



Designation: B 365 – 98

Standard Specification for Tantalum and Tantalum Alloy Rod and Wire¹

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1. Scope

1.1 This specification covers unalloyed and alloyed tantalum rod and wire.

1.2 The materials covered by this specification are:

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

1.2.2 R05400, unalloyed tantalum, powder-metallurgy consolidation,

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

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

1.2.5 R05240 tantalum alloy, 60 % tantalum 40 % columbium, electron-beam furnace or vacuum-arc melt, or both.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 The following precautionary caveat pertains only to the test methods portion, Section 13, of this specification: *This standard does not purport to address all of the safety 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:

E 8 Test Methods for Tension Testing of Metallic Materials²

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *lot*—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.

3.1.2 *rod*—material 0.125 to 2.5 in. (3.18 to 63.50 mm) in diameter in round, hexagonal, or octagonal cross section supplied in straight lengths.

3.1.3 *wire*—material 0.010 to 0.124 in. (0.254 to 3.15 mm) in diameter furnished in coils or on spools or reels. Material less than 0.010 in. in diameter is not covered by this specification.

4. Ordering Information

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

4.1.1 Quantity (weight or number of pieces),

4.1.2 Name of material (tantalum rod or wire),

4.1.3 Type (see 1.2),

4.1.4 Method of manufacture (Section 5),

4.1.5 ASTM designation,

4.1.6 Finish and appearance (Section 9), and

4.1.7 Additions to the specification and supplementary requirements if required.

5. Materials and Manufacture

5.1 Material covered by this specification shall be made from vacuum-arc melted or electron-beam melted ingots or powder-metallurgy consolidated unalloyed tantalum.

5.2 The various tantalum mill products covered by this specification are formed with the conventional extrusion, forming, swaging, rolling, and drawing equipment normally available in metal working plants.

6. Chemical Composition

6.1 The tantalum and tantalum alloy ingots and the tantalum powder-metallurgy consolidated ingots for conversion to finished products covered by this specification shall conform to the requirements for chemical composition as prescribed in Table 1.

6.1.1 Analysis for elements not listed in Table 1 and not normally expected in tantalum shall not be required unless specified at time of purchase.

6.2 The manufacturer's ingot analysis shall be considered the chemical analysis for products supplied under this specification.

¹ This specification is under the jurisdiction of ASTM Committee B-10 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 Annual Book of ASTM Standards, Vol 03.01.

³ Annual Book of ASTM Standards, Vol 14.02.