



Designation: E 1806 – 96

Standard Practice for Sampling Steel and Iron for Determination of Chemical Composition¹

This standard is issued under the fixed designation E 1806; 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 covers the sampling of all grades of steel, both cast and wrought, and all types (grades) of cast irons and blast furnace iron for chemical and spectrochemical determination of composition. This practice is similar to ISO 14284.

1.2 This practice is divided into the following sections.

	Sections
Requirements for Sampling and Sample Preparation	6
General	6.1
Sample	6.2
Selection of a Sample	6.3
Preparation of a Sample	6.4
Liquid Iron for Steelmaking and Pig Iron Production	7
General	7.1
Spoon Sampling	7.2
Probe Sampling	7.3
Preparation of a Sample for Analysis	7.4
Liquid Iron for Cast Iron Production	8
General	8.1
Spoon Sampling	8.2
Probe Sampling	8.3
Preparation of a Sample for Analysis	8.4
Sampling and Sample Preparation for the Determination of Oxygen and Hydrogen	8.5
Liquid Steel for Steel Production	9
General	9.1
Probe Sampling	9.2
Spoon Sampling	9.3
Preparation of a Sample for Analysis	9.4
Sampling and Sample Preparation for the Determination of Oxygen	9.5
Sampling and Sample Preparation for the Determination of Hydrogen	9.6
Pig Irons	10
General	10.1
Increment Sampling	10.2
Preparation of a Sample for Analysis	10.3
Cast Iron Products	11
General	11.1
Sampling and Sample Preparation	11.2
Steel Products	12
General	12.1
Selection of a Laboratory Sample or a Sample for	12.2

Analysis from a Cast Product	
Selection of a Laboratory Sample or a Sample for	12.3
Analysis from a Wrought Product	
Preparation of a Sample for Analysis	12.4
Sampling of Leaded Steel	12.5
Sampling and Sample Preparation for the Determination of Oxygen	12.6
Sampling and Sample Preparation for the Determination of Hydrogen	12.7
Keywords	13
Sampling Probes for Use with Liquid Iron and Steel	Annexes
Sampling Probes for Use with Liquid Steel for the Determination of Hydrogen	Annex A1
	Annex A2

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.*

1.4 For specific precautions, see Note 2, Note 6, and Note 9 as well as Section 5.

2. Referenced Documents

2.1 ASTM Standards:

- A 48 Specification for Gray Iron Castings²
- A 751 Test Methods, Practices, and Definitions for Chemical Analysis of Steel Products³
- E 135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials⁴
- E 415 Test Method for Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel⁵
- E 1010 Practice for Preparation of Disk Specimens of Steel and Iron for Spectrochemical Analysis by Remelting⁵
- E 1087 Practice for Sampling Molten Steel from a Ladle Using an Immersion Sampler to Produce a Sample for Spectrochemical Analysis⁵

2.2 ISO Documents:

- ISO 9147 Pig irons—Definition and classification⁶
- ISO 14284 Steel and iron—Sampling and preparation of

¹ This practice 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 E01.01 on Iron, Steel, and Ferroalloys.

Current edition approved April 10, 1996. Published June 1996.

² Annual Book of ASTM Standards, Vol 01.02.

³ Annual Book of ASTM Standards, Vol 01.03.

⁴ Annual Book of ASTM Standards, Vol 03.05.

⁵ Annual Book of ASTM Standards, Vol 03.06.

⁶ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.