



Standard Guide for Preparation of Materials Used for the Collection and Preservation of Atmospheric Wet Deposition¹

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^{ε1} NOTE—Section 9 was editorially added in April 1994.

1. Scope

1.1 This guide presents recommendations for the cleaning of plastic or glass materials used for collection of atmospheric wet deposition (AWD). This guide also presents recommendations for the preservation of samples collected for chemical analysis.

1.2 The materials used to collect AWD for the analysis of its inorganic constituents and trace elements should be plastic. High density polyethylene (HDPE) is most widely used and is acceptable for all samples including samples for the determination of the anions of acetic, citric, and formic acids. Borosilicate glass is a collection alternative for the determination of the anions from acetic, citric, and formic acid; it is recommended for samples for the determination of other organic compounds.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 883 Terminology Relating to Plastics²

D 1125 Test Methods for Electrical Conductivity and Resistivity of Water³

D 1129 Terminology Relating to Water³

D 1193 Specification for Reagent Water³

D 1356 Terminology Relating to Sampling and Analysis of Atmospheres⁴

D 1695 Terminology of Cellulose and Cellulose Derivatives⁵

D 2914 Test Methods for Sulfur Dioxide Content of the Atmosphere (West-Gaeke Method)⁴

D 4453 Practice for Handling of Ultra-Pure Water Samples³

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this guide, refer to Terminology D 1129.

3.1.2 For definition of **plastic** refer to Terminology D 1695 and Terminology D 883.

3.1.3 For definition of AWD (**precipitation, meteorological**) refer to Terminology D 1356.

4. Significance and Use

4.1 Some chemical constituents of AWD are not stable and must be preserved before chemical analysis. Without sample preservation, it is possible that analytes can be lost through decomposition or sorption to the storage bottles.

4.2 Contamination of AWD samples can occur during both sample preservation and sample storage. Proper selection and cleaning of sampling containers are required to reduce the possibility of contamination of AWD samples.

4.3 The natural sponge and talc-free plastic gloves used in the following procedures should be recognized as potential sources of contamination. Individual experience should be used to select products that minimize contamination.

5. Apparatus

5.1 Instruments shall be selected in accordance with an applicable test method given in Test Methods D 1125.

5.2 The conductivity cell shall be pipet or dip type with a cell constant (K) of 0.1 .

6. Reagents and Materials

6.1 *Purity of Reagents*—Reagent grade acids and other

¹ This guide 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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² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 11.01.

⁴ *Annual Book of ASTM Standards*, Vol 11.03.

⁵ *Annual Book of ASTM Standards*, Vol 06.03.