



Standard Test Methods for Sodium Salts of EDTA in Water¹

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1. Scope

1.1 These test methods cover the determination of either total or unchelated sodium salts of ethylenediaminetetraacetic acid (Na_4EDTA) in water, particularly water intended for use in steam boilers. Two test methods are given as follows:

	Sections
Test Method A—Total (Chelated and Unchelated) Sodium Salt of EDTA	7 to 15
Test Method B—Unchelated Sodium Salt of EDTA	16 to 23

1.2 Test Method A is capable of determining total (chelated and unchelated) chelating agent even though it may be in the form of heavy metal or alkaline earth chelates.

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

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 applicability of regulatory limitations prior to use.* A specific hazard statement is given in Note 4.

2. Referenced Documents

2.1 ASTM Standards:

- D 888 Test Methods for Dissolved Oxygen in Water²
- D 1066 Practice for Sampling Steam²
- D 1129 Terminology Relating to Water²
- D 1193 Specification for Reagent Water²
- D 2777 Practice for Determination of Precision and Bias of Applicable Methods of Committee D-19 on Water²
- D 3370 Practices for Sampling Water²
- D 3856 Guide for Good Laboratory Practices in Laboratories Engaged in Sampling and Analysis of Water²
- D 4210 Practice for Intralaboratory Quality Control Procedures and a Discussion on Reporting Low-Level Data²
- E 60 Practice for Photometric and Spectrophotometric Methods for Chemical Analysis of Metals³
- E 275 Practice for Describing and Measuring Performance

¹ These test methods are under the jurisdiction of ASTM Committee D-19 on Water and are the direct responsibility of Subcommittee D19.06 on Methods for Analysis for Organic Substances in Water.

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² Annual Book of ASTM Standards, Vol 11.01.

³ Annual Book of ASTM Standards, Vol 03.05.

of Ultraviolet, Visible, and Near Infrared Spectrophotometers⁴

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 EDTA is used in steam boilers to prevent precipitation of calcium, magnesium, and other metal salts, and under some conditions, to remove deposits caused by these elements.

4.2 These test methods are used to monitor the presence of EDTA so that optimum concentration can be maintained.

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 Chemical Society, where such specifications are available.⁵ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean Type II, reagent water conforming to Specification D 1193.

6. Sampling

6.1 Collect the samples in accordance with Practice D 1066 or Practices D 3370 as applicable.

TEST METHOD A—TOTAL SODIUM SALT OF EDTA

7. Scope

7.1 This test method as described may be applied to waters containing free Na_4EDTA or heavy metal or alkaline earth chelates of Na_4EDTA either individually or in combination, in concentrations from 0.5 to 20 mg/L. Higher concentrations may be determined by dilution.

⁴ Annual Book of ASTM Standards, Vol 03.06.

⁵ "Reagent Chemicals, American Chemical Society Specifications," Am. Chemical Soc., Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see "Analytical Standards for Laboratory Chemicals," BDH Ltd., Poole, Dorset, U.K., and the "United States Pharmacopeia."