

Designation: E 1724 – 95

Standard Guide for Testing and Certification of Metal and Metal-Related Reference Materials¹

This standard is issued under the fixed designation E 1724; 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 guide describes procedures to be considered for the testing and certification of metal and metal-related reference materials in the form of blocks, disks, rods, wires, chips, and powders.

1.2 *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:

- E 32 Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition²
- E 34 Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys²
- E 50 Practices for Apparatus, Reagents, and Safety Precautions for Chemical Analysis of Metals²
- E 55 Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition²
- E 59 Practice for Sampling Steel and Iron for Determination of Chemical Composition²
- E 88 Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition²
- E 135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials²
- E 178 Practice for Dealing with Outlying Observations³
- E 255 Practice for Sampling Copper and Copper Alloys for the Determination of Chemical Composition²
- E 350 Test Methods for Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron²
- E 351 Test Methods for Chemical Analysis of Cast Iron—All Types²
- E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method³
- E 716 Practices for Sampling Aluminum and Aluminum

Alloys for Spectrochemical Analysis⁴

- E 826 Practice for Testing Homogeneity of Materials for the Development of Reference Materials⁴
- E 877 Practice for Sampling and Sample Preparation of Iron Ores and Related Materials⁴
- E 1019 Test Method for Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel and Iron⁴
- 2.2 **ISO Standards:**
 - ISO Guide 30 Terms and Definitions Used in Connection With Reference Materials⁵
 - ISO Guide 31 Contents of Certificates of Reference Materials⁵
 - ISO Guide 33 Uses of Certified Reference Materials⁵
 - ISO Guide 35 Certification of Reference Materials—General and Statistical Principles⁵

3. Terminology

3.1 **Definitions**—For definitions of terms used in this guide, refer to Terminology E 135.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 **certification report**—a document giving detailed information, supplementary to that contained in a certificate, on the preparation of the material and the methods of measurement used in obtaining the certified value(s) for a given reference material. It includes a summary of the results obtained (including a description of all factors affecting accuracy) and a description of the way in which the results were treated statistically.

3.2.2 **certified reference material (CRM)**—reference material accompanied by a certificate, one or more of whose property values are certified by a procedure which establishes its traceability to an accurate realization of the unit in which the property values are expressed; each certified value is accompanied by an uncertainty at a stated level of confidence (from ISO Guide 30).

3.2.3 **certifying body**—a technically competent body (organization or firm, public or private) that issues a reference material certificate which provides the information detailed in ISO Guide 31.

3.2.4 **comparative analytical method**—an analytical procedure that requires the use of CRMs, reference materials (RMs),

¹ This guide is under the jurisdiction of ASTM Committee E-1 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.21 on Reference Materials and Liaison with S17.

Current edition approved Aug. 15, 1995. Published October 1995.

² *Annual Book of ASTM Standards*, Vol 03.05.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ *Annual Book of ASTM Standards*, Vol 03.06.

⁵ Available from American National Standards Institute, 11 West 42nd St., 13th Floor, New York, NY 10036.