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.

Designation: D3871 – 84 (Reapproved 2017)

Standard Test Method for Purgeable Organic Compounds in Water Using Headspace Sampling[1]

This standard is issued under the fixed designation D3871; 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 most purgeable organic compounds that boil below 200°C and are less than 2 % soluble in water. It covers the low µg/L to low mg/L concentration range (see Section 15 and Appendix X1).

1.2 This test method was developed for the analysis of drinking water. It is also applicable to many environmental and waste waters when validation, consisting of recovering known concentrations of compounds of interest added to representative matrices, is included.

1.3 Volatile organic compounds in water at concentrations above 1000 µg/L may be determined by direct aqueous injection in accordance with Practice D2908.

1.4 It is the user's responsibility to assure the validity of the test method for untested matrices.

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 *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.* Specific precautionary statements are given in 8.5.5.1.

1.7 *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]

D1129 Terminology Relating to Water

D1193 Specification for Reagent Water

D2908 Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography

E355 Practice for Gas Chromatography Terms and Relationships

3. Terminology

3.1 *Definitions:*

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129 and Practice E355.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *purgeable organic, n*—any organic material that is removed from aqueous solution under the purging conditions described in this test method (10.1.1).

4. Summary of Test Method

4.1 An inert gas is bubbled through the sample to purge volatile compounds from the aqueous phase. These compounds are then trapped in a column containing a suitable sorbent. After purging is complete, trapped components are thermally desorbed onto the head of a gas chromatographic column for separation and analysis. Measurement is accomplished with an appropriate detector.

5. Significance and Use

5.1 Purgeable organic compounds, including organohalides, have been identified as contaminants in raw and drinking water. These contaminants may be harmful to the environment and man. Dynamic headspace sampling is a generally applicable method for concentrating these components prior to gas

[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.

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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.

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