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: D5317 – 20

Standard Test Method for Determination of Chlorinated Organic Acid Compounds in Water by Gas Chromatography with an Electron Capture Detector[1]

This standard is issued under the fixed designation D5317; 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 a gas chromatographic procedure for the quantitative determination of selected chlorinated acids and other acidic herbicides in water. Similar chemicals may also be determined by this test method, but it is the user's responsibility to verify the applicability of this test method to any compounds not listed in this scope. The acid form of the following compounds were interlaboratory tested using this test method, and the results were found acceptable:[2]

Analyte	Chemical Abstract Services Registry Number
Bentazon	25057-89-0
2,4-D	94-75-7
2,4-DB	94-82-6
DCPA acid metabolites [2]	
Dicamba	1918-00-9
3,5-Dichlorobenzoic acid	51-36-5
Dichlorprop	120-36-5
5-Hydroxydicamba	7600-50-2
Pentachlorophenol (PCP)	87-86-5
Picloram	1918-02-1
2,4,5-T	93-76-5
2,4,5-TP (Silvex)	93-72-1

1.2 This test method may be applicable to the determination of salts and esters of analyte compounds. The form of each acid is not distinguished by this test method. Results are calculated and reported for each listed analyte as the total free acid.

1.3 This test method has been validated in an interlaboratory test for reagent water and finished tap water. The analyst should recognize that precision and bias reported in Section 18 may not be applicable to other waters.

1.4 This test method is restricted to use by or under the supervision of analysts experienced in the use of gas chromatography (GC) and in the interpretation of gas chromatograms. Each analyst must demonstrate the ability to generate acceptable results with this test method using the procedure described in 19.3. It is the user's responsibility to ensure the validity of this test method for waters of untested matrices.

1.5 Analytes that are not separated chromatographically, that is, which have very similar retention times, cannot be individually identified and measured in the same calibration mixture or water sample unless an alternate technique for identification and quantitation exists (16.6, 16.7, and 16.8).

1.6 When this test method is used to analyze unfamiliar samples for any or all of the analytes given in 1.1, analyte identifications must be confirmed by at least one additional qualitative technique.

1.7 The values stated in SI units are to be regarded as 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.* For specific warning statements, see Sections 6, 8, 9, and 10.

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:*[3]

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

[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 Aug. 15, 2020. Published August 2020. Originally approved in 1992. Last previous edition approved in 2017 as D5317 – 98 (2017). DOI: 10.1520/D5317-20.

[2] DCPA monoacid and diacid metabolites are included in the scope of this test method; DCPA diacid metabolite is used for validation studies.

[3] 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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