



Designation: D5790 – 18

Standard Test Method for Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry¹

This standard is issued under the fixed designation D5790; 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 identification and simultaneous measurement of purgeable volatile organic compounds. It has been validated for treated drinking water, wastewater, and ground water. This test method is not limited to these particular aqueous matrices; however, the applicability of this test method to other aqueous matrices must be demonstrated.

1.2 This test method is applicable to a wide range of organic compounds that have sufficiently high volatility and low water solubility to be efficiently removed from water samples using purge and trap procedures. [Table 1](#) lists the compounds that have been validated for this test method. This test method is not limited to the compounds listed in [Table 1](#); however, the applicability of the test method to other compounds must be demonstrated.

1.3 Analyte concentrations up to approximately 200 $\mu\text{g/L}$ may be determined without dilution of the sample. Analytes that are inefficiently purged from water will not be detected when present at low concentrations, but they can be measured with acceptable accuracy and precision when present in sufficient amounts.

1.4 Analytes that are not separated chromatographically, but that have different mass spectra and non-interfering quantitation ions, can be identified and measured in the same calibration mixture or water sample. Analytes that have very similar mass spectra cannot be individually identified and measured in the same calibration mixture or water sample unless they have different retention times. Coeluting compounds with very similar mass spectra, such as structural isomers, must be reported as an isomeric group or pair. Two of the three isomeric xylenes are examples of structural isomers that may not be resolved on the capillary column, and if not, must be reported as an isomeric pair.

1.5 It is the responsibility of the user to ensure the validity of this test method for untested matrices.

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

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

- [D1129 Terminology Relating to Water](#)
- [D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water](#)
- [D3871 Test Method for Purgeable Organic Compounds in Water Using Headspace Sampling](#)
- [D3973 Test Method for Low-Molecular Weight Halogenated Hydrocarbons in Water](#)
- [E355 Practice for Gas Chromatography Terms and Relationships](#)

2.2 Other Documents:

- [Code of Federal Regulations 40 CFR Part 261](#)³

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this standard, refer to Terminology [D1129](#) and Practice [E355](#).

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.

³ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.