



Designation: D5085 – 21

Standard Test Method for Determination of Chloride, Nitrate, and Sulfate in Atmospheric Wet Deposition by 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 samples (rain, snow, sleet, and hail) by suppressed ion chromatography. For additional applications, see to Test Method [D4327](#).

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

	Method Detection Limit (mg/L) (1)	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 **(1)**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, it has been reported that this test method is reliable at lower levels than those that were tested. The MDLs listed above were determined following the guidance in 40 CFR Part 136 Appendix B. Other approaches to the determination of MDLs may yield different MDLs.

1.4 Method Detection Limits will vary depending on the type and length of column(s) used, the composition and strength of eluent used, the bore size of the instrumentation (that is, microbore or standard bore), eluent flow rate and other variables between instruments. The method detection limits listed above are those used in determining the Precision and Bias of this method as given in Table 1.

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.

1.5 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 9.

1.6 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: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 Practice for Preparation of Materials Used for the Collection and Preservation of Atmospheric Wet Deposition](#)
- [E694 Specification for Laboratory Glass Volumetric Apparatus](#)

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.