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

Designation: D7923 – 17a$^{\varepsilon 1}$

Standard Test Method for Water in Ethanol and Hydrocarbon Blends by Karl Fischer Titration[1]

This standard is issued under the fixed designation D7923; 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.

ε[1] NOTE—The title of Table 3 was corrected editorially in July 2018.

1. Scope*

1.1 This test method covers the determination of water from 0.05 % to 5.0 % by mass in blends of ethanol, hydrocarbon, and corresponding blends. It is intended for measuring water content of gasoline or other hydrocarbon blendstock, denatured fuel ethanol as cited in Specification D4806, and ethanol fuel blends such as those cited in Specification D5798 and Practice D7794. This test method is not applicable to samples that are phase separated.

1.1.1 *Procedure A*—For measurement of water up to 2 % by mass in ethanol and hydrocarbon blends using coulometric Karl Fischer titration. This is the referee method for samples containing up to 2 % water.

1.1.2 *Procedure B*—For measurement of water up to 5.4 % by mass in ethanol and hydrocarbon blends using volumetric Karl Fischer titration.

1.2 This method measures mass percent water and allows for the alternative reporting of volume percent. This test method recommends the use of pyridine-free reagents.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use. Specific precautionary statements are given in Section 8.*

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

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1152 Specification for Methanol (Methyl Alcohol)
D1193 Specification for Reagent Water
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
D4806 Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel
D5798 Specification for Ethanol Fuel Blends for Flexible-Fuel Automotive Spark-Ignition Engines
D6299 Practice for Applying Statistical Quality Assurance and Control Charting Techniques to Evaluate Analytical Measurement System Performance
D6708 Practice for Statistical Assessment and Improvement of Expected Agreement Between Two Test Methods that Purport to Measure the Same Property of a Material
D7794 Practice for Blending Mid-Level Ethanol Fuel Blends for Flexible-Fuel Vehicles with Automotive Spark-Ignition Engines
E203 Test Method for Water Using Volumetric Karl Fischer Titration
E1064 Test Method for Water in Organic Liquids by Coulometric Karl Fischer Titration

3. Terminology

3.1 For general terminology, refer to Terminology D4175.

3.2 *Definitions:*

[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 D02.06 on Analysis of Liquid Fuels and Lubricants.

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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

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