



Standard Test Method for Determination of Chloride, Nitrate, and Sulfate in Atmospheric Wet Deposition by Chemically Suppressed Ion Chromatography¹

This standard is issued under the fixed designation D5085; 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 is applicable to the determination of chloride, nitrate, and sulfate in atmospheric wet deposition (rain, snow, sleet, and hail) by chemically suppressed ion chromatography (1)². For additional applications refer to Test Method D4327.

1.2 The concentration ranges for this test method are listed below. The range tested was confirmed using the interlaboratory collaborative test (see Table 1 for statistical summary of the collaborative test).

	MDL (mg/L) (2)	Range of Method (mg/L)	Range Tested (mg/L)
Chloride	0.03	0.09–2.0	0.15–1.36
Nitrate	0.03	0.09–5.0	0.15–4.92
Sulfate	0.03	0.09–8.0	0.15–6.52

1.3 The method detection limit (MDL) is based on single operator precision (2) and may be higher or lower for other operators and laboratories. The precision and bias data presented are insufficient to justify use at this low level, however, many workers have found that this test method is reliable at lower levels than those that were tested.

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 and health practices and determine the applicability of regulatory limitations prior to use.* Specific precautionary statements are given in Section 9.

¹ This test method 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 references at the end of this test method.

2. Referenced Documents

2.1 ASTM Standards:³

D883 Terminology Relating to Plastics

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

D1356 Terminology Relating to Sampling and Analysis of Atmospheres

D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water

D3670 Guide for Determination of Precision and Bias of Methods of Committee D22

D4210 Practice for Intralaboratory Quality Control Procedures and a Discussion on Reporting Low-Level Data (Withdrawn 2002)⁴

D4327 Test Method for Anions in Water by Suppressed Ion Chromatography

D5012 Guide for Preparation of Materials Used for the Collection and Preservation of Atmospheric Wet Deposition

IEEE/ASTM SI-10 Standard for Use of the International System of Units (SI): The Modern Metric System

E694 Specification for Laboratory Glass Volumetric Apparatus

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method, refer to Terminologies D883, D1129, and D1356 and Test Method D4327 and Practice IEEE/ASTM SI-10.

4. Summary of Test Method

4.1 Ion chromatography combines conductometric detection with the separation capabilities of ion exchange resins. (1) A

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 The last approved version of this historical standard is referenced on www.astm.org.