



Designation: E359 – 17

Standard Test Methods for Analysis of Soda Ash (Sodium Carbonate)¹

This standard is issued under the fixed designation E359; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 These test methods cover the analyses usually required on commercial soda ash (sodium carbonate).

1.2 The analytical procedures appear in the following sections:

	Sections
Total Alkalinity, Titrimetric	8 – 15
Sodium Bicarbonate, Titrimetric	17 – 24
Loss on Heating, Gravimetric	26 – 32
Moisture, Calculation	34 – 38
Sodium Chloride, Titrimetric	40 – 46
Sodium Sulfate, Gravimetric	48 – 54
Iron, Photometric	56 – 64
Sieve Analysis	66 – 72

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 In determining the conformance of the test results using this method to applicable specifications, results shall be rounded off in accordance with the rounding-off method of Practice E29.

1.5 Review the current Safety Data Sheets (SDS) for detailed information concerning toxicity, first aid procedures, handling and safety precautions.

1.6 *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.* Specific hazards statements are given in Section 6.

1.7 *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.*

¹ These test methods are under the jurisdiction of ASTM Committee D16 on Aromatic, Industrial, Specialty and Related Chemicals and are the direct responsibility of Subcommittee D16.16 on Industrial and Specialty Product Standards.

Current edition approved June 15, 2017. Published August 2017. Originally approved in 1968. Last previous edition approved in 2010 as E359 – 10. DOI: 10.1520/E0359-17.

2. Referenced Documents

2.1 ASTM Standards:²

C429 Test Method for Sieve Analysis of Raw Materials for Glass Manufacture

D1193 Specification for Reagent Water

D6809 Guide for Quality Control and Quality Assurance Procedures for Aromatic Hydrocarbons and Related Materials

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E60 Practice for Analysis of Metals, Ores, and Related Materials by Spectrophotometry

E70 Test Method for pH of Aqueous Solutions With the Glass Electrode

E145 Specification for Gravity-Convection and Forced-Ventilation Ovens

E180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals (Withdrawn 2009)³

E200 Practice for Preparation, Standardization, and Storage of Standard and Reagent Solutions for Chemical Analysis

E300 Practice for Sampling Industrial Chemicals

2.2 Other Documents:

OSHA Regulations, 29 CFR paragraphs 1910.1000 and 1910.1200⁴

3. Significance and Use

3.1 Soda ash is used in a number of manufacturing processes. The procedures listed in 1.2 are suitable for specification acceptance and manufacturing control of commercial soda ash.

² 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.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, <http://www.access.gpo.gov>.

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