



Designation: D7482 – 17 (Reapproved 2023)

Standard Practice for Sampling, Storage, and Handling of Hydrocarbons for Mercury Analysis¹

This standard is issued under the fixed designation D7482; 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 practice covers the types of and preparation of containers found most suitable for the handling of hydrocarbon samples for the determination of total mercury.

1.2 This practice was developed for sampling streams where the mercury speciation is predominantly Hg(0) present as a mixture of dissolved Hg(0) atoms, adsorbed Hg(0) on particulates (for example, carbonaceous or mineral fines and Fe₂O₃) and suspended droplets of metallic mercury.

1.3 The presence of suspended droplets of metallic mercury (often called “colloidal” mercury, since the droplet size can be very small) can make obtaining a representative sample very difficult for a variety of reasons (for example, non-isokinetic sampling of the liquid can result in over- or under-collection of suspended droplets and collection of mercury that has accumulated in dense larger drops and pools on the bottom of piping and in sample taps). Pay strict attention to the detailed procedure (Section 7) to ensure representative samples are collected.

1.4 When representative test portions are collected and analyzed in accordance with acceptable procedures, the total mercury is representative of concentrations in the sample.

1.5 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.6 **Warning**—Mercury has been designated by EPA and many state agencies as a hazardous material that can cause central nervous system, kidney, and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury-containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA’s website (<http://www.epa.gov/mercury/faq.htm>) for additional informa-

tion. Users should be aware that selling mercury or mercury-containing products, or both, in your state may be prohibited by state law.

1.7 *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.*

1.8 *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:*²

D4175 Terminology Relating to Petroleum Products, Liquid Fuels, and Lubricants

D7622 Test Method for Total Mercury in Crude Oil Using Combustion and Direct Cold Vapor Atomic Absorption Method with Zeeman Background Correction

D7623 Test Method for Total Mercury in Crude Oil Using Combustion-Gold Amalgamation and Cold Vapor Atomic Absorption Method

2.2 *EPA Standard:*³

EPA Method 1669 Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels; July 1996; US Environmental Protection Agency

3. Terminology

3.1 *Definitions*—For definitions of terms used in this standard, refer to Terminology D4175.

3.2 *Abbreviations:*

3.2.1 VOA—Volatile Organic Analysis

¹ This practice is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.03 on Elemental Analysis.

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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 United States Environmental Protection Agency (EPA), Ariel Rios Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460 (www.epa.gov).