



Designation: D5316 – 98 (Reapproved 2024)

Standard Test Method for 1,2-Dibromoethane and 1,2-Dibromo-3-Chloropropane in Water by Microextraction and Gas Chromatography¹

This standard is issued under the fixed designation D5316; 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 1,2-dibromoethane (commonly referred to as ethylene dibromide or EDB) and 1,2-dibromo-3-chloropropane (commonly referred to as DBCP) in water at a minimum detection level of 0.010 µg/L by liquid-liquid extraction combined with gas-liquid chromatography. This test method is applicable to the analysis of drinking waters and groundwaters. It is not recommended for wastewaters, due to the potential for interferences from high concentrations of other extractable organics. Similar information can be found in EPA Method 504.

1.2 This test method was used successfully with reagent water and groundwater. It is the user's responsibility to ensure the validity of this test method for waters of untested matrices.

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

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 use.* For specific hazard statements, see Sections 6 and 9.

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.*

2. Referenced Documents

2.1 ASTM Standards:²

D1066 Practice for Sampling Steam

¹ This test method is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.06 on Methods for Analysis for Organic Substances in Water.

Current edition approved April 1, 2024. Published April 2024. Originally approved in 1992. Last previous edition approved in 2017 as D5316 – 98 (2017). DOI: 10.1520/D5316-98R24.

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.

D1129 Terminology Relating to Water

D1192 Guide for Equipment for Sampling Water and Steam in Closed Conduits (Withdrawn 2003)³

D1193 Specification for Reagent Water

D3370 Practices for Sampling Water from Flowing Process Streams

D3856 Guide for Management Systems in Laboratories Engaged in Analysis of Water (Withdrawn 2024)³

D4210 Practice for Intralaboratory Quality Control Procedures and a Discussion on Reporting Low-Level Data (Withdrawn 2002)³

D5789 Practice for Writing Quality Control Specifications for Standard Test Methods for Organic Constituents (Withdrawn 2002)³

2.2 U.S. EPA Standards:⁴

Method 504 Methods for the Determination of Organic Compounds in Drinking Water, Revision 2.0, 1989

Method 524 Measurement of Purgeable Organic Compounds in Drinking Water by Gas Chromatography/Mass Spectrometry

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129.

4. Summary of Test Method

4.1 This test method consists of microextraction of the sample followed by gas chromatographic analysis of the extract.

4.2 An aliquot of the sample is extracted with hexane. Two µL of the extract are then injected into a gas chromatograph equipped with a linearized electron capture detector for separation and analysis. Aqueous calibration standards are extracted and analyzed in an identical manner as the samples in order to compensate for possible extraction losses.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from United States Environmental Protection Agency (EPA), William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, <http://www.epa.gov>.