



Designation: D1252 – 06 (Reapproved 2020)

Standard Test Methods for Chemical Oxygen Demand (Dichromate Oxygen Demand) of Water¹

This standard is issued under the fixed designation D1252; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 These test methods cover the determination of the quantity of oxygen that certain impurities in water will consume, based on the reduction of a dichromate solution under specified conditions. The following test methods are included:

Test Method A — Macro COD by Reflux Digestion and Titration
Test Method B — Micro COD by Sealed Digestion and Spectrometry

1.2 These test methods are limited by the reagents employed to a maximum chemical oxygen demand (COD) of 800 mg/L. Samples with higher COD concentrations may be processed by appropriate dilution of the sample. Modified procedures in each test method (Section 15 for Test Method A, and Section 24 for Test Method B) may be used for waters of low COD content (<50 mg/L).

1.3 As a general rule, COD results are not accurate if the sample contains more than 1000 mg/L Cl^- . Consequently, these test methods should not be applied to samples such as seawaters and brines unless the samples are pretreated as described in Appendix X1.

1.4 This test method was used successfully on a standard made up in reagent water. It is the user's responsibility to ensure the validity of these test methods for waters of untested matrices.

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

1.6 *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 hazard statements, see Section 8, 15.6, and 24.5.*

¹ These test methods are under the jurisdiction of ASTM Committee D19 on Water and are the direct responsibility of Subcommittee D19.06 on Methods for Analysis for Organic Substances in Water.

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1.7 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
D3223 Test Method for Total Mercury in Water
D3370 Practices for Sampling Water from Flowing Process Streams
D5847 Practice for Writing Quality Control Specifications for Standard Test Methods for Water Analysis
D5905 Practice for the Preparation of Substitute Wastewater
E60 Practice for Analysis of Metals, Ores, and Related Materials by Spectrophotometry
E275 Practice for Describing and Measuring Performance of Ultraviolet and Visible Spectrophotometers

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms used in this standard, refer to Terminology D1129.

3.2 *Definitions of Terms Specific to This Standard*—The term “oxygen demand” (COD) in these test methods is defined in accordance with Terminology D1129 as follows:

3.2.1 *oxygen demand, n*—the amount of oxygen required under specified test conditions for the oxidation of water borne organic and inorganic matter.

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.