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Standard Guide for Quality Assurance Protocols for Chemical Analysis of Atmospheric Wet Deposition¹

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1. Scope

1.1 This guide describes quality assurance (QA) protocols for the determination of the anions and cations in Atmospheric Wet Deposition (AWD) shown in [Table 1](#).

1.2 Included in this guide are minimum recommended requirements for the preparation of calibration standards and suggested procedures for validating laboratory measurement results.

1.3 This guide describes minimum requirements for the frequency of analysis of quality assurance samples and recommends procedures for the evaluation of quality assurance data.

1.4 The guide's recommendations are based upon expected anion and cation concentrations in AWD [\(1\)](#)² and [Appendix X1](#).

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

1.6 *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.*

1.7 *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.*

¹ This guide is under the jurisdiction of ASTM Committee [D22](#) on Air Quality and is the direct responsibility of Subcommittee [D22.03](#) on Ambient Atmospheres and Source Emissions.

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² The boldface numbers in parentheses refer to the list of references at the end of this guide.

2. Referenced Documents

2.1 *ASTM Standards*:³

[D596](#) Guide for Reporting Results of Analysis of Water

[D1193](#) Specification for Reagent Water

[D1356](#) Terminology Relating to Sampling and Analysis of Atmospheres

[D3856](#) Guide for Management Systems in Laboratories Engaged in Analysis of Water

[D5012](#) Guide for Preparation of Materials Used for the Collection and Preservation of Atmospheric Wet Deposition

[D5015](#) Test Method for pH of Atmospheric Wet Deposition Samples by Electrometric Determination

[D5085](#) Test Method for Determination of Chloride, Nitrate, and Sulfate in Atmospheric Wet Deposition by Chemically Suppressed Ion Chromatography

[D5086](#) Test Method for Determination of Calcium, Magnesium, Potassium, and Sodium in Atmospheric Wet Deposition by Flame Atomic Absorption Spectrophotometry

[D5111](#) Guide for Choosing Locations and Sampling Methods to Monitor Atmospheric Deposition at Non-Urban Locations

[E200](#) Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide refer to Terminology [D1356](#) or the ASTM Dictionary of Engineering Science and Technology.⁴

4. Summary of Guide

4.1 This guide describes QA procedures to be used in conjunction with standard test methods.

³ 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.

⁴ ASTM Dictionary of Engineering Science and Technology, Tenth Edition, 2005. Stock# DEF05.