Designation: D 5175 – 91 (Reapproved 2003)

An American National Standard

Standard Test Method for Organohalide Pesticides and Polychlorinated Biphenyls in Water by Microextraction and Gas Chromatography[1]

This standard is issued under the fixed designation D 5175; 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 **(1,2,3)**[2] is applicable to the determination of the following analytes in finished drinking water, drinking water during intermediate stages of treatment, and the raw source water:

Analyte	Chemical Abstract Service Registry Number [A]
Alachlor	5972-60-8
Aldrin	309-00-2
Chlordane	57-74-9
Dieldrin	60-57-1
Endrin	72-20-8
Heptachlor	76-44-8
Heptachlor Epoxide	1024-57-3
Hexachlorobenzene	118-74-1
Lindane	58-89-9
Methoxychlor	72-43-5
Toxaphene	8001-35-2
Aroclor [B] 1016	12674-11-2
Aroclor [B] 1221	11104-28-2
Aroclor [B] 1232	11141-16-5
Aroclor [B] 1242	53469-21-9
Aroclor [B] 1248	12672-29-6
Aroclor [B] 1254	11097-69-1
Aroclor [B] 1260	11096-82-5

[A] Numbering system of CAS Registry Services, P.O. Box 3343, Columbus, OH 43210-0334.

[B] Aroclor is a registered trademark of Monsanto Co.

1.2 Detection limits for most test method analytes are less than 1 µg/L. Actual detection limits are highly dependent on the characteristics of the sample matrix and the gas chromatography system. Table 1 contains the applicable concentration range for the precision and bias statements. Only Aroclor 1016 and 1254 were included in the interlaboratory test used to derive the precision and bias statements. Data for other PCB products are likely to be similar.

1.3 Chlordane, toxaphene, and Aroclor products (polychlorinated biphenyls) are multicomponent materials. Precision and bias statements reflect recovery of these materials dosed into water samples. The precision and bias statements may not apply to environmentally altered materials or to samples containing complex mixtures of polychlorinated biphenyls (PCBs) and organochlorine pesticides.

1.4 For compounds other than those listed in 1.1 or for other sample sources, the analyst must demonstrate the applicability of this test method by collecting precision and bias data on spiked samples (groundwater, tap water) **(4)** and provide qualitative confirmation of results by gas chromatography/mass spectrometry (GC/MS) **(5)** or by GC analysis using dissimilar columns.

1.5 This test method is restricted to use by or under the supervision of analysts experienced in the use of GC and in the interpretation of gas chromatograms. Each analyst must demonstrate the ability to generate acceptable results using the procedure described in Section 13.

1.6 Analytes that are not separated chromatographically, (analytes that have very similar retention times) cannot be individually identified and measured in the same calibration mixture or water sample unless an alternative technique for identification and quantitation exists (see section 13.4).

1.7 When this test method is used to analyze unfamiliar samples for any or all of the analytes listed in 1.1, analyte identifications and concentrations should be confirmed by at least one additional technique.

1.8 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.9 *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 and health practices and determine the applicability of regulatory limitations prior to use.* For specific hazard statements, see Section 9.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1129 Terminology Relating to Water[3]

D 1193 Specification for Reagent Water[3]

[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 Jan. 10, 2003. Published January 2003. Originally approved in 1991. Last previous edition approved in 1996 as D 5175–91 (1996)$^{\epsilon 1}$.

[2] The boldface numbers in parentheses refer to a list of references at the end of this test method.

[3] *Annual Book of ASTM Standards*, Vol 11.01.

This document is now PUBLIC

Copyright © ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States.