

Standard Test Methods for Iodide and Bromide Ions in Brackish Water, Seawater, and Brines¹

This standard is issued under the fixed designation D 3869; 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 These test methods² cover the determination of soluble iodide and bromide ions, or both, in brackish water, seawater, and brines. Four test methods are given as follows:

1.1.1 *Test Method A for both Iodide and Bromide Ions*—Volumetric, for concentrations from 0.2 to 2000 mg/L iodide and from 5 to 6500 mg/L bromide (Sections 7-15).

1.1.2 *Test Method B for Iodide Ion*—Colorimetric, for concentrations from 0.2 to 2000 mg/L iodide (Sections 16-25).

1.1.3 *Test Method C for Iodide Ion*—Selective electrode, for concentrations from 1 to 2000 mg/L iodide (Sections 26-34).

1.1.4 *Test Method D for Bromide Ion*—Colorimetric, for concentrations from 40 to 6500 mg/L bromide (Sections 35-44).

1.2 Test Method A is intended for use on all brackish waters, seawaters, and brines that contain appreciable amounts of iodide or bromide ions or both. Test Methods B, C, and D, because of their rapidity and sensitivity, are recommended for the analysis of brackish waters, seawaters, and brines in the field and in the laboratory.

1.3 Samples containing from 0.2 to 2000 mg/L of iodide or 5 to 6500 mg/L of bromide may be analyzed by these methods.

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 and health practices and determine the applica-*

bility of regulatory limitations prior to use. For specific precautionary statements, see 20.2 and 39.2.

2. Referenced Documents

2.1 ASTM Standards:³

D 1129 Terminology Relating to Water

D 1193 Specification for Reagent Water

D 2777 Practice for Determination of Precision and Bias of Applicable Methods of Committee D19 on Water

D 3370 Practices for Sampling Water from Closed Conduits

D 5810 Guide for Spiking Into Aqueous Samples

D 5847 Practice for Writing Quality Control Specifications for Standard Test Methods for Water Analysis

E 60 Practice for Analysis of Metals, Ores, and Related Materials by Molecular Absorption Spectrometry

E 200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

E 275 Practice for Describing and Measuring Performance of Ultraviolet, Visible, and Near Infrared Spectrophotometers

3. Terminology

3.1 *Definitions*—For definitions of terms used in these test methods, refer to Terminology D 1129.

4. Significance and Use

4.1 Identification of a brackish water, seawater, or brine is determined by comparison of the concentrations of their dissolved constituents. The results are used to evaluate the origin of the water, determine if it is a possible pollutant or determine if it is a commercial source of a valuable constituent such as iodine or bromine.

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.

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² Additional information is contained in the following references:

Collins, A. G., *Geochemistry of Oilfield Waters*, Elsevier, New York, N. Y., 1975, 496 pp.

American Petroleum Institute, API Recommended Practice for Analysis of Oilfield Waters, Subcommittee on Analysis of Oilfield Waters, API RP, 45 2nd ed, 1968, 49 pp.

Hoke, S. H., Fletcher, G. E., and Collins, A. G., "Fluoride and Iodide Selective Electrodes Applied to Oilfield Brine Analysis." US Department of Energy, Report of Investigations, BETC/RI-78/7, 1978.

³ 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.

