



Designation: D4195 – 23

Standard Guide for Water Analysis for Reverse Osmosis and Nanofiltration Application¹

This standard is issued under the fixed designation D4195; 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 guide covers the analyses that should be performed on any given water sample if reverse osmosis (RO) or nanofiltration (NF) application is being considered. (See also Test Methods [D511](#), [D512](#), [D513](#), [D516](#), [D858](#), [D859](#), [D888](#), [D1068](#), [D1179](#), [D1253](#), [D1293](#), [D1889](#), [D3352](#), [D3370](#), [D3561](#), [D3867](#), [D4189](#), [D4194](#), and [D4382](#).)

1.2 This guide is applicable to waters including brackish waters and seawaters but is not necessarily applicable to waste waters.

1.3 This is a guide only and should not be construed as a delineation of all ions known to exist in waters.

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

1.5 *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.*

1.6 *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

[D511](#) Test Methods for Calcium and Magnesium in Water

¹ This guide is under the jurisdiction of ASTM Committee [D19](#) on Water and is the direct responsibility of Subcommittee [D19.08](#) on Membranes and Ion Exchange Materials.

Current edition approved April 1, 2023. Published April 2023. Originally approved in 1982. Last previous edition approved in 2014 as D4195 – 08 (2014) which was withdrawn January 2023 and reinstated in April 2023. DOI: 10.1520/D4195-23.

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.

[D512](#) Test Methods for Chloride Ion in Water

[D513](#) Test Methods for Total and Dissolved Carbon Dioxide in Water

[D516](#) Test Method for Sulfate Ion in Water

[D857](#) Test Method for Aluminum in Water

[D858](#) Test Methods for Manganese in Water

[D859](#) Test Method for Silica in Water

[D888](#) Test Methods for Dissolved Oxygen in Water

[D1068](#) Test Methods for Iron in Water

[D1129](#) Terminology Relating to Water

[D1179](#) Test Methods for Fluoride Ion in Water

[D1253](#) Test Method for Residual Chlorine in Water

[D1293](#) Test Methods for pH of Water

[D1889](#) Test Method for Turbidity of Water (Withdrawn 2007)³

[D2579](#) Test Method for Total Organic Carbon in Water (Withdrawn 2002)³

[D3352](#) Test Method for Strontium Ion in Brackish Water, Seawater, and Brines

[D3370](#) Practices for Sampling Water from Flowing Process Streams

[D3561](#) Test Method for Lithium, Potassium, and Sodium Ions in Brackish Water, Seawater, and Brines by Atomic Absorption Spectrophotometry

[D3867](#) Test Methods for Nitrite-Nitrate in Water

[D4189](#) Test Method for Silt Density Index (SDI) of Water

[D4194](#) Test Methods for Operating Characteristics of Reverse Osmosis and Nanofiltration Devices

[D4382](#) Test Method for Barium in Water, Atomic Absorption Spectrophotometry, Graphite Furnace

[D6161](#) Terminology Used for Microfiltration, Ultrafiltration, Nanofiltration, and Reverse Osmosis Membrane Processes

2.2 APHA Standards:⁴

[APHA](#) Standard Methods for the Examination of Water and Wastewater, Sixteenth Edition, 1985, pp. 470–478, Part 427, Sulfite

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American Public Health Association (APHA), 800 I Street, NW Washington, DC 20001, <http://www.apha.org>.