



Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method¹

This standard is issued under the fixed designation D 6735; 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.

INTRODUCTION

The bias and precision statements included in Section 14 of this test method are based on field test measurements at limestone calcining sources. Procedures for assessing the test-specific bias and the precision at each source are included in the body of the method.

Additional optional procedures are included in Appendix X1 that can be used to demonstrate the bias and precision of the method for specific source categories. These procedures were used to develop the bias and precision statements included in Section 14 and may be applied when using the method at sources where no previous test data have been acquired.

1. Scope

1.1 This method will measure the concentration of gaseous hydrochloric and hydrofluoric acids, and other gaseous chlorides and fluorides that pass through a particulate matter filter maintained at 177°C (350°F). This method is specific for sampling combustion effluent from mineral calcining industries and other stationary sources where the reactive/adsorptive nature of the particulate matter may affect measurements.

1.2 This method utilizes ion chromatography to quantify the aqueous samples, and thus measures only the Cl^- and F^- ions.

1.3 Based on a one-hour sampling run, the method will provide results of known accuracy and precision for chloride and fluoride in-stack concentrations of 0.5 ppm (v) dry or greater. Extending the run duration and sampling a greater volume of effluent will extend the range to lower concentrations.

1.4 This method includes optional post-test quality assurance procedures to assess the bias of the test results, and optional paired sample train runs to assess the precision of test results.

2. Referenced Documents

2.1 ASTM Standards:

D 1356 Terminology Relating to Sampling and Analysis of Atmospheres²

D 2986 Practice for Evaluation of Air Assay Media by the Monodisperse DOP Dioctyl Phthalate Smoke Test²

D 3195 Practice for Rotameter Calibration²

D 6348 Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy²

2.2 EPA Standards:³

Method 1—Sample and Velocity Traverses for Stationary Sources

Method 2—Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)

Method 3—Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight

Method 4—Determination of Moisture Content in Stack Gases

Method 301—Field Validation of Pollutant Measurement Methods from Various Waste Media

3. Terminology

3.1 See Terminology D 1356 for definition of terms used in this test method.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *analyte spike, n*—the optional procedure contained in this method to assess bias attributed to the measurement system. The analyte spike procedure consists of adding a

¹ This test method is under the jurisdiction of ASTM Committee D22 on Sampling and Analysis of Atmospheres and is the direct responsibility of Subcommittee D22.03 on Ambient Atmospheres and Source Emissions.

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² *Annual Book of ASTM Standards*, Vol 11.03.

³ United States Environmental Protection Agency Code of Federal Regulations, 40 CFR Parts 60 and 63, available from the Government Printing Office, Washington, DC.