Designation: A 102 – 04

Standard Specification for Ferrovanadium[1]

This standard is issued under the fixed designation A 102; 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 one grade of ferrovanadium.

1.2 The values given in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

A 1025 Specification for Ferroalloys, General Requirements

E 365 Test Methods for Determination of Vanadium in Ferrovanadium and Vanadium Alloying Additives

3. General Conditions for Delivery

3.1 Materials furnished to this specification shall conform to the requirements of Specification A 1025, including any supplementary requirements that are indicated in the purchase order. Failure to comply with the general requirements of Specification A 1025 constitutes nonconformance with this specification. In case of conflict between the requirements of this specification and Specification A 1025, this specification shall prevail.

3.2 Although ferrovanadium is ordered by total net weight, the customary basis of payment is per pound of contained vanadium.

4. Chemical Composition

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

4.2 The manufacturer shall furnish an analysis of each shipment showing the percentage of each element specified.

TABLE 1 Chemical Requirements[A]

Element	Composition, %
Vanadium,[B]	75-85
Carbon, max	0.75
Silicon, max	1.5
Aluminum, max	2.0
Sulfur, max	0.08
Phosphorus, max	0.08

[A] For the 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 Practice E 29.

[B] For the purposes of determining the vanadium content of any shipment, vanadium shall be reported to the nearest 0.1 %, applying the same rounding procedure as prescribed in Footnote *A*.

5. Size

5.1 The grade is available in sizes as listed in Table 2.

NOTE 1—The sizes listed in Table 2 are typical as shipped from the manufacturer's plant. Ferrovanadium has a friability code number of "1". It is a tough material, susceptible to little, if any, breakage during shipment or handling.

6. Chemical Analysis

6.1 The chemical analysis of the material shall be made in accordance with the procedure for ferrovanadium as described in Test Methods E 365 or alternative methods which will yield equivalent results. For elements other than vanadium the chemical analysis shall be agreed upon by the purchaser and supplier.

6.2 If alternative methods of analysis are used, in case of discrepancy, Test Methods E 365 shall be used for referee.

6.3 Where no method is given for the analysis for a particular element, the analysis shall be made in accordance with a procedure agreed upon by the manufacturer and the purchaser.

[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.

***A Summary of Changes section appears at the end of this standard.**

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TABLE 2 Sizing Requirements

Size Requirements
2 in. (50 mm) by down
1 in. (25 mm) by down
½ in. (12.5 mm) by down
No. 8 (2.36 mm) by down

SUPPLEMENTARY REQUIREMENTS

The composition shall be further limited to the requirements of Table S1.1 in addition to those in Table 1. 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.

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TABLE S1.1 Supplementary Chemical Requirements

Element	Maximum Limits Allowable, %
Chromium	0.50
Copper	0.15
Nickel	0.10
Lead	0.020
Tin	0.050
Zinc	0.020
Molybdenum	0.75
Titanium	0.15
Nitrogen	0.20

SUMMARY OF CHANGES

Committee A01 has identified the location of selected changes to this standard since the last version (A 102 – 93 (2000)) that may impact the use of this standard.

(1) Practice E 29, Test Methods E 31, and Practices E 32 were removed from 2.
(2) Specification A 1025 was added to 2.
(3) Changed Ordering Information to General Conditions for Delivery.
(4) Revised 4 and 5.
(5) Removed sections on Sampling, Inspection, Rejection, and Packaging.
(6) Added Supplementary Requirements section.
(7) Added Table S1.1.

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