

**Volume 03.05, October 2007**

**Analytical Chemistry for Metals, Ores, and Related Materials: E32 - latest**

**Standards and Related Materials Contained in this Volume:**

- [E32-86\(2006\)e1 Standard Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition - \(View Full Text\)](#)
- [E34-94\(2002\) Standard Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys - \(View Full Text\)](#)
- [E35-88\(2002\) Standard Test Methods for Chemical Analysis of Magnesium and Magnesium Alloys - \(View Full Text\)](#)
- [E37-05 Standard Test Methods for Chemical Analysis of Pig Lead - \(View Full Text\)](#)
- [E50-00\(2005\) Standard Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials - \(View Full Text\)](#)
- [E53-02 Standard Test Method for Determination of Copper in Unalloyed Copper by Gravimetry - \(View Full Text\)](#)
- [E55-91\(2005\) Standard Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition - \(View Full Text\)](#)
- [E60-98\(2004\) Standard Practice for Analysis of Metals, Ores, and Related Materials by Molecular Absorption Spectrometry - \(View Full Text\)](#)
- [E62-89\(2004\) Standard Test Methods for Chemical Analysis of Copper and Copper Alloys \(Photometric Methods\) - \(View Full Text\)](#)
- [E75-76\(2004\) Standard Test Methods for Chemical Analysis of Copper-Nickel and Copper-Nickel-Zinc Alloys - \(View Full Text\)](#)
- [E88-91\(2005\) Standard Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition - \(View Full Text\)](#)
- [E106-83\(2004\) Standard Test Methods for Chemical Analysis of Copper-Beryllium Alloys - \(View Full Text\)](#)
- [E118-89\(2004\) Standard Test Methods for Chemical Analysis of Copper-Chromium Alloys - \(View Full Text\)](#)
- [E121-83\(2004\) Standard Test Methods for Chemical Analysis of Copper-Tellurium Alloys - \(View Full Text\)](#)
- [E130-87\(2003\) Standard Practice for Designation of Shapes and Sizes of Graphite Electrodes - \(View Full Text\)](#)
- [E135-07a Standard Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials - \(View Full Text\)](#)
- [E246-01\(2005\) Standard Test Methods for Determination of Iron in Iron Ores and Related Materials by Dichromate Titration - \(View Full Text\)](#)
- [E247-01\(2005\) Standard Test Method for Determination of Silica in Manganese Ores, Iron Ores, and Related Materials by Gravimetry - \(View Full Text\)](#)
- [E248-07 Standard Test Method for Determination of Manganese in Manganese Ores by Pyrophosphate Complexed Permanganate Potentiometric Titrimetry - \(View Full Text\)](#)
- [E255-02 Standard Practice for Sampling Copper and Copper Alloys for the Determination of Chemical Composition - \(View Full Text\)](#)
- [E276-03 Standard Test Method for Particle Size or Screen Analysis at No. 4 \(4.75-mm\) Sieve and Finer for Metal-Bearing Ores and Related Materials - \(View Full Text\)](#)
- [E278-01\(2005\) Standard Test Method for the Determination of Phosphorus in Iron Ores by Phosphomolybdate Coprecipitation and Nitric Acid Titrimetry - \(View Full Text\)](#)
- [E279-97\(2005\) Standard Test Method for Determination of Abrasion Resistance of Iron](#)

[Ore Pellets and Sinter by the Tumbler Test - \(View Full Text\)](#)

[E305-07 Standard Practice for Establishing and Controlling Atomic Emission Spectrochemical Analytical Curves - \(View Full Text\)](#)

[E314-00\(2005\) Standard Test Methods for Manganese in Iron Ores - \(View Full Text\)](#)

[E315-04 Standard Test Methods for Chemical Analysis of Molybdenum - \(View Full Text\)](#)

[E316-00\(2005\) Standard Test Method for Determination of Iron in Manganese Ores by Hydrogen Sulfide Reduction-Dichromate Titration - \(View Full Text\)](#)

[E322-96\(2004\) Standard Test Method for X-Ray Emission Spectrometric Analysis of Low-Alloy Steels and Cast Irons - \(View Full Text\)](#)

[E342-04 Standard Test Method for Determination of Chromium Oxide in Chrome Ores by Permanganate Titrimetry - \(View Full Text\)](#)

[E350-95\(2005\)e1 Standard Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron - \(View Full Text\)](#)

[E351-93\(2006\) Standard Test Methods for Chemical Analysis of Cast Iron-All Types - \(View Full Text\)](#)

[E352-93\(2006\) Standard Test Methods for Chemical Analysis of Tool Steels and Other Similar Medium- and High-Alloy Steels - \(View Full Text\)](#)

[E353-93\(2006\) Standard Test Methods for Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys - \(View Full Text\)](#)

[E354-93\(2006\) Standard Test Methods for Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys - \(View Full Text\)](#)

[E363-83\(2003\)e1 Standard Test Methods for Chemical Analysis of Chromium and Ferrochromium - \(View Full Text\)](#)

[E367-03 Standard Methods for Chemical Analysis of Ferroniobium - \(View Full Text\)](#)

[E372-01\(2006\) Standard Test Method for Determination of Calcium and Magnesium in Magnesium Ferrosilicon - \(View Full Text\)](#)

[E382-07 Standard Test Method for Determination of Crushing Strength of Iron Ore Pellets - \(View Full Text\)](#)

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[E396-05 Standard Test Methods for Chemical Analysis of Cadmium - \(View Full Text\)](#)

[E406-81\(2003\) Standard Practice for Using Controlled Atmospheres in Spectrochemical Analysis - \(View Full Text\)](#)

[E415-99a\(2005\) Standard Test Method for Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel - \(View Full Text\)](#)

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[E465-00\(2005\) Standard Test Methods for Determination of Manganese \(IV\) in Manganese Ores by Redox Titration - \(View Full Text\)](#)

[E478-03 Standard Test Methods for Chemical Analysis of Copper Alloys - \(View Full Text\)](#)

[E485-94\(2005\) Standard Test Method for Optical Emission Vacuum Spectrometric Analysis of Blast Furnace Iron by the Point-to-Plane Technique - \(View Full Text\)](#)

[E507-03 Standard Test Method for Aluminum in Iron Ores by Atomic Absorption Spectrometry - \(View Full Text\)](#)

[E508-03 Standard Test Method for Calcium and Magnesium in Iron Ores by Atomic Absorption Spectrometry - \(View Full Text\)](#)

[E520-98\(2003\) Standard Practice for Describing Photomultiplier Detectors in Emission and Absorption Spectrometry - \(View Full Text\)](#)

[E536-05 Standard Test Methods for Chemical Analysis of Zinc and Zinc Alloys - \(View Full Text\)](#)

[E539-07 Standard Test Method for X-Ray Fluorescence Spectrometric Analysis of 6Al-4V Titanium Alloy - \(View Full Text\)](#)

[E572-02a\(2006\)e2 Standard Test Method for Analysis of Stainless and Alloy Steels by X-ray Fluorescence Spectrometry - \(View Full Text\)](#)

[E581-04e1 Standard Test Methods for Chemical Analysis of Manganese-Copper Alloys - \(View Full Text\)](#)

[E607-02 Standard Test Method for Atomic Emission Spectrometric Analysis Aluminum Alloys by the Point to Plane Technique Nitrogen Atmosphere - \(View Full Text\)](#)

[E634-05 Standard Practice for Sampling of Zinc and Zinc Alloys for Optical Emission Spectrometric Analysis - \(View Full Text\)](#)

[E716-94\(2002\) Standard Practices for Sampling Aluminum and Aluminum Alloys for Spectrochemical Analysis - \(View Full Text\)](#)

[E738-00\(2005\) Standard Test Method for Determination of Aluminum in Iron Ores and Related Materials by Complexometric Titration - \(View Full Text\)](#)

[E815-04 Standard Test Method for Determination of Calcium Fluoride in Fluorspar by Complexometric Titration - \(View Full Text\)](#)

[E841-04 Standard Test Method for Determination of Copper in Iron Ores and Related Materials by Atomic Absorption Spectroscopy - \(View Full Text\)](#)

[E877-03 Standard Practice for Sampling and Sample Preparation of Iron Ores and Related Materials - \(View Full Text\)](#)

[E878-01\(2005\) Standard Test Method for Determination of Titanium in Iron Ores and Related Materials by Diantipyrylmethane Ultraviolet Spectrometry - \(View Full Text\)](#)

[E882-87\(2003\) Standard Guide for Accountability and Quality Control in the Chemical Analysis Laboratory - \(View Full Text\)](#)

[E945-07 Standard Test Method for Determination of Zinc in Zinc Ores and Concentrates by Complexometric Titrimetry - \(View Full Text\)](#)

[E1009-95\(2006\) Standard Practice for Evaluating an Optical Emission Vacuum Spectrometer to Analyze Carbon and Low-Alloy Steel - \(View Full Text\)](#)

[E1010-84\(2004\) Standard Practice for Preparation of Disk Specimens of Steel and Iron for Spectrochemical Analysis by Remelting - \(View Full Text\)](#)

[E1019-03 Standard Test Methods for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel and in Iron, Nickel, and Cobalt Alloys - \(View Full Text\)](#)

[E1059-91\(2006\) Standard Practice for Designating Shapes and Sizes of Nongraphite Counter Electrodes - \(View Full Text\)](#)

[E1070-00\(2005\) Standard Test Method for Determination of Phosphorus in Iron Ores by the Phosphometric Method - \(View Full Text\)](#)

[E1085-95\(2004\) Standard Test Method for X-Ray Emission Spectrometric Analysis of Low-Alloy Steels - \(View Full Text\)](#)

[E1086-94\(2005\) Standard Test Method for Optical Emission Vacuum Spectrometric Analysis of Stainless Steel by the Point-to-Plane Excitation Technique - \(View Full Text\)](#)

[E1097-03 Standard Guide for Direct Current Plasma Emission Spectrometry Analysis - \(View Full Text\)](#)

[E1172-87\(2003\) Standard Practice for Describing and Specifying a Wavelength-](#)

[Dispersive X-Ray Spectrometer - \(View Full Text\)](#)  
[E1184-02 Standard Practice for Electrothermal \(Graphite Furnace\) Atomic Absorption Analysis - \(View Full Text\)](#)  
[E1251-07 Standard Test Method for Analysis of Aluminum and Aluminum Alloys by Atomic Emission Spectrometry - \(View Full Text\)](#)  
[E1257-93\(2003\) Standard Guide for Evaluating Grinding Materials Used for Surface Preparation in Spectrochemical Analysis - \(View Full Text\)](#)  
[E1277-02 Standard Test Method for Chemical Analysis of Zinc-5% Aluminum-Mischmetal Alloys by ICP Emission Spectrometry - \(View Full Text\)](#)  
[E1282-98\(2004\) Standard Guide for Specifying the Chemical Compositions and Selecting Sampling Practices and Quantitative Analysis Methods for Metals, Ores, and Related Materials - \(View Full Text\)](#)  
[E1306-07 Standard Practice for Preparation of Metal and Alloy Samples by Electric Arc Remelting for the Determination of Chemical Composition - \(View Full Text\)](#)  
[E1329-00\(2005\) Standard Practice for Verification and Use of Control Charts in Spectrochemical Analysis - \(View Full Text\)](#)  
[E1335-04e1 Standard Test Methods for Determination of Gold in Bullion by Cupellation - \(View Full Text\)](#)  
[E1361-02\(2007\) Standard Guide for Correction of Inter-element Effects in X-Ray Spectrometric Analysis - \(View Full Text\)](#)  
[E1409-05 Standard Test Method for Determination of Oxygen and Nitrogen in Titanium and Titanium Alloys by the Inert Gas Fusion Technique - \(View Full Text\)](#)  
[E1446-05 Standard Test Method for Chemical Analysis of Refined Gold by Direct Current Plasma Emission Spectrometry - \(View Full Text\)](#)  
[E1447-05 Standard Test Method for Determination of Hydrogen in Titanium and Titanium Alloys by the Inert Gas Fusion Thermal Conductivity/Infrared Detection Method - \(View Full Text\)](#)  
[E1473-03 Standard Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys - \(View Full Text\)](#)  
[E1479-99\(2005\) Standard Practice for Describing and Specifying Inductively-Coupled Plasma Atomic Emission Spectrometers - \(View Full Text\)](#)  
[E1507-98\(2003\) Standard Guide for Describing and Specifying the Spectrometer of an Optical Emission Direct-Reading Instrument - \(View Full Text\)](#)  
[E1552-93\(2002\) Standard Test Method for Determining Hafnium in Zirconium and Zirconium Alloys Using the D-C Argon Plasma Spectrometer - \(View Full Text\)](#)  
[E1568-03 Standard Test Method for the Determination of Gold in Activated Carbon by Fire Assay Gravimetry - \(View Full Text\)](#)  
[E1569-03 Standard Test Method for Determination of Oxygen in Tantalum Powder - \(View Full Text\)](#)  
[E1587-05 Standard Test Methods for Chemical Analysis of Refined Nickel - \(View Full Text\)](#)  
[E1600-07 Standard Test Method for Determination of Gold in Cyanide Solutions by Atomic Absorption Spectrometry - \(View Full Text\)](#)  
[E1601-98\(2003\)e1 Standard Practice for Conducting an Interlaboratory Study to Evaluate the Performance of an Analytical Method - \(View Full Text\)](#)  
[E1621-05 Standard Guide for X-Ray Emission Spectrometric Analysis - \(View Full Text\)](#)  
[E1659-05 Standard Test Methods Coating Weight and Chemical Analysis of Zinc-Nickel Alloy Electrolytically Coated on Steel Sheet - \(View Full Text\)](#)  
[E1691-95\(2001\) Standard Guide for Evaluation and Assessment of Analytical](#)

[Chemistry Laboratories - \(View Full Text\)](#)  
[E1724-95\(2001\) Standard Guide for Testing and Certification of Metal and Metal-Related Reference Materials - \(View Full Text\)](#)  
[E1763-06 Standard Guide for Interpretation and Use of Results from Interlaboratory Testing of Chemical Analysis Methods - \(View Full Text\)](#)  
[E1770-95\(2006\) Standard Practice for Optimization of Electrothermal Atomic Absorption Spectrometric Equipment - \(View Full Text\)](#)  
[E1771-07 Standard Test Method for Determination of Copper in Anode and Blister Copper - \(View Full Text\)](#)  
[E1805-07 Standard Test Method for Fire Assay Determination of Gold in Copper Concentrates by Gravimetry - \(View Full Text\)](#)  
[E1806-96\(2006\) Standard Practice for Sampling Steel and Iron for Determination of Chemical Composition - \(View Full Text\)](#)  
[E1833-07 Standard Practice for Sampling of Blister Copper in Cast Form for Determination of Chemical Composition - \(View Full Text\)](#)  
[E1834-96\(2002\) Standard Test Method for Determination of Lead in Nickel Alloys by Electrothermal Atomic Absorption Spectrometric Method - \(View Full Text\)](#)  
[E1835-96\(2002\) Standard Test Method for Analysis of Nickel Alloys by Flame Atomic Absorption Spectrometry - \(View Full Text\)](#)  
[E1852-96\(2001\) Standard Test Method for Determination of Low Levels of Antimony in Carbon and Low-Alloy Steel by Electrothermal Atomic Absorption Spectrometry - \(View Full Text\)](#)  
[E1898-07 Standard Test Method for Determination of Silver in Copper Concentrates by Flame Atomic Absorption Spectrometry - \(View Full Text\)](#)  
[E1914-07 Standard Practice for Use of Terms Relating to the Development and Evaluation of Methods for Chemical Analysis - \(View Full Text\)](#)  
[E1915-07 Standard Test Methods for Analysis of Metal Bearing Ores and Related Materials by Combustion Infrared-Absorption Spectrometry - \(View Full Text\)](#)  
[E1916-97\(2004\) Standard Guide for Identification and/or Segregation of Mixed Lots of Metals - \(View Full Text\)](#)  
[E1917-02 Standard Test Method for Determination of Phosphorous in Nickel, Ferronickel, and Nickel Alloys by the Phosphovanadomolybdate Molecular Absorption Spectrometric Method - \(View Full Text\)](#)  
[E1938-02 Standard Test Method for Determination of Titanium in Nickel Alloys by Diantipyrylmethane Molecular Absorption Spectrometric Method - \(View Full Text\)](#)  
[E1941-04 Standard Test Method for Determination of Carbon in Refractory and Reactive Metals and Their Alloys - \(View Full Text\)](#)  
[E1950-98\(2003\) Standard Practice for Reporting Results from Methods of Chemical Analysis - \(View Full Text\)](#)  
[E1999-99\(2004\) Standard Test Method for Analysis of Cast Iron Using Optical Emission Spectrometry - \(View Full Text\)](#)  
[E2027-05 Standard Practice for Conducting Proficiency Tests in the Chemical Analysis of Metals, Ores, and Related Materials - \(View Full Text\)](#)  
[E2028-99\(2005\) Standard Practice for Receiving, Testing and Reporting Results of Investigation of Metal, Ore, or Metal Related Samples that Are or May Be Involved in Litigation - \(View Full Text\)](#)  
[E2050-99\(2004\) Standard Test Method for Determination of Total Carbon in Mold Powders by Combustion-Infrared Absorption Method - \(View Full Text\)](#)  
[E2093-05 Standard Guide for Optimizing, Controlling and Reporting Test Method Uncertainties from Multiple Workstations in the Same Laboratory Organization - \(View](#)

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[E2165-01 Standard Practice for Establishing an Uncertainty Budget for the Chemical Analysis of Metals, Ores, and Related Materials - \(View Full Text\)](#)

[E2209-02\(2006\)e1 Standard Test Method for Analysis of High Manganese Steel Using Atomic Emission Spectrometry - \(View Full Text\)](#)

[E2242-07 Standard Test Method for Column Percolation Extraction of Mine Rock by the Meteoric Water Mobility Procedure - \(View Full Text\)](#)

[E2293-03 Standard Practice for Drying of Metal Bearing Ores, Concentrates and Related Metallurgical Materials for the Determination of Mercury - \(View Full Text\)](#)

[E2294-03 Standard Practice for Proof Silver Corrections in Metal Bearing Ores, Concentrates and Related Materials by Fire Assay Gravimetry - \(View Full Text\)](#)

[E2295-03 Standard Practice for Fire Assay Silver Corrections in Analysis of Metal Bearing Ores, Concentrates, and Related Metallurgical Materials by Silver Determination in Slags and Cupels - \(View Full Text\)](#)

[E2296-03 Standard Practice for Silver Corrections in Metal Bearing Ores, Concentrates, and Related Metallurgical Materials by Fire Assay Slag Recycling and Cupel Proof Gravimetry - \(View Full Text\)](#)

[E2371-04 Standard Test Method for Analysis of Titanium and Titanium Alloys by Atomic Emission Plasma Spectrometry - \(View Full Text\)](#)

[E2437-05 Standard Practice for Designing and Validating Performance-Based Test Methods for the Analysis of Metals, Ores, and Related Materials - \(View Full Text\)](#)

[E2438-05 Standard Practice for Implementing Standard Performance Based Test Methods for the Analysis of Metals, Ores, and Related Materials - \(View Full Text\)](#)

[E2465-06 Standard Test Method for Analysis of Ni-Base Alloys by X-ray Fluorescence Spectrometry - \(View Full Text\)](#)

[SI Quick Reference Guide: International System of Units \(SI\) - \*The Modern Metric System\* - \(View Full Text\)](#)

### **Withdrawn Standards**

E305 Standard Practice for Establishing and Controlling Spectrochemical Analytical Curves (Withdrawn 2005) No Replacement

E360 Standard Test Methods for Chemical Analysis of Silicon and Ferrosilicon (Withdrawn 2006) No Replacement

E361 Standard Test Methods for the Determination of Arsenic and Lead in Ferromanganese (Withdrawn 2005) No Replacement

E362 Standard Test Methods for the Determination of Arsenic and Lead in Silicomanganese and Ferrosilicon Manganese (Withdrawn 2005) No Replacement

E364 Standard Test Methods for Chemical Analysis of Ferrochrome-Silicon (Withdrawn 2006) No Replacement

E365 Standard Test Methods for the Determination of Vanadium in Ferrovandium and Vanadium Alloying Additives (Withdrawn 2005) No Replacement

E371 Standard Test Method for the Determination of Boron in Ferroboron (Withdrawn 2006) No Replacement

E395 Standard Test Method for Determination of Total Sulfur in Iron Ores and Related Materials by Combustion-Iodate Titration (Withdrawn 2007) Replaced by E1915

E400 Standard Test Method for Analysis of Ores, Minerals, and Rocks by the Fire Assay Preconcentration Optical Emission Spectroscopy (Withdrawn 2007) No Replacement

E402 Standard Test Method for Spectrographic Analysis of Uranium Oxide ( $U_3O_8$ ) by Gallium Oxide-Carrier Technique (Withdrawn 2007) No Replacement

E404 Standard Test Method for Spectrographic Determination of Boron In Carbon and Low Alloy Steel by the Point-To-Plane Technique (Withdrawn 2006) No Replacement

E416 Standard Practice for Planning and Safe Operation of a Spectrochemical Laboratory (Withdrawn 2005) No Replacement

E826 Standard Practice for Testing Homogeneity of Materials for Development of Reference Materials (Withdrawn 2005) No Replacement

E863 Standard Practice for Describing Flame Atomic Absorption Spectroscopy Equipment (Withdrawn 2004) No Replacement

E1024 Standard Guide for Chemical Analysis of Metals and Metal Bearing Ores by Flame Atomic Absorption Spectrophotometry (Withdrawn 2004) No Replacement

E1371 Standard Test Method for Gravimetric Determination of Phosphorus in Phosphorus-Copper Alloys or Phosphorus-Copper-Silver Alloys (Withdrawn 2006) No Replacement

E1452 Standard Practice for Preparation of Calibration Solutions for Spectrophotometric and for Spectroscopic Atomic Analysis (Withdrawn 2005) No Replacement

E1622 Standard Practice for Correction of Spectral Line Overlap in Wavelength-Dispersive X-Ray Spectrometry (Withdrawn 2006) No Replacement

E1812 Standard Practice for Optimization of Flame Atomic Absorption Spectrometric Equipment (Withdrawn 2004) No Replacement

E1831 Standard Guide for Preparing Certificates for Reference Materials Relating to Chemical Composition of Metals, Ores, and Related Materials (Withdrawn 2005) No Replacement

E1832 Standard Practice for Describing and Specifying a Direct Current Plasma Atomic Emission Spectrometer (Withdrawn 2004) No Replacement

E1937 Standard Test Method for Determination of Nitrogen in Titanium and Titanium Alloys by the Inert Gas Fusion Technique (Withdrawn 2005) Replaced by E1409

E2053 Standard Guide for Planning, Carrying Out, and Reporting Traceable Chemical Analyses of Metals, Ores, and Related Materials (Withdrawn 2006) No Replacement

E2054 Practice for Performance-Based Description of Instruments in Chemical Analysis Methods (Withdrawn 2005) No Replacement

E2055 Standard Practice for Referencing Test Methods for Chemical Analysis of Metals and Related Materials (Withdrawn 2006) No Replacement

E2410 Standard Practice for Designing and Validating Performance Based Test Methods for the Analysis of Metals, Ores, and Related Materials (Withdrawn 2006) Replaced by E2437