



Standard Guide for Production, Testing, and Value Assignment of In-House Reference Materials for Metals, Ores, and Other Related Materials¹

This standard is issued under the fixed designation E2972; 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.

1. Scope

1.1 This document provides guidance for the implementation of procedures for preparation of in-house reference materials for analytical testing of metals, ores, slags, and other materials encountered within the metals and mining industries.

1.2 This guide is applicable to the production of reference materials only (usually for internal use) and does not apply to the production of certified reference materials (CRMs). Materials may include metals, alloys, minerals, geological materials, manufacturing intermediates, and byproducts. Samples may be in a number of physical forms including blocks, disks, rods, wires, chips, granules, powders, and liquids.

1.3 *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

- E32 Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition (Withdrawn 2015)³
- E34 Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys
- E50 Practices for Apparatus, Reagents, and Safety Considerations for Chemical Analysis of Metals, Ores, and Related Materials
- E55 Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition

- E88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition
- E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials
- E178 Practice for Dealing With Outlying Observations
- E255 Practice for Sampling Copper and Copper Alloys for the Determination of Chemical Composition
- E415 Test Method for Analysis of Carbon and Low-Alloy Steel by Spark Atomic Emission Spectrometry
- E716 Practices for Sampling and Sample Preparation of Aluminum and Aluminum Alloys for Determination of Chemical Composition by Spectrochemical Analysis
- E826 Practice for Testing Homogeneity of a Metal Lot or Batch in Solid Form by Spark Atomic Emission Spectrometry
- E877 Practice for Sampling and Sample Preparation of Iron Ores and Related Materials for Determination of Chemical Composition and Physical Properties
- E1086 Test Method for Analysis of Austenitic Stainless Steel by Spark Atomic Emission Spectrometry
- E1329 Practice for Verification and Use of Control Charts in Spectrochemical Analysis
- E1806 Practice for Sampling Steel and Iron for Determination of Chemical Composition
- E2857 Guide for Validating Analytical Methods

2.2 ISO Standards:⁴

- ISO Guide 30 Terms and Definitions Used in Connection with Reference Materials
- ISO Guide 30/Amd. 1 Revision of definitions for reference material and certified reference material
- ISO Guide 35 Reference materials—General and statistical principles for certification
- ISO Guide 98-3 Guide to the Expression of Uncertainty in Measurement (GUM: 1995)
- ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories

¹ This test method is under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.22 on Laboratory Quality.

Current edition approved Feb. 15, 2015. Published March 2015. DOI: 10.1520/E2972-15.

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 American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.