



Designation: D888 – 18

Standard Test Methods for Dissolved Oxygen in Water¹

This standard is issued under the fixed designation D888; 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 dissolved oxygen in water. Three test methods are given as follows:

	Range, mg/L	Sections
Test Method A—Titrimetric Procedure—High Level	>1.0	8 – 15
Test Method B—Instrumental Probe Procedure—Electrochemical	0.05 to 20	16 – 25
Test Method C—Instrumental Probe Procedure—Luminescence-Based Sensor	0.05 to 20	26 – 31

1.2 The precision of Test Methods A and B was carried out using a saturated sample of reagent water. It is the user's responsibility to ensure the validity of the test methods for waters of untested matrices.

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

1.4 *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 a specific precautionary statements, see 7.1 and Note 17.

1.5 *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

D1066 Practice for Sampling Steam

¹ These test methods are under the jurisdiction of ASTM Committee D19 on Water and are the direct responsibility of Subcommittee D19.05 on Inorganic Constituents in Water.

Current edition approved May 1, 2018. Published May 2018. Originally approved in 1946. Last previous edition approved in 2012 as D888 – 12^{ε1}. DOI: 10.1520/D0888-18.

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.

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 Closed Conduits
D5847 Practice for Writing Quality Control Specifications for Standard Test Methods for Water Analysis
E200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

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:

3.2.1 *amperometric systems, n*—those instrumental probes that involve the generation of an electrical current from which the final measurement is derived.

3.2.2 *instrumental probes, n*—devices used to penetrate and examine a system for the purpose of relaying information on its properties or composition.

3.2.2.1 *Discussion*—The term probe is used in these test methods to signify the entire sensor assembly, including electrodes, electrolyte, membrane, materials of fabrications, and so on.

3.2.3 *potentiometric systems, n*—those instrumental probes in which an electrical potential is generated and from which the final measurement is derived.

4. Significance and Use

4.1 Dissolved oxygen is required for the survival and growth of many aquatic organisms, including fish. The concentration of dissolved oxygen may also be associated with corrosivity and photosynthetic activity. The absence of oxygen may permit anaerobic decay of organic matter and the production of toxic and undesirable esthetic materials in the water.

5. Purity of Reagents

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that

*A Summary of Changes section appears at the end of this standard