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Standard Specification for Ferrotitanium[1]

This standard is issued under the fixed designation A324; 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 specification covers four grades of ferrotitanium, designated A, B, C, and D.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A1025 Specification for Ferroalloys and Other Alloying Materials, General Requirements

3. General Conditions for Delivery

3.1 Materials furnished to this specification shall conform to the requirements of Specification A1025, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A1025 constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A1025, this specification shall prevail.

4. Chemical Requirements

4.1 The chemical requirements are shown in Tables 1 and 2.

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. A quantitative test is not available for rating relative friability of ferroalloys. A code system has been developed, for this purpose, and a number rating each product type is shown in the last column of Table 4. Definitions applicable to these code numbers are given in Specification A1025.

6. Chemical Analysis

6.1 The chemical analysis of the material shall be in accordance with a procedure agreed upon between the manufacturer and the purchaser.

7. Keywords

7.1 ferrotitanium

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

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[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.

TABLE 1 Chemical Requirements

Grade	Composition, %			
	Titanium	Carbon, max	Silicon, max	Aluminum, max
A	65.0–75.0	0.15	0.25	0.50
B	65.0–75.0	0.20	0.25	5.0
C	35.0–45.0	0.15	5.0	8.0
D	15.0–25.0	5.0	5.0	8.0

TABLE 2 Supplementary Chemical Requirements

Grade	Composition, %[A]																
	Mn	P	S	Cr	Ni	Mo	Cu	Co	V	Pb	As	Bi	Sn	Zn	Zr	B	N
A	0.50	0.050	0.050	1.0	0.050	0.050	0.15	0.030	0.50	0.010	0.010	0.010	0.050	0.010	0.10	0.010	0.15
B	1.5	0.050	0.050	1.0	0.050	0.25	0.20	0.050	1.5	0.030	0.010	0.010	0.050	0.020	0.50	0.020	0.20
C	1.5	0.10	0.050	1.0	0.050	0.25	0.20	0.050	1.5	0.030	0.010	0.010	0.050	0.020	0.50	0.020	0.20
D	1.5	0.10	0.050	1.0	0.050	0.25	0.20	0.050	1.5	0.050	0.010	0.010	0.050	0.020	0.50	0.020	0.20

[A] Maximum limits.

TABLE 3 Size Requirements (All Grades)

Category	Tolerances
2 in. (50 mm) by down	10 %, max retained on USA Standard 2 in. (50 mm) Sieve
	10 %, max passing USA Standard No. 20 (850 µm) Sieve
1 in. (25 mm) by down	10 %, max retained on USA Standard 1 in. (25.0 mm) Sieve
	10 %, max passing USA Standard No. 20 (850 µm) Sieve
½ in. (12.5 mm) by down	10 %, max retained on USA Standard ½ in. (12.5 mm) Sieve
	15 %, max passing USA Standard No. 30 (600 µm) Sieve
8 M (2.36 mm) by down	10 %, max retained on USA Standard No. 8 (2.36 mm) Sieve
	10 %, max passing USA Standard No. 200 (75 µm) Sieve

TABLE 4 Friability Rating

All grades	Number 3