



Standard Specification for Tantalum and Tantalum Alloy Plate, Sheet, and Strip¹

This standard is issued under the fixed designation B708; 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 unalloyed and alloyed tantalum plate, sheet, and strip as follows.

1.1.1 R05200, unalloyed tantalum, electron-beam furnace or vacuum-arc melt, or both,

1.1.2 R05400, unalloyed tantalum, powder-metallurgy consolidation,

1.1.3 R05255, tantalum alloy, 90 % tantalum, 10 % tungsten, electron-beam furnace or vacuum-arc melt, or both,

1.1.4 R05252, tantalum alloy, 97.5 % tantalum, 2.5 % tungsten, electron-beam furnace or vacuum-arc melt, or both, and

1.1.5 R05240, tantalum alloy, 60 % tantalum, 40 % niobium, electron-beam furnace or vacuum-arc melt.

1.2 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 and/or health problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*²

E8 Test Methods for Tension Testing of Metallic Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E112 Test Methods for Determining Average Grain Size

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

¹ This specification is under the jurisdiction of ASTM Committee B10 on Reactive and Refractory Metals and Alloys and is the direct responsibility of Subcommittee B10.03 on Niobium and Tantalum.

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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.

3.1.1 *annealed material*, *n*—plate, sheet, or strip that has been annealed.

3.1.2 *annealing (annealed)*, *n*—the act of heat treating to soften plate, sheet, or strip.

3.1.3 *lot*, *n*—all material produced from the same ingot or a single powder blend at one time with the same cross section, and with the same nominal metallurgical parameters.

3.1.4 *plate*, *n*—a flat product more than 0.1853 in. (4.7 mm) in thickness.

3.1.5 *sheet*, *n*—a flat product 6 in. (152.4 mm) or more in width and from 0.005 in. (0.13 mm) to 0.1875 in. (4.76 mm) in thickness.

3.1.6 *strip*, *n*—a flat product, may be supplied in coil, less than 6 in. (152.4 mm) in width and from 0.005 in. (0.13 mm) to 0.1875 in. (4.76 mm) in thickness.

4. Classifications

4.1 The strip, sheet or plate is to be furnished in the following grades:

4.1.1 R05200, unalloyed tantalum, electron-beam furnace or vacuum-arc melted, or both,

4.1.2 R05400, unalloyed tantalum, powder-metallurgy consolidation,

4.1.3 R05255, tantalum alloy, 90 % tantalum, 10 % tungsten, electron-beam furnace or vacuum-arc melted, or both,

4.1.4 R05252, tantalum alloy, 97.5 % tantalum, 2.5 % tungsten, electron-beam furnace or vacuum-arc melted, or both,

4.1.5 R05240, tantalum alloy, 60 % tantalum, 40 % niobium, electron-beam furnace or vacuum-arc melted, or both.

4.1.6 For sputtering application see supplemental requirements to grades R05200 and R05400.

5. Ordering Information

5.1 Orders for material under this specification shall include the following information as applicable:

5.1.1 Quantity (weight, number of pieces or other suitable measure of quantity),

5.1.2 Name of material (tantalum plate, sheet, or strip),

5.1.3 Grade (alloy and method of manufacture) (see 4.1.1 – 4.1.6),