



Designation: E88 – 11 (Reapproved 2017)

Standard Practice for Sampling Nonferrous Metals and Alloys in Cast Form for Determination of Chemical Composition¹

This standard is issued under the fixed designation E88; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This practice covers the sampling, for the determination of chemical composition (Note 1) of nonferrous metals and alloys, excluding aluminum, in cast form for remelting or mechanical working.

1.1.1 Refer to Practice E255 for copper and copper alloys.

NOTE 1—The selection of correct portions of material and the preparation of a representative sample from such portions are necessary prerequisites to every analysis, the analysis being of no value unless the sample actually represents the average composition of the material from which it was selected.

1.2 When agreed upon between the purchaser and the manufacturer, the heat sample and analysis may be accepted as representative of the composition of the metal. In such cases, each lot must be properly identified with the heats from which it was made.

1.3 This practice is intended to cover the general principles of sampling applicable to nonferrous metals in cast form and is not intended to supersede or replace existing specification requirements for sampling of a particular material.

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.5 *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.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recom-*

mendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 *ASTM Standards:*²

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

E255 Practice for Sampling Copper and Copper Alloys for the Determination of Chemical Composition

3. Terminology

3.1 For definitions of terms used in this practice, refer to Terminology E135.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *portion, n*—the term “portion” is used in this practice to designate the selected ingots, slabs, etc., from which the sample is prepared.

3.2.2 *sample, n*—the term “sample” is used in this practice to designate the final form of the material submitted for analysis (drillings, millings, etc.). A representative sample may best be defined as a small part containing the same components in the same proportions as they occur in the relatively large mass of the original lot or lots of material.

4. Selection of Portion

4.1 A portion representative of the total shipment or lot shall be taken for sampling. This portion shall be so selected that a minimum wastage of material is incurred, consistent with the required accuracy in sampling.

4.2 The number of ingots, slabs, etc., selected to constitute this portion shall comply with the requirements of the ASTM specifications covering that particular material.

5. Preparation of Sample

5.1 Machinable materials shall be sampled by drilling, milling, or sawing. Materials that are too difficult to machine may be ground or crushed.

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.

¹ This practice is under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores, and Related Materials and is the direct responsibility of Subcommittee E01.05 on Cu, Pb, Zn, Cd, Sn, Be, Precious Metals, their Alloys, and Related Metals.

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