



Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products¹

This standard is issued under the fixed designation A751; 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 Department of Defense.

INTRODUCTION

These test methods, practices, and terminology were prepared to answer the need for a single document that would include all aspects of obtaining and reporting the chemical analysis of steel, stainless steel, and related alloys. Such subjects as definitions of terms and product (check) analysis variations (tolerances) required clarification. Requirements for sampling, meeting specified limits, and treatment of data usually were not clearly established in product specifications.

It is intended that these test methods, practices, and terminology will contain all requirements for the determination of chemical composition of steel, stainless steel, or related alloys so that product specifications will need contain only special modifications and exceptions.

1. Scope*

1.1 These test methods, practices, and terminology cover definitions, reference methods, practices, and guides relating to the chemical analysis of steel, stainless steel, and related alloys. It includes both wet chemical and instrumental techniques.

1.2 Directions are provided for handling chemical requirements, product analyses, residual elements, and reference standards, and for the treatment and reporting of chemical analysis data.

1.3 These test methods, practices, and terminology apply only to those product standards which include these test methods, practices, and terminology, or parts thereof, as a requirement.

1.4 In cases of conflict, the product specification requirements shall take precedence over the requirements of these test methods, practices, and terminology.

1.5 Attention is directed to **ISO/IEC 17025** when there may be a need for information on criteria for evaluation of testing laboratories.

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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

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

E30 Test Methods for Chemical Analysis of Steel, Cast Iron, Open-Hearth Iron, and Wrought Iron³

E50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials

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

E212 Test Method for Spectrographic Analysis of Carbon and Low-Alloy Steel by the Rod-To-Rod Technique³

E293 Test Method for Spectrographic Determination of Acid-Soluble Aluminum in Low-Alloy Steel by the Solution Technique³

E322 Test Method for X-Ray Emission Spectrometric Analysis of Low-Alloy Steels and Cast Irons

E327 Test Method for Optical Emission Spectrometric Analysis of Stainless Type 18-8 Steels by the Point-To-Plane Technique³

E350 Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

E352 Test Methods for Chemical Analysis of Tool Steels and Other Similar Medium- and High-Alloy Steels

¹ These test methods, practices, and terminology are under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and are the direct responsibility of Subcommittee A01.13 on Mechanical and Chemical Testing and Processing Methods of Steel Products and Processes.

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

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