



## Standard Specification for Titanium Scrap for Use in Deoxidation and Alloying of Steel<sup>1</sup>

This standard is issued under the fixed designation A 845; 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 titanium and titanium alloys in the form of processed scrap, designated as shown in Table 1, for use in the manufacture of steel.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric equivalents of inch-pound units may be approximate.

### 2. Referenced Documents

2.1 *ASTM Standards:*

E 120 Test Methods for Chemical Analysis of Titanium and Titanium Alloys<sup>2</sup>

### 3. Ordering Information

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

- 3.1.1 Quantity,
- 3.1.2 Name or form of material,
- 3.1.3 Size desired,
- 3.1.4 Requirement for packaging, and
- 3.1.5 Reports requested with shipment.

### 4. Materials and Manufacture

4.1 The material may be in the form of titanium processing scrap; or cut up rolled sections with individual weight tolerance as agreed between buyer and seller.

4.2 The material may be delivered loose or pressed into pieces, as agreed between buyer and seller.

### 5. Chemical Composition

5.1 The material shall conform to the requirements as to chemical composition prescribed in Table 1.

### 6. Sampling

6.1 If the metal is shipped in carload lots of the same grade, not less than five samples of a minimum of 2 lbs each shall be taken at random from the carload for sampling. If the shipment is in less than carload lots, one sample shall be taken for each 6000 lb (2700 kg) or fraction thereof.

<sup>1</sup> 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.

Current edition approved July 26, 1985. Published September 1985.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 03.05.

TABLE 1 Chemical Requirements

NOTE— Material of Grade 1 shall be chemically washed and dried or ultrasonically cleaned or processed, or both by a method agreed between buyer and seller.

Grade	Ti, %, min	Al, %, max	V, %, max	Ni + Cr + Mo + Fe, %, max	Sn, %, max	Pb + Bi, %, max	C, %, max
1 (Note 1)	87.0	6.5	4.5	2.0	1.00	0.01	0.15
2	85.0	...	...	...	3.00	0.02	0.50

### 7. Methods of Chemical Analysis

7.1 The chemical analysis for contaminants shall be made in accordance with Methods E 120 or by any other approved method agreed upon by the manufacturer and the purchaser. The analysis may be made by instrumental methods, provided that, in case of dispute, the results secured by Methods E 120, shall be the basis for acceptance.

### 8. Inspection

8.1 If the purchaser desires to make an inspection of the material at the manufacturer's works where the material is processed, it shall be so stated in the contract or purchaser order.

8.2 If the purchaser elects to make an inspection made at the manufacturer's plant, the manufacturer shall afford the inspector representing the purchaser all reasonable facilities to satisfy him that the material is being furnished in accordance with this specification. All tests and inspection shall be so conducted as not to interfere unnecessarily with the operation of the works.

### 9. Rejection

9.1 Material that does not conform to the requirements of this specification may be rejected, and if rejected, shall be replaced by the manufacturer. The full weight of the rejected material shall be returned to the manufacturer.

### 10. Packaging and Package Marking

10.1 The material shall be packaged in such a manner as to prevent damage in ordinary handling and transportation. The type of packing and gross weight of individual containers shall be left to the discretion of the manufacturer unless otherwise agreed upon. Packaging methods and containers shall be so selected as to permit maximum utility of mechanical equipment in unloading and subsequent handling. Each package or



## A 845 – 85 (2000)

container shall contain only one size or grade of material when packed for shipment unless otherwise agreed upon.

10.2 Each package or container shall be marked with the specification number or grade, net weight, and the name of the manufacturer.

10.3 Packages or containers shall be such as to ensure acceptance by common or other carriers for safe transportation at the lowest rate to the point of delivery.

10.4 The weight tolerance of individual packages shall be  $\pm 3\%$ .

*ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility.*

*This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.*

*This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or [service@astm.org](mailto:service@astm.org) (e-mail); or through the ASTM website ([www.astm.org](http://www.astm.org)).*