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Standard Specification for Ferromolybdenum[1]

This standard is issued under the fixed designation A 132; 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 ferromolybdenum (formerly Grade B).

1.2 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 *ASTM Standards:*

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[2]

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications[2]

E 31 Methods for Chemical Analysis of Ferroalloys[3]

E 32 Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition[3]

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 Although ferromolybdenum is ordered by total net weight, the customary basis of payment is per pound of contained molybdenum.

4. Size

4.1 This grade is available in sizes as listed in Table 1.

4.2 The sizes listed in Table 1 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.

TABLE 1 Ferromolybdenum Size Requirements

Product	Size Requirements	Tolerance[A]
Ferromolybdenum	2 in. and under	10 % max retained on 2-in. (50-mm) sieve 10 % max passing ¼-in. (6.3-mm) sieve
	1½ in. and under	10 % max retained on 1½-in. (37.5-mm) sieve 10 % max passing ¼-in. (6.3-mm) sieve
	¾ in. and under	10 % max retained on ¾-in. (19.0-mm) sieve 10 % max passing No. 20 (850-µm) sieve
	4 mesh and under	10 % max retained on No. 4 (4.75-mm) sieve 10 % max passing No. 80 (180-µm) sieve
	20 mesh and under 80 mesh and under	10 % max retained on No. 20 (850-µm) sieve 10 % max retained on No. 80 (180-µm) sieve

[A] Specification of sieves sizes used to define tolerances herein are as listed in Specification E 11.

5. Sampling

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

5.2 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.

6. Chemical Analysis

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

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

6.3 Where no method is given in Methods E 31 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 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.

7. Inspection

7.1 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.

8. Rejection

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

9. Product Marking

9.1 When the shipment is made in bulk, it shall be accompanied by appropriate identification showing the material, the ASTM designation, the size, the lot number, and the name, brand, or trademark of the manufacturer.

9.2 When the shipment is made in containers, each shall be marked on the container or on a label or tag attached thereto. The marking shall show the material, the ASTM designation, the size, the lot number, gross, tare, or net weight, and the name, brand, or trademark of the manufacturer.

10. Packaging

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

11. Chemical Requirements

11.1 This grade shall conform to the requirements as to chemical composition specified in Table 2 and Table 3.

11.2 The manufacturer shall furnish an analysis of each shipment showing the elements specified in Table 2.

11.3 The values shown in Table 3 are expected maximums. Upon request of the purchaser, the manufacturer shall furnish an analysis for any of these elements on a cumulative basis over a period mutually agreed upon by the manufacturer and the purchaser.

TABLE 2 Chemical Requirements[A]

Element	Composition, %
	Ferromolybdenum[B]
Molybdenum[C]	60.0 min
Carbon	0.10 max
Phosphorus, max	0.050
Sulfur, max	0.15
Silicon, max	1.0
Copper, max	1.0[D]

[A] 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 Practice E 29.

[B] Formerly Grade B.

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

[D] Copper content may be supplied to 0.20 %, max, when requested by the purchaser.

TABLE 3 Supplementary Chemical Requirements[A,B]

Element	Composition, max, %
	Ferromolybdenum
Lead	0.010
Tin	0.010

[A] See Footnote [A] of Table 2.

[B] The composition of ferromolybdenum shall be within these limits; however, an analysis of each lot is not required. The producer shall supply upon request the results of an analysis of these elements on a cumulative basis over a period mutually agreed upon by the producer and the consumer.

12. Keywords

12.1 ferromolybdenum; molybdenum