



Designation: D8361 – 20

Standard Test Method for Total Organic Carbon in Water by Two Stage Wet Chemical Catalyzed Hydroxyl Radical Oxidation with Infra-Red Detection of Resulting Carbon Dioxide¹

This standard is issued under the fixed designation D8361; 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 catalyzed hydroxyl radical oxidation system for the in-stream, online (Guide [D5173](#)) or laboratory analysis of total organic carbon, total carbon and total inorganic carbon in drinking water, wastewater, industrial process water, and effluent water. It is applicable to both dissolved and suspended materials. Suspended materials and particulates up to 2 mm in diameter can be analyzed.

1.2 This test method allows for determination of $\text{TOC} \geq 1$ mg/L, $\text{TC} \geq 1$ mg/L, and $\text{TIC} \geq 1$ mg/L. The lower and upper working ranges are restricted by instrument-dependent conditions (for example, sample volume, amount of each reactant) and can be adjusted for a wider range.

1.3 This test method can be applied for the determination of total carbon (TC) and total inorganic carbon (TIC). Volatile or purgeable organic carbon (VOC, POC) can be determined separately by this test method (see [Annex A1](#)).

1.4 This test method allows the measurement of organic and inorganic carbon concentration samples, and samples containing dissolved chlorides up to seawater chloride concentrations.

1.5 The chemical oxidation process, applied in this test method, takes place at ambient pressure and temperature by using hydroxyl radicals. The advantage of catalytic hydroxyl radical oxidation is that it is free from seawater salinity interference.

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 deter-*

mine the applicability of regulatory limitations prior to use. For specific hazard statements, see Section 9.

1.8 *ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

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](#)
- [D3694 Practices for Preparation of Sample Containers and for Preservation of Organic Constituents](#)
- [D4453 Practice for Handling of High Purity Water Samples](#)
- [D5173 Guide for On-Line Monitoring of Total Organic Carbon in Water by Oxidation and Detection of Resulting Carbon Dioxide](#)
- [D5847 Practice for Writing Quality Control Specifications for Standard Test Methods for Water Analysis](#)

2.2 Other Standard:

- [EN 1484 Water analysis guidelines for the determination of total organic carbon and dissolved organic carbon³](#)

¹ This test method is under the jurisdiction of ASTM Committee [D19](#) on Water and is the direct responsibility of Subcommittee [D19.03](#) on Sampling Water and Water-Formed Deposits, Analysis of Water for Power Generation and Process Use, On-Line Water Analysis, and Surveillance of 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 Water Analysis Guidelines for the Determination of Total Organic Carbon and Dissolved Organic Carbon, European Standard EN 1484, European Committee for Standardization, May 1997.