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Standard Test Methods for SULFITE ION IN WATER¹

This standard is issued under the fixed designation D 1339; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

These methods have been approved for use by agencies of the Department of Defense and for listing in the DoD Index of Specifications and Standards.

1. Scope

1.1 These test methods cover the volumetric determination of sulfite ion in water. The following three methods are included:

	Range	Section
Method A	0.1 to 6 mg/L Na ₂ SO ₃	7 to 14
Method B	6 mg/L Na ₂ SO ₃ or higher	15 to 22
Method C	3 mg/L Na ₂ SO ₃ or higher	23 to 29

1.2 Method B may be used for samples containing less than 6 mg/L Na₂SO₃ with some loss of precision; in such applications the end point may be determined with starch indicator.

1.3 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Applicable Documents

2.1 ASTM Standards:

- D 1129 Definitions of Terms Relating to Water²
- D 1192 Specification for Equipment for Sampling Water and Steam²
- D 1193 Specification for Reagent Water²
- D 2777 Practice for Determination of Precision and Bias of Methods of Committee D-19 on Water²
- D 3370 Practices for Sampling Water²

3. Definitions

3.1 For definitions of terms used in these methods refer to Definitions D 1129.

4. Significance and Use

4.1 The determination of sulfite is usually made on process waters, boiler waters, and other waters that have been treated with sodium sulfite. Generally, in boiler applications, a catalyzed solution of sodium sulfite is injected continuously into the feedwater system for the purpose of removing dissolved oxygen to prevent pitting and excessive oxidation of metal components. In most boiler operations, the sulfite concentration is maintained above 20 mg/L in the boiler water. Sulfite injection is restricted to lower-pressure boilers (<1000 psi, 6900 kPa) because of the tendency for decomposition at higher temperatures. When exposed to the environment, discharges containing sulfites will react with the oxygen to form sulfates. Generally speaking, sulfites are not found in natural waters.

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 all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemi-

¹ These test methods are under the jurisdiction of ASTM Committee D-19 on Water and are the direct responsibility of Subcommittee D19.05 on Inorganic Constituents in Water.

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² *Annual Book of ASTM Standards*, Vol 11.01.