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: D8543 – 24

Standard Test Method for Determination of Pesticides and Polychlorinated Biphenyls (PCBs) in Aqueous Solution by a Tandem Gas Chromatography/Mass Spectrometry/Mass Spectrometry (GC/MS/MS)[1]

This standard is issued under the fixed designation D8543; 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 extractable chlorinated pesticides and polychlorinated biphenyls (PCBs) by gas chromatography/mass spectrometry/mass spectrometry (GC/MS/MS).

1.2 This test method has been validated for wastewater influents, effluents, industrial discharges, surface water, and ground water.

1.3 This test method is not limited to these particular aqueous matrices; however, the applicability of this test method to other aqueous matrices shall be demonstrated.

1.4 This test method is restricted to use by or under the supervision of analysts experienced in the use of a gas chromatograph with tandem mass spectrometry. Each laboratory that uses this test method shall demonstrate the ability to generate results that meet or exceed the performance criteria of this test method.

1.5 If sensitivity permits, compound tentative identification of unknowns may be made by analyzing the extract in full-scan mode or, if the system allows simultaneous timed single-reaction monitoring (SRM)/full-scan acquisition. Identify unknown peaks according to Guide D4128.

1.6 This test method is performance-based. Minor modifications, as allowed by CFR 40 Part 136.6, may be made to improve the method performance, but changes may not be made to the extraction, the extraction solvent, sample-to-solvent ratio, or the MS/MS detection technique.

1.7 *Units*—The values stated in SI units are to be regarded as the standard. No other units of measurement are included in this standard.

1.8 *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.*

1.9 *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
D2777 Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D19 on Water
D3370 Practices for Sampling Water from Flowing Process Streams
D4128 Guide for Identification and Quantitation of Organic Compounds in Water by Combined Gas Chromatography and Electron Impact Mass Spectrometry
D4448 Guide for Sampling Ground-Water Monitoring Wells
D6089 Guide for Documenting a Groundwater Sampling Event
D6538 Guide for Sampling Wastewater With Automatic Samplers
D6759 Practice for Sampling Liquids Using Grab and Discrete Depth Samplers
E355 Practice for Gas Chromatography Terms and Relationships
E2857 Guide for Validating Analytical Methods

[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 www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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