



Designation: A 495 – 94 (Reapproved 2000)

Standard Specification for Calcium-Silicon Alloys¹

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1. Scope

1.1 This specification covers a standard grade of calcium-silicon, a standard grade of calcium-manganese-silicon, a standard grade of calcium-silicon-barium and a standard grade of ferro-calcium-silicon.

2. Referenced Documents

2.1 *ASTM Standards:*

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications²

E 31 Methods for Chemical Analysis of Ferroalloys³

E 32 Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition³

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,

3.1.4 Size, and

3.1.5 Special requirements for packaging, analysis reports, etc., as appropriate.

3.2 The customary basis of payment for calcium-silicon and for calcium-manganese-silicon is per pound of ferroalloy, rather than per pound of contained elements.

4. Chemical Requirements

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

4.2 *Calcium-Silicon*—The manufacturer shall furnish an analysis of each shipment showing the calcium, silicon, and aluminum content.

4.3 *Calcium-Manganese-Silicon*—The manufacturer shall furnish an analysis of each shipment showing the calcium, manganese, and silicon content.

¹ This specification is under the jurisdiction of ASTM Committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.18 on Castings.

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² *Annual Book of ASTM Standards*, Vol 14.02.

³ *Annual Book of ASTM Standards*, Vol 03.05.

TABLE 1 Chemical Requirements

Element	Composition, %			
	CaSi	CaSiMn	CaSiBa	FeCaSi
Calcium	28.0 to 32.0	16.0 to 20.0	14.0 to 20.0	14.0 to 18.0
Silicon	60.0 to 65.0	53.0 to 59.0	55.0 to 60.0	53.0 to 59.0
Manganese	...	14.0 to 18.0
Barium	14.0 to 18.0	...
Iron	5.0 max	10.0 max	5.0 max	14.0 to 18.0

4.4 *Calcium-Silicon-Barium*—The manufacturer shall furnish an analysis of each shipment showing the calcium, silicon and barium contents.

4.5 *Ferro-Calcium-Silicon*—The manufacturer shall furnish an analysis of each shipment showing the calcium, silicon and iron contents.

4.6 The values shown in Table 2 are expected maximums. Upon request of the purchaser, the manufacturer shall furnish an analysis for any of the elements on a cumulative basis over a period mutually agreed upon by the manufacturer and the purchaser.

5. Size

5.1 Calcium-silicon alloys 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 are friable and some attrition can be expected in transit, storage, and handling. The friability rating for these alloys is Code No. 6, the most friable rating on the scale.

TABLE 2 Supplemental Chemical Requirements^A

Element	Composition, Max %			
	CaSi	CaSiMn	CaSiBa	FeCaSi
Carbon	1.00	1.00	1.0	1.0
Sulfur	0.070	0.025	0.050	0.050
Phosphorus	0.050	0.035	0.050	0.050
Titanium	0.20	0.20	0.20	0.20
Aluminum	1.5	1.5	1.5	1.5

^AThe composition of calcium-silicon alloys shall be within these limits; however, an analysis of each lot is not required. The manufacturer shall supply upon request the results of an analysis for these elements on a cumulative basis over a period mutually agreed upon by the manufacturer and the purchaser.