



Designation: D6350 – 24

Standard Test Method for Mercury Sampling and Analysis in Natural Gas and Other Gaseous Fuels by Amalgamation Atomic Fluorescence Spectroscopy¹

This standard is issued under the fixed designation D6350; 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 covers the determination of total mercury in gaseous fuels at concentrations down to 0.001 µg m⁻³. It includes procedures for obtaining a representative sample and for the determination of Hg using gold amalgamation-atomic fluorescence spectrometry (AFS). The procedure detects all forms of mercury including elemental, inorganic and organic mercury and therefore reports total gaseous mercury.

1.2 The values stated in SI units are to be regarded as standard.

1.3 **Warning:** Mercury has been designated by many regulatory agencies as a hazardous material that can cause serious medical issues. Mercury, or its vapor, has been demonstrated to be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury containing products. See the applicable product Safety Data Sheet for additional information. Users should be aware that selling mercury and/or mercury containing products into their state or country may be prohibited by law.

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

1.5 *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.*

¹ This test method is under the jurisdiction of ASTM Committee D03 on Gaseous Fuels and is the direct responsibility of Subcommittee D03.06.03 on Analysis by Spectroscopy.

Current edition approved May 1, 2024. Published June 2024. Originally approved in 1998. Last previous edition approved in 2014 as D6350 – 14, which was withdrawn in January 2023 and reinstated May 2024. DOI: 10.1520/D6350-24.

2. Referenced Documents

2.1 *ASTM Standards:*²

D4150 Terminology Relating to Gaseous Fuels

D5954 Test Method for Mercury Sampling and Measurement in Gaseous Fuels by Atomic Absorption Spectroscopy

2.2 *ISO Standard*³

ISO 6978-2 Natural gas — Determination of mercury — Part 2: Sampling of mercury by amalgamation on gold/platinum alloy

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of general gaseous fuel terms used in D03 Gaseous Fuels standards, refer to Terminology D4150.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *detection limit, n*—a statistically derived value representing the lowest quantity of analyte that can confidently be distinguished from background signal. See 13.4.

3.2.2 *limit of quantification, n*—the lowest concentration at which the instrument can measure reliably with a defined error and confidence level. See 13.5.

3.3 *Acronyms:*

3.3.1 *AFS*—atomic fluorescence spectrometry

3.3.2 *PTFE*—polytetrafluoroethylene

4. Summary of Test Method

4.1 The sample gas is depressurized and is setup to continuously flow via speed loop bypass from which a representative sample can be obtained. Mercury from the gaseous stream is absorbed and preconcentrated onto two gold-coated silica tubes which are in series. The gold traps are heated above the dewpoint of the gas stream under reduced sample pressure

² 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.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.