



**Designation: A 751 – 96**

An American National Standard

## **Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products<sup>1</sup>**

This standard is issued under the fixed designation A 751; 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 ( $\epsilon$ ) 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**

This standard was 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 this standard 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 This standard covers 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 This standard applies only to those product standards which include this standard or parts thereof as a requirement.

1.4 In cases of conflict, the product specification requirements shall take precedence over the requirements of this standard.

1.5 Attention is directed to Practice A 880 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:**

A 880 Practice for Criteria for Use in Evaluation of Testing Laboratories and Organizations for the Examination and

Inspection of Steel, Stainless Steel, and Related Alloys<sup>2</sup>  
E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>3</sup>  
E 30 Test Methods for Chemical Analysis of Steel, Cast Iron, Open-Hearth Iron, and Wrought Iron<sup>4</sup>  
E 50 Practices for Apparatus, Reagents, and Safety Precautions for Chemical Analysis of Metals<sup>4</sup>  
E 59 Practice for Sampling Steel and Iron for Determination of Chemical Composition<sup>4</sup>  
E 60 Practice for Photometric and Spectrophotometric Methods for Chemical Analysis of Metals<sup>4</sup>  
E 212 Test Method for Spectrographic Analysis of Carbon and Low-Alloy Steel by the Rod-to-Rod Technique<sup>5</sup>  
E 293 Test Method for Spectrographic Determination of Acid-Soluble Aluminum in Low-Alloy Steel By the Solution Technique<sup>5</sup>  
E 322 Method for X-Ray Emission Spectrometric Analysis of Low-Alloy Steels and Cast Irons<sup>5</sup>  
E 327 Test Method for Optical Emission Spectrometric Analysis of Stainless Type 18-8 Steels by the Point-to-Plane Technique<sup>5</sup>  
E 350 Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron<sup>4</sup>  
E 352 Test Methods for Chemical Analysis of Tool Steels and Other Similar Medium- and High-Alloy Steels<sup>4</sup>  
E 353 Test Methods for Chemical Analysis of Stainless,

<sup>1</sup> These test methods, practices, and terminology are under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel and Related Alloys, and are the direct responsibility of Subcommittee A01.13 on Methods of Mechanical Testing.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 01.03.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 14.02.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 03.05.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 03.06.