



# Standard Specification for Silicomanganese<sup>1</sup>

This standard is issued under the fixed designation A 483; 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 approval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This specification covers three grades of silicomanganese designated A, B, and C.

## 2. Referenced Documents

2.1 *ASTM Standards:*

E 11 Specification for Wire-Cloth Sieves for Testing Purposes<sup>2</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance With Specifications<sup>2</sup>

E 31 Methods for Chemical Analysis of Ferroalloys<sup>3</sup>

E 32 Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition<sup>3</sup>

## 3. Ordering Information

3.1 Orders for material under this specification shall include the following information:

3.1.1 Quantity,

3.1.2 Name of material,

3.1.3 ASTM designation and year of issue,

3.1.4 Grade,

3.1.5 Size, and

3.1.6 Requirements for packaging, analysis reports, etc. as appropriate.

3.2 The customary basis of payment for silicomanganese is per pound of ferroalloy, rather than per pound of contained manganese or silicon.

## 4. Chemical Composition

4.1 The various grades shall conform to the requirements as to chemical composition specified in Table 1 and Table 2.

4.2 The manufacturer shall furnish an analysis of each shipment showing the manganese, silicon, and carbon content and, when required, such of the other elements as are specified in Table 1.

4.3 The values shown in Table 2 are expected maximums. Upon request of the purchaser, the manufacturer shall furnish

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 14.02.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 03.05.

TABLE 1 Chemical Requirements<sup>A</sup>

Element	Composition, %		
	Grade A	Grade B	Grade C
Manganese <sup>B</sup>	65.0–68.0	65.0–68.0	65.0–68.0
Silicon <sup>B</sup>	18.5–21.0	16.0–18.5	12.5–16.0
Carbon, max	1.5	2.0	3.0
Phosphorus, max	0.20	0.20	0.20
Sulfur, max	0.04	0.04	0.04

<sup>A</sup>For purposes of determining conformance with this specification, the reported analysis shall be rounded to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding method of Recommended Practice E 29.

<sup>B</sup>For purposes of determining the manganese and silicon content of any shipment, both elements shall be reported to the nearest 0.01 %, applying the same rounding procedure as prescribed in Footnote A.

an analysis for these elements on a cumulative basis over a period mutually agreed upon by the manufacturer and the purchaser.

## 5. Size

5.1 The various grades are available in sizes as listed in Table 3.

5.2 The sizes listed in Table 3 are typical as shipped from the manufacturer’s plant. These alloys exhibit varying degrees of friability; therefore, some attrition may be expected in transit, storage, and handling.

## 6. Sampling

6.1 The material shall be sampled in accordance with Practices E 32.

6.2 Other methods of sampling mutually agreed upon by the manufacturer and the purchaser may be used; however, in case of discrepancy, Practices E 32 shall be used for referee.

TABLE 2 Supplementary Chemical Requirements<sup>A</sup>

	Composition, max, % All Grades
Arsenic	0.10
Tin	0.010
Lead	0.030
Chromium	0.50
Nickel	0.20
Molybdenum	0.10

<sup>A</sup>For purposes of determining conformance with this specification, the reported analysis shall be rounded to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding method of Recommended Practice E 29.



TABLE 3 Standard Sizes and Tolerances

Standard Sizes (All Grades)		Tolerances <sup>A</sup>
8 in. by 4 in.	90 lb lump, max	10 % max passing 4 in. (100 mm) sieve
8 in. by 2 in.	90 lb lump, max	10 % max passing 2 in. (50 mm) sieve
4 in. by 1 in.	10 % max retained on 4 in. (100 mm) sieve	10 % max passing 1 in. (25.0 mm) sieve
2 in. by 1/4 in.	10 % max retained on 2 in. (50 mm) sieve	10 % max passing 1/4 in. (6.3 mm) sieve
2 in. by down.	10 % max retained on 2 in. (50 mm) sieve	15 % max passing No. 8 (2.36 mm) sieve

<sup>A</sup>Specifications of sieve sizes used to define tolerances herein are as listed in Specification E 11.

**7. Chemical Analysis**

7.1 The chemical analysis of the material shall be made in accordance with the procedure for silicomanganese as described in Methods E 31 or alternative methods which will yield equivalent results.

7.2 If alternative methods of analysis are used, in case of discrepancy, Methods E 31 shall be used for referee.

7.3 Where no method is given in Methods E 31 for the analysis of a particular element, the analysis shall be made in accordance with a procedure agreed upon between the manufacturer and the purchaser.

**8. Inspection**

8.1 The manufacturer shall afford the inspector representing the purchaser all reasonable facilities, without charge, to satisfy him that the material is being furnished in accordance with this specification.

**9. Rejection**

9.1 Any claims or rejections shall be made to the manufacturer within 45 days from receipt of material by the purchaser.

**10. Packaging and Package Marking**

10.1 Silicomanganese shall be packaged in sound containers, or shipped in bulk, in such manner that none of the product is lost or contaminated in shipment.

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