lacquer, and Related Products
- D1688** Test Methods for Copper in Water
- D2622** Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
- D3120** Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry
- 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
- D4177** Practice for Automatic Sampling of Petroleum and Petroleum Products
- D4306** Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination
- D4814** Specification for Automotive Spark-Ignition Engine Fuel
- D5453** Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
- D5501** Test Method for Determination of Ethanol and Methanol Content in Fuels Containing Greater than 20 %

¹ This specification is under the jurisdiction of ASTM Committee **D02** on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee **D02.A0.02** on Oxygenated Fuels and Components.

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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.

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