



Designation: A 601 – 96 (Reapproved 2004)

Standard Specification for Electrolytic Manganese Metal¹

This standard is issued under the fixed designation A 601; 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 six grades of electrolytic manganese designated as follows:

	Grade
Regular	A
Intermediate Hydrogen	B
Low Hydrogen	C
4.5 % Nitrogen Bearing	D
6 % Nitrogen Bearing	E
Weld Grade Powder	F

2. Referenced Documents

2.1 *ASTM Standards*:²

- E 11 Specification for Wire Cloth and Sieves for Testing Purposes
- E 29 Practice for Using Significant Digits in Test Data to Determine Conformance With Specifications
- E 32 Practices for Sampling Ferroalloys and Steel Additives for Determination of Chemical Composition

3. Ordering Information

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

- 3.1.1 Quality,
- 3.1.2 Name of material,
- 3.1.3 ASTM designation and year of issue,
- 3.1.4 Grade (see 1.1),
- 3.1.5 Sizing, if appropriate (Section 6), and
- 3.1.6 Special requirements for packaging, inspection, analysis reports, etc., as appropriate.

4. Chemical Requirements

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

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.

4.2 The manufacturer shall furnish an analysis of each shipment showing the elements specified in the applicable table.

5. Size

5.1 The various grades are available in the sizes 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 (see 5.3).

5.3 *Friability Ratings* (see Appendix):

Grades A, B, C	No. 6
Grades D, E	No. 5

6. Sampling

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

6.2 Other methods of sampling that have been agreed upon between the manufacturer and the purchaser may be used. In case of discrepancy, Practices E 32 shall be used for referee.

7. Chemical Analysis

7.1 Chemical procedures for analysis of ferroalloy components are not standardized. The chemical content procedures must be mutually agreed upon between the purchaser and the manufacturer if there are differences in results.

7.2 *Special Analysis Requirements*—Analysis for additional elements other than those listed in Table 1 and Table 2 shall be agreed upon between the purchaser and the manufacturer. Such elements in trace quantities shall be reported as less than "<" the limit of analytical equipment. This shall be mutually agreed upon between the purchaser and the manufacturer.

7.3 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.