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: D7328 – 17

Standard Test Method for Determination of Existent and Potential Inorganic Sulfate and Total Inorganic Chloride in Fuel Ethanol by Ion Chromatography Using Aqueous Sample Injection[1]

This standard is issued under the fixed designation D7328; 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 an ion chromatographic procedure for the determination of the existent inorganic and potential sulfate and total inorganic chloride content in hydrous and anhydrous denatured ethanol to be used in motor fuel applications. It is intended for the analysis of ethanol samples containing between 0.55 mg/kg and 20 mg/kg of existent inorganic sulfate, 4.0 mg/kg to 20 mg/kg of potential inorganic sulfate, and 0.75 mg/kg to 50 mg/kg of total inorganic chloride.

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

1.3 *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.* Material Safety Data Sheets are available for reagents and materials. Review them for hazards prior to usage

1.4 *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]

D1193 Specification for Reagent Water

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

D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

D5827 Test Method for Analysis of Engine Coolant for Chloride and Other Anions by Ion Chromatography

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

D6792 Practice for Quality Management Systems in Petroleum Products, Liquid Fuels, and Lubricants Testing Laboratories

D7318 Test Method for Existent Inorganic Sulfate in Ethanol by Potentiometric Titration

D7319 Test Method for Determination of Existent and Potential Sulfate and Inorganic Chloride in Fuel Ethanol and Butanol by Direct Injection Suppressed Ion Chromatography

2.2 *Other Standard:*

ISO/CEN15492 Ethanol as a Blending Component for Petrol—Determination of Inorganic Chloride—Ion Chromatographic Method [3]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *existent inorganic sulfate, n*—inorganic sulfate species actually present in the sample at the time of analysis with no oxidation treatment.

3.1.2 *inorganic chloride, n*—chloride present as hydrochloric acid, ionic salts of this acid, or mixtures of these.

3.1.3 *inorganic sulfate, n*—sulfate species present as sulfuric acid, ionic salts of this acid, or mixtures of these.

3.1.4 *potential sulfate, n*—total inorganic sulfate species present after the sample has been reacted with an oxidizing agent.

[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 D02.03 on Elemental Analysis.

Current edition approved Oct. 1, 2017. Published October 2016. Originally approved in 2007. Last previous edition approved in 2016 as D7328 – 16. DOI: 10.1520/D7328-17.

[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.

[3] Available from International Organization for Standardization (ISO), 1 rue de Varembé, Case postale 56, CH-1211, Geneva 20, Switzerland, http://www.iso.ch.

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

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