



Standard Practice for Sampling Aluminum Ingots, Billets, Castings and Finished or Semi-Finished Wrought Aluminum Products for Compositional Analysis¹

This standard is issued under the fixed designation B985; 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 practice describes procedures for sampling unwrought aluminum ingots, billets, castings and finished or semi-finished wrought aluminum products to obtain a representative sample for determining chemical composition.

1.1.1 Chemical compositions determined from samples obtained in accordance with this standard practice may differ from the bulk chemical composition determined from samples taken when ingots or castings are poured. These differences can be due to elemental segregation that occurs during solidification, procedures that remove enriched material (for example, ingot scalping), or procedures that remove depleted areas (for example, removal of the riser from a casting).

1.1.2 Analysis of samples obtained from unwrought aluminum ingots, billets, and castings and finished or semi-finished wrought aluminum products can be used to determine if the piece sampled meets The Aluminum Association, Inc. registered chemical composition limits or other specified chemical composition limits for the alloy. Analysis of such samples shall not supersede the analysis of samples taken during pouring of castings or ingots in accordance with Practices E716 and analyzed in accordance with Test Methods E34, E607, E1251, or EN 14242 and shall not be used for determining compliance with chemical composition requirements for an entire cast lot or part thereof.

NOTE 1—Pieces may include ingots, forgings, coils, sheets, extrusions, castings, and so forth. A single unwrought ingot or billet may produce multiple finished or semi-finished pieces.

NOTE 2—Certification of entire cast lots should be determined using samples taken during pouring of castings or ingots in accordance with Practices E716 and analyzed in accordance with Test Methods E34, E607, E1251, or EN 14242.

1.2 *Units*—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents;

therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

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

B881 Terminology Relating to Aluminum- and Magnesium-Alloy Products

E34 Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys

E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials

E607 Test Method for Atomic Emission Spectrometric Analysis Aluminum Alloys by the Point to Plane Technique Nitrogen Atmosphere (Withdrawn 2011)³

E716 Practices for Sampling and Sample Preparation of Aluminum and Aluminum Alloys for Determination of Chemical Composition by Spark Atomic Emission Spectrometry

E1251 Test Method for Analysis of Aluminum and Aluminum Alloys by Spark Atomic Emission Spectrometry

2.2 Other Standards:⁴

EN 14242 Aluminum and Aluminum Alloys—chemical Analysis—inductively Coupled Plasma Optical Emission Spectral Analysis

3. Terminology

3.1 For definitions of terms used in this Standard, refer to Terminologies B881 and E135.

¹ This practice is under the jurisdiction of ASTM Committee B07 on Light Metals and Alloys and is the direct responsibility of Subcommittee B07.05 on Testing.

Current edition approved Nov. 1, 2016. Published November 2016. Originally approved in 2012. Last previous edition approved in 2012 as B985 – 12. DOI: 10.1520/B0985-12R16.

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 European Committee for Standardization, Central Secretariat (CEN), rue de Stassart 36, B1050 Brussels, Belgium. <http://www.cen.eu/esearch>.