

APPENDIX 4-A

STORAGE OF TANTALUM - CAPACITOR GRADE

1. *Description*

a. Tantalum is received for storage in the following forms:

(1) Capacitor grade tantalum metal is a silver-colored lustrous metal resembling platinum. It is furnished in slab or in ingot form normal to the producer. Slabs are 2" x 8" x 26" and ingots are 3" to 5" diameter by 20," weighing no more than 250 pounds. Each lot shall weigh from 500 to 1,500 pounds. Slabs or ingots in each lot shall be of the same nominal size and shape.

b. Capacitor grade tantalum powder is a silver gray powder. Each lot shall weigh from 200 to 500 pounds. This will be received as:

(1) High Capacitance Powder - Grade I Low

(2) Capacitance Powder- Grade II

c. When acquired, it shall meet Purchase Specification P-104-R4.

2. *Packaging*

a. Tantalum slabs or ingots will be received for storage as follows: Each slab or ingot will be placed in a heat sealed polyethylene bag not less than 0.004 inch in thickness. Each lot will be packed in one or more new wooden boxes, which shall be equal to Style B, Type III Federal Specification PPP-B-601a, Boxes, Wood, Cleated-Plywood, except the plywood shall be not less than 1/2" thick, and 2" x 4" material shall be used for the skids. The boxes should not exceed approximately 500 pounds gross weight and only slabs or ingots from the same lot will be placed in a box. All boxes of slabs or ingots under the same contract shall be of the same nominal size and shape.

b. Tantalum powder will be received for storage packed in new one-quart polyethylene bottles. Each bottle shall contain 10 pounds of tantalum powder which has been treated with argon gas. Twelve bottles (3 rows of 4) shall be packed in new wooden boxes equal to the requirements for Style B, Type III, Class I, Federal Specification PPP-B-601a, Boxes, Wood, Cleated-Plywood.

3. *Marking*

a. *Slabs and Ingots*. Prior to receipt, one side of each box shall be permanently and legibly marked with capital letters. The letters will not be less than 3/4 inch. The markings shall include the following:

(1) Name and Grade of Product

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- (2) Name of Producer
- (3) Country of Origin
- (4) Month and Year Produced
- (5) Number and Slabs or Ingots
- (6) Gross and Net Weight
- (7) Government Contract Number
- (8) Manufacturer's Lot Number
- (9) Ingot Serial Number (e.g., 1/20, 2/20, etc.)

b. In addition, each slab or ingot shall have the manufacturer's identification, lot number and ingot serial numbers tamped on one end. The top of each box shall be stenciled, "This Side Up." A waterproof envelope containing a document in permanent ink, showing the slabs or ingots in the box, shall be fastened to the end of the box. A duplicate waterproof envelope containing a document showing slabs or ingots in the box shall be placed in each box.

c. *Powder.* Prior to receipt, each box containing bottles of tantalum powder shall be permanently and legibly marked by firmly attaching an aluminum tag to the outside of one end of the box. The tag shall be not less than 3" x 5" on which shall be stamped or die marked in capital letters of equal height, the following:

- (1) Name and Grade of Product
- (2) Name of Producer
- (3) Country of Origin
- (4) Month and Year Produced
- (5) Maximum Sieve Size
- (6) Number of Bottles
- (7) Gross and Net Weight

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- (8) Government Contract Number
- (9) Manufacturer's Lot Number
- (10) Ingot Serial Number (e.g., 1/20, 2/20, etc.)

(a) Each tag shall also be permanently marked to show the leakage capacitance and dissipater factor of the tantalum powder in the box. A duplicate tag shall be firmly attached to the inside of the end of the box that does not bear the outside tag.

d. Identification of the material will be obtained from documents accompanying each shipment and on shipping instructions issued by the DNSC. The DNSC shall be notified immediately if shipments are received prior to receipt of identifying documents, if shipments are received without identifying marks, or if the markings are not in agreement with those shown on the documents and/or shipping instructions.

4. *Storage*

a. Tantalum slabs, ingots and powder shall be stored in a secured warehouse section. When any part of the enclosure, including roofs, is other than fire-resistant, the space selected must be sprinklered.

b. Storage integrity shall be maintained for each lot by contract number, grade and lot numbers reflected on Warehouse Material Identification Cards, DNSC Form 41. Complete descriptions of each lot shall be indicated on the Warehouse Material Identification Card which shall be prominently displayed and securely attached to each lot in a stack. DNSC forms 41, which are specifically designed for use with Stockpile material, will be furnished to military depots upon request.

c. Boxes shall be stored in uniform rows and tiers so as to facilitate the taking of inventory at any time by a physical count and computation. Floor pallets will be used under all stacks. Boxes containing slabs or ingots will be equipped with 2" x 4" skids. Pallets will not be used in the upper stacks. However, either pallets or dunnage shall be used between tiers of boxes containing powder.

d. Materials will be stored at least 36 inches below automatic sprinkler heads (if any) and overhead structural members. Aisles 24 inches wide shall be maintained between storage stacks and walls for inspection purposes.

APPENDIX 4-A**STORAGE OF TANTALUM - CAPACITOR GRADE***5. Precautions To Be Taken*

a. *Health.* Tantalum minerals, concentrates, and metals may be slightly radioactive, if so follow DNSC radiation protection program to insure safe handling of this material..

b. *General.* Rough handling may cause extensive damage to boxes. When being received, if any box shows identification of damage, which may have abraded the polyethylene covering of the slabs or ingots or damaged the foil box liner or the bottles containing the powder, the box shall be opened to determine the extent of such damage. If no damage was sustained by the inner container, the box shall be returned as nearly as possible to its original condition prior to being placed in permanent storage. Severe damage, of course, shall be reported in the usual manner through the media of an Transportation Discrepancy Report. Proper care shall be exercised in handling and shipping to avoid damage.

7. Average Storage Factor

10 square feet per short ton.

FOR ADDITIONAL INFORMATION ON THIS COMMODITY REFER TO THE MATERIAL SAFETY DATA SHEET OR THE MOST RECENT PURCHASE SPECIFICATION.