



Designation: D 5085 – 9502

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 D 5085; 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 This test method is under the jurisdiction of ASTM Committee D-22 on Sampling and Analysis of Atmospheres and is the direct responsibility of Subcommittee D22.06 on Atmospheric Deposition.

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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 ~~using a two pen variable setting recorder and integrator.~~ For additional applications refer to Test Method D 4327.

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.

2. Referenced Documents

2.1 ASTM Standards:

D 883 Terminology Relating to Plastics³

D 1129 Terminology Relating to Water⁴

D 1193 Specification for Reagent Water⁴

D 1356 Terminology Relating to Sampling and Analysis of Atmospheres⁵

D 2777 Practice for Determination of Precision and Bias of Applicable Methods of Committee D-19 on Water⁴

D 3670 Guide for Determination of Precision and Bias of Methods of Committee D-22⁵

D 4210 Practice for Interlaboratory Quality Control Procedures and a Discussion on Reporting Low-Level Data⁴

D 4327 Test Method for Anions in Water by Chemically Suppressed Ion Chromatography⁴

D 5012 Guide for Preparation of Materials Used for the Collection and Preservation of Atmospheric Wet Deposition⁵

E 380 Practice for Use of the International System of Units (SI) (the Modernized Metric System)⁶

E 694 Specification for Laboratory Glass Volumetric Apparatus⁶

² The boldface numbers in parentheses refer to references at the end of this test method.

³ *Annual Book of ASTM Standards*, Vol 08.01.

⁴ *Annual Book of ASTM Standards*, Vol 11.01.

⁵ *Annual Book of ASTM Standards*, Vol 11.03.

⁶ *Annual Book of ASTM Standards*, Vol 14.02.