



Designation: D5091 – 23

# Standard Guide for Water Analysis for Electrodialysis/Electrodialysis Reversal Applications<sup>1</sup>

This standard is issued under the fixed designation D5091; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide covers the determinations that should be performed on any given water if processing by electrodialysis/electrodialysis reversal is being considered.

1.2 This guide is applicable to all waters but is not necessarily complete for wastewaters.

1.3 This is a guide only and should not be construed as a complete delineation of all analysis required for a specific application.

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.*

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:<sup>2</sup>

- D511 Test Methods for Calcium and Magnesium In Water
- D512 Test Methods for Chloride Ion In Water
- D516 Test Method for Sulfate Ion in Water
- D857 Test Method for Aluminum in Water
- D858 Test Methods for Manganese in Water
- D1067 Test Methods for Acidity or Alkalinity of Water
- D1068 Test Methods for Iron in Water

<sup>1</sup> 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.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D1125 Test Methods for Electrical Conductivity and Resistivity of 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

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

D3920 Test Method for Strontium in Water

D4189 Test Method for Silt Density Index (SDI) of Water (Withdrawn 2023)<sup>3</sup>

D4191 Test Method for Sodium in Water by Atomic Absorption Spectrophotometry

D4192 Test Method for Potassium in Water by Atomic Absorption Spectrophotometry

D4327 Test Method for Anions in Water by Suppressed Ion Chromatography

D4382 Test Method for Barium in Water, Atomic Absorption Spectrophotometry, Graphite Furnace

D4658 Test Method for Sulfide Ion in Water

D5173 Guide for On-Line Monitoring of Total Organic Carbon in Water by Oxidation and Detection of Resulting Carbon Dioxide

D7726 Guide for The Use of Various Turbidimeter Technologies for Measurement of Turbidity in Water

2.2 *American Public Health Association Standards: Standard Methods for the Examination of Water and Wastewater, Eighteenth Edition, 1992, pp. 4-123 to 4-128<sup>4</sup>*

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminology D1129.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

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