



Designation: D6581 – 18

Standard Test Methods for Bromate, Bromide, Chlorate, and Chlorite in Drinking Water by Suppressed Ion Chromatography¹

This standard is issued under the fixed designation D6581; 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 multi-test methods cover the determination of the oxyhalides—chlorite, bromate, and chlorate, and bromide, in raw water, finished drinking water and bottled (non-carbonated) water by chemically and electrolytically suppressed ion chromatography. The ranges tested using these test methods for each analyte were as follows:

	Range	Sections
Test Method A: Chemically Suppressed Ion Chromatography		8 to 20
Chlorite	5 to 500 µg/L	
Bromate	1 to 25 µg/L	
Bromide	5 to 250 µg/L	
Chlorate	5 to 500 µg/L	
Test Method B: Electrolytically Suppressed Ion Chromatography		21 to 31
Chlorite	20 to 1000 µg/L	
Bromate	1 to 30 µg/L	
Bromide	20 to 200 µg/L	
Chlorate	20 to 1000 µg/L	

1.1.1 The upper limits may be extended by appropriate sample dilution or by the use of a smaller injection volume. Other ions of interest, such as fluoride, chloride, nitrite, nitrate, phosphate, and sulfate may also be determined using these test methods. However, analysis of these ions is not the object of these test methods.

1.2 It is the user's responsibility to ensure the validity of these test methods for waters of untested matrices.

1.3 These test methods are technically equivalent with Part B of U.S. EPA Method 300.1,² titled "The Determination of Inorganic Anions in Drinking Water by Ion Chromatography."

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical

conversions to inch-pound units that are provided for information only and are not considered 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:*³

- 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
- D3856 Guide for Management Systems in Laboratories Engaged in Analysis of Water
- D5810 Guide for Spiking into Aqueous Samples
- D5847 Practice for Writing Quality Control Specifications for Standard Test Methods for Water 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 *analytical column, n*—the ion exchange column used to separate the ions of interest according to their retention characteristics prior to detection.

3.2.2 *analytical column set, n*—a combination of one or more guard columns, followed by one or more analytical

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 U.S. EPA 300.1, Cincinnati, OH, 1997.

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.

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