



Designation: **B37—17 B37 – 18**

Standard Specification for Aluminum for Use in Iron and Steel Manufacture¹

This standard is issued under the fixed designation B37; 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 aluminum-alloy deoxidizing products of all compositions in the form of ingots, bars, rods, cones, nuggets, shot, or stars, for use in the manufacture of iron and steel. Six of the most commonly used deoxidizing product compositions are designated as shown in Table 1.

1.2 *Units*—The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

[B660 Practices for Packaging/Packing of Aluminum and Magnesium Products](#)

[B666/B666M Practice for Identification Marking of Aluminum and Magnesium Products](#)

[B881 Terminology Relating to Aluminum- and Magnesium-Alloy Products](#)

[D3951 Practice for Commercial Packaging](#)

[E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications](#)

[E34 Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys \(Withdrawn 2017\)³](#)

[E607 Test Method for Atomic Emission Spectrometric Analysis Aluminum Alloys by the Point to Plane Technique Nitrogen Atmosphere \(Withdrawn 2011\)³](#)

[E716 Practices for Sampling and Sample Preparation of Aluminum and Aluminum Alloys for Determination of Chemical Composition by Spark Atomic Emission Spectrometry](#)

[E1251 Test Method for Analysis of Aluminum and Aluminum Alloys by Spark Atomic Emission Spectrometry](#)

2.2 Other Standards:⁴

[CEN EN 14242 Aluminum and Aluminum Alloys – Chemical Analysis – Inductively Coupled Plasma Optical Emission Spectral Analysis](#)

3. Terminology

3.1 *Definitions*—Refer to Terminology [B881](#) for definitions of product terms used in this specification.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bar, n*—a form of aluminum deoxidizing product with a rectangular cross section, similar to the appearance of a brick.

3.2.2 *cone, n*—a form of aluminum deoxidizing product with a round flat base and a pointed end.

¹ This specification is under the jurisdiction of ASTM Committee [B07](#) on Light Metals and Alloys and is the direct responsibility of Subcommittee [B07.01](#) on Aluminum Alloy Ingots and 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.

³ The last approved version of this historical standard is referenced on [www.astm.org](#).

⁴ Available from European Committee for Standardization, Central Secretariat (CEN), 36 rue de Stassart, B1050 Brussels, Belgium., [www.cenorm.be](#).

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

3.2.3 *deox, n*—a common or commercial term used in place of aluminum deoxidizing product.

3.2.4 *nugget, n*—a form of aluminum deoxidizing product with a non-uniform (lump) shape.

3.2.5 *notch bar, n*—a form of aluminum deoxidizing product with a rectangular cross section and one side having regularly paced indentations.

3.2.6 *shot, n*—a form of aluminum deoxidizing product with a spheroid appearance of a pellet.

3.2.7 *star, n*—a form of aluminum deoxidizing product with a star shape with a tapered hole in the center.

TABLE 1 Chemical Composition Limits^{A, B}

Grade	Composition, %				
	Aluminum, min, by Difference	Copper, max	Zinc, max	Magnesium, max	Total of All Impurities, max
990A	99.0	0.2	0.2	0.2	1.0
980A	98.0	0.2	0.2	0.5	2.0
950A	95.0	1.5	1.5	1.0	5.0
920A	92.0	4.0	1.5	1.0	8.0
900A	90.0	4.5	3.0	2.0	10.0
850A	85.0	5.0	5.5	2.5	15.0

^A Analysis shall be made only for copper, zinc, magnesium, silicon, and iron unless the determination of additional elements is required by the contract or order, or the presence of other elements in substantial concentration is indicated during the course of the analysis. In the latter case, the amount of these other elements shall be determined, reported, and the total of copper, zinc, magnesium, silicon, iron, and "other elements" shall not exceed the specified amount prescribed in the last column of the table. Unless otherwise specified in the contract or order, 0.2 % or more of any "other element" shall constitute a "substantial concentration" and require that element to be reported.

^B The following applies to all specified limits in this table: For purposes of determining conformance to these limits, an observed value or a calculated value obtained from analysis shall be rounded to the nearest unit in the last right-hand place of figures used in expressing the specified limit in accordance with the rounding-off method of Practice E29.

4. Ordering Information

4.1 Orders for material under this specification shall include the following:

4.1.1 This specification designation (which includes the number, the year, and the revision letter, if applicable),

4.1.2 Grade of material (see [Table 1](#)),

4.1.3 Form of material (ingot, bar, rod, cone, nugget, or shot),

4.1.4 Any required dimensional or weight limitations for the material, and

4.1.5 The quantity in either pieces or pounds (kilograms).

4.2 Additionally, orders for material to this specification shall include the following information when required by the purchaser:

4.2.1 Special packaging (see [Section 78](#)),

4.2.2 Whether Practices [B660](#) applies and, if so, the levels of preservation, packaging and packing required (see [7.48.4](#)),

4.2.3 Whether Practice [D3951](#) applies (see [7.48.4](#)),

4.2.4 If inspection is required at manufacturer's plant (see [89](#)),

4.2.5 Whether certificate of conformance is required (see [6.2](#) and [10.11.1](#)), and

4.2.6 Whether a certified chemical analysis is required (see [6.2](#) and [6.4](#)).

5. Quality Assurance

5.1 Unless otherwise specified in the contract or purchase order, the producer shall be responsible for the performance of all inspections and test requirements specified herein. Unless disapproved by the purchaser, the producer may use his own or any other suitable facilities for the performance of the inspection and test requirements specified herein. The purchaser shall have the right to perform any of the inspections and tests set forth in this specification where such inspections are deemed necessary to confirm that the material conforms to prescribed requirements.

5.2 All testing shall be performed in accordance to applicable ASTM test methods.

5.3 The material covered by this specification shall be free of dross, slag, and other harmful contamination.

5.4 *Shot*:

5.4.1 Hollow shells shall not exceed 10 % by count in a minimum sample of 340 shot. The surface of material in shot form shall be free from a heavy oxidized coating.