DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD, SUITE 4616
FT. BELVOIR, VIRGINIA 22060-6223

NOV 15 2001

AMENDMENT NO. 004
TO
SOLICITATION OF OFFERS FOR
TANTALUM
UNDER
DLA-TANTALUM METAL VACUUM GRADE-001

The above referenced Solicitation for the sale of tantalum metal, vacuum grade is hereby amended to offer Fiscal Year (FY) 2002 quantities of material for sale, to update the listing of material available for sale, to identify the certifications that must be submitted at each offering, update the item offer page, to announce the first offering date in FY 2002 and to add additional clauses.

1. Amendment No. 003 to the subject solicitation no longer applies and is hereby deleted in its entirety.

2. The attached Section **I.2 ITEM OFFER PAGES – DLA-TANTALUM METAL, VACUUM GRADE-001 (FEB 01)** replaces Section **I.2 ITEM OFFER PAGES – DLA-TANTALUM METAL, VACUUM GRADE-001 (NOV 01)** with an updated listing of material available for sale. All references in the Solicitation to Section I.2 are hereby updated accordingly.

3. **Delete**: Section A.1 and replace it with the following:

   a. The Defense Logistics Agency (DLA) is soliciting offers for the sale of approximately 20,421 pounds of contained tantalum metal ingot (LBTa) in Fiscal Year (FY) 2002. The initial FY 2002 offering will be held on November 30, 2001 at 1:00 PM, local time, Ft. Belvoir, VA. If all material is not sold, subsequent offerings will be held on a quarterly basis on the fourth Monday of the second month of the quarter beginning on February 26, 2002. Offers must be received at the address in Section B.2.a by 1:00 PM, local time, Ft. Belvoir, VA. In the event a day scheduled for receipt of offers is a holiday or DNSC is otherwise closed at the time set for opening of offers, offers for that day will be received at 1:00 PM, local time, Ft. Belvoir, VA on the next DNSC business day.

4. a. **Delete**: Paragraph b of Section A.2 Description (JAN 95) in its entirety and replace it with the following as certificates of analysis are included in this Amendment at Section J.6:

   b. Government analyses indicate that the material conforms to the data listed in Paragraph A.2.a, Section I.2, Section J.1, and Section J.6 Certificates of Analysis. The original certificate of analysis will be provided to the Contractor upon award. However, no warranty or guarantee is made that the material so conforms or that it will be suitable for any particular purpose.

5. **Add paragraph:** A.3 Foreign Trade Statistics Regulations (MAY 2001)

1. The Contractor shall determine any export license requirements, obtain any export license or other official authorization required for export, and carry out any U.S. Customs formalities for the export of any material awarded under this Solicitation.

2. The Contractor shall comply with United States Bureau of Export Administration Foreign Trade Statistics and Export Administration Regulations as set forth in 15 CFR Parts 30 and 732 (as amended by 65 FR 42556-42575, July 10, 2000 or any subsequent rule making).

3. If the Contractor is not a United States domestic entity or does not have a physical presence in the United States, and the material is to be exported, the Contractor shall either --

a. Engage a United States forwarding agent or other agent in accordance with 15 CFR 30.4(a) and (c); or
b. Engage a United States Order Party, in accordance with 15 CFR 30.4(a)(1)(iii), to conduct all negotiations, correspondence, and arrangements for sale, and to arrange for export of the material purchased.

4. The Defense National Stockpile Center shall not be named as the United States Principal Party in Interest and will not execute the Shipper's Export Declaration required by the Foreign Trade Statistics regulations.

6. The above referenced solicitation is hereby amended to revise Section G.2 Title (OCT 2001) as follows:

Delete: "Title to the material shall pass to the Contractor upon execution of the contract"...

Insert: "Title to the material shall pass to the Contractor upon payment or shipment of material, whichever comes first"...

7. Offerors shall acknowledge receipt of this Amendment by signing in the space provided below and returning this form to the following address: Offerors may also submit this form to DNSC-C via facsimile at (703) 767-5541.

Defense National Stockpile Center
ATTN: Bid Custodian (DNSC-L)
8725 John J. Kingman Road
Suite 4616 (Mail) or Suite 4528 (Hand Delivered)
Fort Belvoir, VA 22060-6223

Failure to acknowledge receipt of this Amendment may result in the Offeror being ineligible for award.

Except as provided herein, all other terms and conditions of DLA-TANTALUM METAL, VACUUM GRADE-001 remain unchanged and in full force and effect.

Name of Firm: _____

Address: _____

_____

Signature: _____

Title: _____

Date: _____

ITEM NO.	STORAGE LOCATION	LOT/INGOT NUMBER	NO. OF pieces Cradle	PRODUCER	QUANTITY Tantalum (Ta) Net Wt. (lbs.)	UNIT PRICE	TOTAL PRICE
2	Binghamton, NY	ETA 911 R1	2	H.C.STARK DOMESTIC	2,279.00	$	$
3	Binghamton, NY	ETA 912 R1	2	H.C.STARK DOMESTIC	2,307.20	$	$
4	Binghamton, NY	ETA 913 R1	2	H.C.STARK DOMESTIC	2,237.60	$	$
5	Binghamton, NY	ETA 914R1	2	H.C.STARK DOMESTIC	2,339.40	$	$
6	Binghamton, NY	ETA 915 R1	2	H.C.STARK DOMESTIC	2,224.40	$	$
9	Binghamton, NY	ETA 918 R1	2	H.C.STARK DOMESTIC	2,256.60	$	$
10	Binghamton, NY	ETA 921 R1	2	H.C.STARK DOMESTIC	2,305.00	$	$
12	Binghamton, NY	ETA 923 R1	2	H.C.STARK DOMESTIC	2,213.60	$	$
13	Binghamton, NY	ETA 924 R1	2	H.C.STARK DOMESTIC	2,310.40	$	$
15	Binghamton, NY	ETA 926 R1	2	H.C.STARK DOMESTIC	2,279.40	$	$
16	Binghamton, NY	ETA 958 R1	2	H.C.STARK DOMESTIC	2,189.40	$	$
17	Binghamton, NY	ETA 959 R1	2	H.C.STARK DOMESTIC	2,226.80	$	$
19	Binghamton, NY	ETA 963 R1	2	H.C.STARK DOMESTIC	2,227.40	$	$
20	Binghamton, NY	ETA 964R1	2	H.C.STARK DOMESTIC	2,284.80	$	$
21	Binghamton, NY	ETA 965 R1	2	H.C.STARK DOMESTIC	2,288.00	$	$
22	Binghamton, NY	ETA 966 R1	2	H.C.STARK DOMESTIC	2,252.60	$	$

Offeror Initials and Date _____

ITEM NO.	STORAGE LOCATION	LOT/INGOT NUMBER	NO. OF pieces Cradle	PRODUCER	QUANTITY Tantalum (Ta) Net Wt. (lbs.)	UNIT PRICE	TOTAL PRICE
23	Binghamton, NY	ETA 967 R1	2	H.C.STARK DOMESTIC	2,266.60	$	$
24	Binghamton, NY	ETA 968 R1	2	H.C.STARK DOMESTIC	2,292.60	$	$
25	Binghamton, NY	ETA 969 R1	2	H.C.STARK DOMESTIC	2,249.00	$	$
26	Binghamton, NY	ETA 971 R1	2	H.C.STARK DOMESTIC	2,379.80	$	$
27	Binghamton, NY	ETA 972 R1	2	H.C.STARK DOMESTIC	2,312.60	$	$
28	Binghamton, NY	ETA 973 R1	2	H.C.STARK DOMESTIC	2,272.40	$	$
32	Binghamton, NY	ETA 977 R1	2	H.C.STARK DOMESTIC	2,285.60	$	$
34	Binghamton, NY	ETA 979 R1	2	H.C.STARK DOMESTIC	2,331.80	$	$
36	Binghamton, NY	ETA 981 R1	2	H.C.STARK DOMESTIC	2,284.40	$	$
39	Binghamton, NY	ETA 1024 R1	2	H.C.STARK DOMESTIC	2,213.60	$	$
40	Binghamton, NY	ETA 1025 R1	2	H.C.STARK DOMESTIC	2,312.60	$	$
41	Binghamton, NY	ETA 1026 R1	2	H.C.STARK DOMESTIC	2,273.20	$	$
42	Binghamton, NY	ETA 1028 R1	2	H.C.STARK DOMESTIC	2,172.80	$	$

Offeror Initials and Date _____

ITEM NO.	STORAGE LOCATION	LOT/INGOT NUMBER	NO. OF pieces Cradle	PRODUCER	QUANTITY Tantalum (Ta) Net Wt. (lbs.)	UNIT PRICE	TOTAL PRICE
43	Binghamton, NY	ETA 1029 R1	2	H.C.STARK DOMESTIC	2,244.00	$	$
44	Binghamton, NY	ETA 1030 R1	2	H.C.STARK DOMESTIC	2,257.80	$	$
45	Binghamton, NY	ETA 1031 R1	2	H.C.STARK DOMESTIC	2,291.20	$	$
48	Binghamton, NY	TA 80490-2	2	CABOT CORP. DOMESTIC	3,142.00	$	$
49	Binghamton, NY	TA 80508-3	2	CABOT CORP. DOMESTIC	3,454.00	$	$
52	Binghamton, NY	TA 80576-2	2	CABOT CORP. DOMESTIC	3,398.00	$	$
53	Binghamton, NY	TA 80595-2	2	CABOT CORP. DOMESTIC	3,220.00	$	$
54	Binghamton, NY	TA 80598-2	2	CABOT CORP. DOMESTIC	3,171.00	$	$
56	Binghamton, NY	TA 80625-3	2	CABOT CORP. DOMESTIC	3,238.00	$	$
68	Binghamton, NY	TA 80655-2	2	CABOT CORP. DOMESTIC	3,265.00	$	$
71	Binghamton, NY	TA 80668-2	2	CABOT CORP. DOMESTIC	3,236.00	$	$
73	Binghamton, NY	TA 80671-2	2	CABOT CORP. DOMESTIC	3,215.00	$	$
76	Binghamton, NY	TA 80687-2	2	CABOT CORP. DOMESTIC	3,208.00	$	$
77	Binghamton, NY	TA 80688-2	2	CABOT CORP. DOMESTIC	3,287.00	$	$
78	Binghamton, NY	TA 80690-2	2	CABOT CORP. DOMESTIC	3,141.00	$	$
80	Binghamton, NY	TA 80693-3	2	CABOT CORP. DOMESTIC	3,157.00	$	$

Offeror Initials and Date _____

ITEM NO.	STORAGE LOCATION	LOT/INGOT NUMBER	NO. OF pieces Cradle	PRODUCER	QUANTITY Tantalum (Ta) Net Wt. (lbs.)	UNIT PRICE	TOTAL PRICE
81	Binghamton, NY	TA 80705-2	2	CABOT CORP. DOMESTIC	3,203.00	$	$
83	Binghamton, NY	TA 80709-2	2	CABOT CORP. DOMESTIC	3,110.00	$	$
84	Binghamton, NY	TA 80712-3	2	CABOT CORP. DOMESTIC	3,407.00	$	$
85	Binghamton, NY	TA 80713-2	2	CABOT CORP. DOMESTIC	3,129.00	$	$
86	Binghamton, NY	TA 80714-2	2	CABOT CORP. DOMESTIC	3,176.00	$	$
87	Binghamton, NY	TA 80715-2	2	CABOT CORP. DOMESTIC	3,286.00	$	$
88	Binghamton, NY	TA 80719-2	2	CABOT CORP. DOMESTIC	3,300.00	$	$
89	Binghamton, NY	TA 80722-2	2	CABOT CORP. DOMESTIC	3,299.00	$	$
		TOTAL			140,703.60		

Offeror Initials and Date _____

MINIMUM OFFER QUANTITY - ONE ITEM
MAXIMUM OFFER QUANTITY - 20,421 LBS. CONTAINED Ta (STOCKPILE WT.)

COMPANY NAME: _____

SIGNATURE: _____

DATE: _____

NAME AND TITLE: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

J.6 CERTIFICATES OF ANALYSIS

A Miles Inc. Company

H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

UNS R05200

TANTALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 02143

Date: 23 April 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.		Tantalum Ingot	2279.0	ETA911-R1
	2		2307.2	ETA912-R1
	2	Detailed description page 2		

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 2. Ingot No. ETA911-R1	ITEM 3 Ingot No. ETA912-R1
Ta %	99.94	99.91
O	.0062	.0094
N	.0010	.0008
C	.0012	.0031
S	<.0005	<.0005
H	.0002	.0018
Fe	.0006	.0020
Ni	<.0005	<.0005
Cu	.0004	.0009
Si	<.0008	<.0008
Mn	<.0010	<.0010
Mo	.0087	.0190
W	.0103	.0183
Ti	<.0005	<.0005
Nb	.0146	.0157
Al	<.0010	<.0010
Sb	<.0020	<.0020
Hf	<.0020	<.0020
Re	<.0100	<.0100
Ag	<.0005	<.0005
Sn	<.0010	<.0010
Zr	<.0010	<.0010
Bi	<.0001	<.0001
Se	<.0001	<.0001
Te	<.0001	<.0001
Pb	<.00001	<.00001
Tl	.00002	<.00001

QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

H.C. Starck
HCST
A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

UNS R05200

ANTALUM MATERIAL CERTIFICATION

Date: 23 April 1993
Material: Tantalum Ingot
Condition:

ustomer: Defense Logistics Agency
ontract No.: DLA300-92-C-0056
CST Order No.: 02143

n	Pcs.	Description	Weight	Ingot
	2	Tantalum Ingot	2237.6 Lbs	ETA913-R1
	2		2339.4	ETA914-R1
	2		2224.4	ETA915-R1

Detailed description page 2

aranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

EMICAL ANALYSIS IN PERCENT OF WEIGHT:

EMENT	ITEM 4 Ingot No. ETA913-R1	ITEM 5 Ingot No. ETA914-R1	ITEM 6 Ingot No. ETA915-R1
Ta %	99.93	99.95	99.92
O	.0022	.0010	.0044
N	.0016	.0008	.0018
C	.0050	.0031	.0048
S	<.0005	<.0005	<.0005
H	.0011	<.0001	.0002
Fe	<.0005	.0009	<.0005
Ni	<.0005	<.0005	<.0005
Cu	.0023	.0002	.0023
Si	<.0008	<.0008	<.0008
Mn	<.0010	<.0010	<.0010
Mo	.0087	.0026	.0138
W	.0171	.0084	.0138
Ti	.0006	<.0005	<.0086
Nb	.0109	.0114	.0222
Al	<.0010	<.0010	<.0010
Sb	<.0020	<.0020	<.0020
Hf	<.0020	<.0020	<.0020
Re	<.0100	<.0100	<.0100
Ag	<.0005	<.0005	<.0005
Sn	<.0010	<.0010	<.0010
Zr	<.0010	<.0010	<.0010
Bi	<.0001	<.0001	<.0001
Se	<.0001	<.0001	<.0001
Te	<.0001	<.0001	<.0001
Pb	.00001	<.00001	.00002
Tl	<.00001	<.00001	<.00001

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ASSURANCE DEPT

A Mitsui Company
H. C. Starck Inc
45 Industrial Place
Newton, MA 02161-1951 - USA
Tel (617) 960-7690

UNS R05200

TANTALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 02142

Date: 23 April 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.		Tantalum Ingot	2256.6	ETA918-
	2	Detailed description page 2		

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WE

ITEM 9

ELEMENT	Ingot No. ETA918-R1
Ta %	99.94
O	.0034
N	.0016
C	<.0005
S	<.0005
H	.0002
Fe	<.0005
Ni	<.0005
Cu	.0011
Si	<.0008
Mn	<.0010
Mo	.0008
W	.0152
Ti	<.0005
Nb	.0116
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Zr	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	<.00001
Tl	<.0.0001

QUALITY ASSURANCE

Shipment No. 1

NRC™ tantalum and niobium products

H.C. Starck

A Miles Inc. Company

H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

UNS R05200

TANTALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 02142

Date: 23 April 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	2	Tantalum Ingot	2305.0 Lbs	ETA921-R1
	2		2213.6	ETA923-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 1CP Ingot No. ETA921-R1	ITEM 12 Ingot No. ETA923-R1
Ta %	99.95	99.91
O	.0020	.0124
N	.0010	.0014
C	.0024	.0009
S	<.0005	<.0005
H	<.0001	<.0001
Fe	<.0005	<.0005
Ni	<.0005	<.0005
Cu	.0014	.0001
Si	<.0008	<.0008
Mn	<.0010	<.0010
Mo	.0015	.0024
W	.0078	.0102
Ti	<.0005	<.0005
Nb	.0105	.0363
Al	<.0010	<.0010
Sb	<.0020	<.0020
Hf	<.0020	<.0020
Re	<.0100	<.0100
Ag	<.0005	<.0005
Sn	<.0010	<.0010
Zr	<.0010	<.0010
Bi	<.0001	<.0001
Se	<.0001	<.0001
Te	<.0001	<.0001
Pb	<.00001	.00001
Tl	<.00001	<.00001

Shipment No. 1

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

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45 Industrial Place
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Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 02142

Date: 23 April 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	2	Tantalum Ingot	2310.4 Lbs	ETA924-R
	2		2279.4	ETA926-R

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 13 Ingot No. ETA924-R1	ITEM 15 Ingot No. ETA926-R1
Ta %	99.93	99.92
O	.0020	.0064
N	.0018	.0024
C	.0008	.0011
S	<.0005	<.0005
H	<.0001	<.0001
Fe	.0010	.0040
Ni	<.0005	<.0005
Cu	.0006	.0006
Si	<.0008	<.0008
Mn	<.0010	<.0010
Mo	.0007	.0007
W	.0075	.0177
Ti	<.0005	<.0005
Nb	.0287	.0257
Al	<.0010	<.0010
Sb	<.0020	<.0020
Hf	<.0020	<.0020
Re	<.0100	<.0100
Ag	<.0005	<.0005
Sn	<.0010	<.0010
Zr	<.0010	<.0010
Bi	<.0001	<.0001
Se	<.0001	<.0001
Te	<.0001	<.0001
Pb	<.00001	.00001
Tl	<.00001	<.00001

Shipment No. 1

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

H.C. Starck
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A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 03563

Date: 27 July 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6563.2 Lbs	ETA958-R1 ETA959-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 16 Ingot No.	ITEM 17 Ingot No.
	ETA958-R1	ETA959-R1
Ta %	99.95	99.95
O	.0018	.0011
N	.0008	.0009
C	.0005	<.0005
S	<.0005	<.0005
H	<.0001	<.0001
Fe	<.0005	<.0005
Ni	<.0005	<.0005
Cu	.0008	.0003
Si	<.0008	<.0008
Mn	<.0010	<.0010
Mo	<.0005	<.0005
W	.0139	.0149
Ti	<.0005	<.0005
Nb	.0079	.0095
Al	<.0010	<.0010
Sb	<.0020	<.0020
Hf	<.0020	<.0020
Re	<.0100	<.0100
Ag	<.0005	<.0005
Sn	<.0010	<.0010
Zr	<.0010	<.0010
Bi	<.0001	<.0001
Se	<.0001	<.0001
Te	<.0001	<.0001
Pb	<.00001	<.00001
Tl	<.00001	<.00001

Shipment No. 1

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

H.C. Starck
HCST
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H. C. Starck Inc.
45 Industrial Place
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Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 03562

Date: 27 July 1993
Material: Tantalum Ingot
Condition:

Item#	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6800.2 Lbs	ETA963-R1 ETA964-R1 ETA965-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 26 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 19 Ingot No. ETA963-R1	ITEM 20 Ingot No. ETA964-R1	ITEM 21 Ingot No. ETA965-R1
Ta %	99.95	99.95	99.95
O	.0056	.0087	.0074
N	.0014	.0015	.0011
C	.0007	.0005	<.0005
S	<.0005	<.0005	<.0005
H	.0001	.0001	.0001
Fe	<.0005	<.0005	<.0005
Ni	<.0005	<.0005	.0006
Cu	<.0001	.0003	.0003
Si	<.0008	<.0008	<.0008
Mn	<.0010	<.0010	<.0010
Mo	<.0005	<.0005	.0012
W	.0058	<.0040	<.0040
Ti	<.0005	<.0005	<.0005
Nb	.0148	.0148	.0140
Al	<.0010	<.0010	<.0010
Sb	<.0020	<.0020	<.0020
Hf	<.0020	<.0020	<.0020
Re	<.0100	<.0100	<.0100
Ag	<.0005	<.0005	<.0005
Sn	<.0010	<.0010	<.0010
Zr	<.0010	<.0010	<.0010
Bi	<.0001	<.0001	<.0001
Se	<.0001	<.0001	<.0001
Te	<.0001	<.0001	<.0001
Pb	<.00001	<.00001	<.00001
Tl	<.00001	<.00001	<.00001

Shipment No. 1

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

H.C. Starck
HCST
A Miles Inc. Company

H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 03563

Date: 27 July 1993
Material: Tantalum Ingot
Condition:

tem	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6811.8 Lbs	ETA966-R2 ETA967-R1 ETA968-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 22 Ingot No.	ITEM 23 Ingot No.	ITEM 24 Ingot No.
	ETA966-R2	ETA967-R1	ETA968-R1
Ta %	99.96	99.95	99.94
O	.0036	.0024	.0048
N	.0018	.0010	.0018
C	<.0005	.0034	.0008
S	<.0005	<.0005	<.0005
H	<.0001	.0009	.0006
Fe	<.0005	<.0005	<.0005
Ni	.0007	.0010	.0007
Cu	<.0001	.0002	.0001
Si	<.0008	<.0008	<.0008
Mn	<.0010	<.0010	<.0010
Mo	.0008	.0008	<.0005
W	<.0040	<.0040	<.0040
Ti	<.0005	<.0005	<.0005
Nb	.0116	.0158	.0261
Al	<.0010	<.0010	<.0010
Sb	<.0020	<.0020	<.0020
Hf	<.0020	<.0020	<.0020
Re	<.0100	<.0100	<.0100
Ag	<.0005	<.0005	<.0005
Sn	<.0010	<.0010	<.0010
Zr	<.0010	<.0010	<.0010
Bi	<.0001	<.0001	<.0001
Se	<.0001	<.0001	<.0001
Te	<.0001	<.0001	<.0001
Pb	<.00001	<.00001	<.00001
Tl	<.00001	<.00001	<.00001

Shipment No.

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

H.C. Starck
HCST
A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 03563

Date: 27 July 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6834.0 Lbs	ETA969- ETA972- ETA973-

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	Ingot No. ITEM 25 ETA969-R1
Ta %	99.94
O	.0098
N	.0020
C	.0007
S	<.0005
H	<.0001
Fe	<.0005
Ni	<.0005
Cu	<.0001
Si	<.0008
Mn	<.0010
Mo	<.0005
W	<.0040
Ti	<.0005
Nb	.0238
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Ir	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	<.00001
Tl	<.00001

Shipment No. 1

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

A Miles Inc. Company

H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

UNS R05200

TANTALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 03996

Date: 10 September 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6901.6 Lbs	ETA971-R1 ETA974-R1 ETA975-R2

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	Ingot No. ITEM 26 ETA971-R1
Ta %	99.94
O	.0077
N	.0022
C	.0008
S	<.0005
H	<.0001
Fe	<.0005
Ni	<.0005
Cu	.0003
Si	<.0008
Mn	<.0010
Mo	.0017
W	.0159
Ti	<.0005
Nb	.0132
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Zr	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	<.00001
Tl	<.00001

QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

** TOTAL PAGE.002

H.C. Starck
HCST
A Miles Inc. Company

H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 03863

Date: 27 July 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6834.0 Lbs	ETA969-R1 ETA972-R1 ETA973-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ETA 27 Ingot No. ETA972-R1
Ta %	99.96
O	.0010
N	.0008
C	.0008
S	<.0005
H	<.0001
Fe	<.0005
Ni	.0007
Cu	<.0001
Si	<.0008
Mn	<.0010
Mo	.0008
W	<.0040
Ti	<.0005
Nb	.0116
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Zr	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	<.00001
Tl	<.00001

Shipment No. 1

NRC™

QUALITY ASSURANCE DEPT.

H.C. Starck
HCST
A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

TANTALUM MATERIAL CERTIFICATION

UNS R05200

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 03563

Date: 27 July 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6834.0 Lbs	ETA969- ETA972- ETA973-

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ITEM 2B

ELEMENT	Ingot No. ETA973-R1
Ta %	99.96
O	.0063
N	.0012
C	.0006
S	<.0005
H	<.0001
Fe	<.0005
Ni	<.0005
Cu	<.0001
Si	<.0008
Mn	<.0010
Mo	<.0005
W	<.0040
Ti	<.0005
Nb	.0071
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Zr	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	<.00001
Tl	<.00001

QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

H.C. Starck
HCST
A Miles Inc. Company

H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

UNS R05200

TANTALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 03896

Date: 10 September 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	6	Tantalum Ingot	6605.4 Lbs	ETA977-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ITEM 32

ELEMENT	Ingot No. ETA977-R1
Ta %	99.95
O	.0037
N	.0012
C	<.0005
S	<.0005
H	.0001
Fe	.0028
Ni	<.0005
Cu	.0002
Si	<.0006
Mn	<.0010
Mo	<.0005
W	.0046
Ti	<.0005
Nb	.0140
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Zr	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	<.00001
Tl	<.00001

QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

** TOTAL PAGE.002

H.C. Starck
HCST
A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 969-7690

UNS R05200

TANTALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0058
HCST Order No.: 03896

Date: 10 September 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.*	6	Tantalum Ingot	6874.6 Lbs	ETA979-R1 ETA980-R1 ETA981-R1

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 34 Ingot No. ETA979-R1	ITEM 36 Ingot No. ETA981-R1
Ta %	99.96	99.98
O	.0030	.0082
N	.0016	.0009
C	<.0005	.0006
S	<.0005	<.0005
H	.0001	.0005
Fe	.0054	.0017
Ni	<.0005	.0006
Cu	.0003	<.0001
Si	<.0008	<.0008
Mn	<.0010	<.0010
Mo	.0006	.0010
W	<.0040	<.0040
Ti	<.0005	<.0005
Nb	.0043	.0035
Al	<.0010	<.0010
Sb	<.0020	<.0020
Hf	<.0020	<.0020
Re	<.0100	<.0100
Ag	<.0005	<.0005
Sn	<.0010	<.0010
Zr	<.0010	<.0010
Bi	<.0001	<.0001
Se	<.0001	<.0001
Te	<.0001	<.0001
Pb	<.00001	<.00001
Tl	<.00001	<.00001

Shipment No. 1

QUALITY ASSURANCE DEPT.

NRC™ tantalum and niobium products

** TOTAL PAGE.002

1. Tantalum Ingot

2 Detailed description page 2

2213.6 ETA1024-R

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ITEM 39

ELEMENT	Ingot No. ETA1024-R1
Ta %	99.94
O	.0081
N	.0017
C	.0030
S	<.0005
H	.0003
Fe	.0028
Ni	.0010
Cu	.0012
Si	<.0008
Mn	<.0010
Mo	.0023
W	<.0040
Ti	<.0005
Nb	.0146
Al	<.0010
Sb	<.0020
Hf	<.0020
Re	<.0100
Ag	<.0005
Sn	<.0010
Zr	<.0010
Bi	<.0001
Se	<.0001
Te	<.0001
Pb	.00001
Tl	<.00001

RAWilson

QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

HCST
A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 630-5800

UNS R05200

TALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 05098

Date: 22 December 1993
Material: Tantalum Ingot
Condition:

tem	Pcs.	Description	Weight	Ingot
1.	2	Tantalum Ingot	2312.6 Lbs	ETA1025-R
	2		2273.2	ETA1026-R
	2		2172.8	ETA1028-R

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 40 Ingot No. ETA1025-R1	ITEM 41 Ingot No. ETA1026-R1	ITEM 42 Ingot No. ETA1028-R1
Ta %	99.93	99.92	99.97
O	.0052	.0044	.0025
N	.0018	.0016	.0010
C	.0051	.0014	.0012
S	<.0005	<.0005	<.0005
H	.0001	<.0001	.0003
Fe	.0010	.0016	<.0005
Ni	.0014	<.0005	<.0005
Cu	<.0001	.0015	.0005
Si	<.0008	<.0008	<.0008
Mn	<.0010	<.0010	<.0010
Mo	.0021	.0034	.0012
W	.0168	.0142	.0081
Ti	<.0005	<.0005	<.0005
Nb	.0187	.0346	.0072
Al	<.0010	<.0010	<.0010
Sb	<.0020	<.0020	<.0020
Hf	<.0020	<.0020	<.0020
Re	<.0100	<.0100	<.0100
Ag	<.0005	<.0005	<.0005
Sn	<.0010	<.0010	<.0010
Zr	<.0010	<.0010	<.0010
Bi	<.0001	<.0001	<.0001
Se	<.0001	<.0001	<.0001
Te	<.0001	<.0001	<.0001
Pb	<.00001	<.00001	<.00001
Tl	<.00001	<.00001	<.00001

R A Miller
QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

DLA FORM 111 PREVIOUS EDITION MAY BE

H.C. Starck HCST
A Miles Inc. Company
H. C. Starck Inc.
45 Industrial Place
Newton, MA 02161-1951 / USA
Tel. (617) 630-5800

UNS R05200

TALUM MATERIAL CERTIFICATION

Customer: Defense Logistics Agency
Contract No.: DLA300-92-C-0056
HCST Order No.: 05098

Date: 22 December 1993
Material: Tantalum Ingot
Condition:

Item	Pcs.	Description	Weight	Ingot
1.	2	Tantalum Ingot	2244.0 Lbs	ETA1029-1
	2		2257.8	ETA1030-1
	2		2291.2	ETA1031-

Detailed description page 2

Guaranteed to Conform to SPECIFICATION: P-117 Dated 20 May 1992

CHEMICAL ANALYSIS IN PERCENT OF WEIGHT:

ELEMENT	ITEM 43 Ingot No. ETA1029-R1	ITEM 44 Ingot No. ETA1030-R1	ITEM 45 Ingot No. ETA1031-R1
Ta %	99.91	99.96	99.96
O	.0038	.0069	.0054
N	.0009	.0014	.0019
C	.0027	.0005	.0006
S	<.0005	<.0005	<.0005
H	.0001	<.0001	<.0001
Fe	.0006	<.0005	<.0005
Ni	<.0005	<.0005	<.0005
Cu	.0005	.0013	<.0001
Si	<.0008	<.0008	<.0008
Mn	<.0010	<.0010	<.0010
Mo	.0019	.0020	.0012
W	.0182	.0072	.0068
Ti	<.0005	<.0005	<.0005
Nb	.0344	.0035	.0011
Al	<.0010	<.0010	<.0010
Sb	<.0020	<.0020	<.0020
Hf	.0026	<.0020	<.0020
Re	<.0100	<.0100	<.0100
Ag	<.0005	<.0005	<.0005
Sn	<.0010	<.0010	<.0010
Zr	<.0010	<.0010	<.0010
Bi	<.0001	<.0001	<.0001
Se	<.0001	<.0001	<.0001
Te	<.0001	<.0001	<.0001
Pb	<.00001	<.00001	<.00001
Tl	<.00001	<.00001	<.00001

QUALITY ASSURANCE DEPT.

Shipment No. 1

NRC™ tantalum and niobium products

9/22/94 9/29/94

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0001
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80490 Material: TANTALUM Temper:

ITEM 4B

CHEMISTRY:

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	15
O	45	Si	<5	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.99%	Cr	<5	Mg	<5
Nb	60	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	10	Al	<5		
Ag	5	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<5	S	<10
Cd	<10	Tl	<5	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 8.8125"/8.320"/9.265" x 39.0" Long
B 9.030"/9.035"/9.030" x 43.50" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 08-30-94

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0002
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80508 Material: TANTALUM Temper:

ITEM 49

CHEMISTRY:

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	10
O	75	Si	30	Cu	<5
N	15	Sn	<5	Zr	<5
H	<5	Ni	15	Co	<5
Ta	99.98%	Cr	10	Mg	<5
Nb	100	Ca	<5	B	1
Ti	<5	Na	N.D.	W	25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<5	S	<10
Cd	<10	Tl	<5	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.525"/9.515"/9.500" x 40.3750" Long
B 9.487"/9.490"/9.503" x 40.3750" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicab

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 09-08-94

No. 13401

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0004
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80576 Material: TANTALUM Temper:

CHEMISTRY: ITEM 52

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	<5
O	55	Si	20	Cu	10
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	40	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	50
Fe	5	Al	<5		
Ag	3	Hf	<25	V	<5
Sb	<5	Pb	2	Zn	<25
As	<5	Re	<10	P	<5
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	<100

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.200"/9.205"/9.225" x 42" Long
B 9.370"/9.235"/9.310" x 42" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 02-06-95

No. 15277

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0004
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80595 Material: TANTALUM Temper:

HEMISTRY: ITEM 53

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	10
O	10	Si	<5	Cu	<5
N	15	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.99%	Cr	<5	Mg	<5
Nb	30	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

MMENTS:

DIMENSIONS:
A 9.194"/9.148"/9.139" x 40.250" Long
B 9.323"/8.776"/9.300" x 40.8750" Long

te N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

his document certifies that the above aterial conforms to the requirements of our order and your specification.

Authorized Signature

pecification:
117 Dated May 20, 1992

Date: 02-06-95

15279

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

stomer: Defense Logistics Agency
ot Order Number: C017402
stomer Part Number: CLIN0004
stomer Purchase Order Number: DLA300-92-C-0057
scription: Tantalum Ingot

Lot Number: 80598 Material: TANTALUM Temper:

MISTRY: JTB154

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	15
O	30	Si	<5	Cu	<5
N	20	Sn	<5	Zr	<5
H	15	Ni	<5	Co	<5
Ta	99.96%	Cr	<5	Mg	<5
Nb	120	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	80
Fe	<5	Al	<5		
Ag	5	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.240"/9.000"/9.125" x 40.750" Long
B 9.275"/8.900"/9.140" x 40.6250" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 02-06-95

No. 15280

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0004
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80625 Material: TANTALUM Temper:

CHEMISTRY: BPEM56

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	<5
O	<10	Si	15	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	90	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	<1	Hf	<25	V	<5
Sb	<5	Pb	1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.305"/9.246"/9.700" x 40.000" Long
B 9.275"/9.175"/9.280" x 39.750" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Specification:
P117 Dated May 20, 1992

Authorized Signature

Date: 06-09-95

No. 16789

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0005
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80655 Material: TANTALUM Temper:

CHEMISTRY: ITEM 6B

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	<5
O	<10	Si	<5	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.99%	Cr	<5	Mg	<5
Nb	60	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	5	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.270"/9.270"/9.235" x 41.8750" Long
B 8.900"/8.895"/8.905" x 42.000" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 08-11-95

No. 17679

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0002
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80668 Material: TANTALUM Temper:

CHEMISTRY: 0TE171

Element	Result	Element	Result	Element	Result
C	15	Mn	<5	Mo	<5
O	30	Si	10	Cu	<5
N	15	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	140	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	25	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.065"/9.200"/9.055" x 42.000" Long
B 8.940"/9.005"/8.765" x 41.6250" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 08-11-95

No. 17682

BOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0002
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80671 Material: TANTALUM Temper:

CHEMISTRY: ITEM 73

Element	Result	Element	Result	Element	Result
C	<10	Mn	<5	Mo	5
O	20	Si	5	Cu	10
N	10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	120	Ca	<5	B	<1
Ti	<5	Na	<50	W	<25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	25
Sb	<5	Pb	1	Zn	<25
As	<5	Re	5	P	
Bi	<1	Te	<1	S	<10
Cd	50	Tl	<1	Se	<1
Ga	5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 8.935"/8.948"/8.955" x 40.750" Long
B 9.280"/9.300"/9.290" x 41.500" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 09-25-95

No. 18269

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0002
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80687 Material: TANTALUM Temper:

CHEMISTRY: ITEM 76

Element	Result	Element	Result	Element	Result
C	<5	Mn	<5	Mo	10
O	60	Si	10	Cu	<5
N	15	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	120	Ca	5	B	1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 8.960"/8.760"/9.050" x 42.000" Long
B 9.125"/8.865"/8.800" x 42.000" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 10/10/95

No. 18474

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

stomer: Defense Logistics Agency
bot Order Number: C017402
stomer Part Number: CLIN0002
stomer Purchase Order Number: DLA300-92-C-0057
escription: Tantalum Ingot

Lot Number: 80688 Material: TANTALUM Temper:

EMISTRY: ITEM 77

Element	Result	Element	Result	Element	Result
C	<5	Mn	<5	Mo	<5
O	<10	Si	5	Cu	<5
N	10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.99%	Cr	<5	Mg	<5
Nb	60	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	3	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.130"/9.040"/9.025" x 42.000" Long
B 9.175"/9.160"/9.155" x 42.000" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Laura Leitkau
Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 10/10/95

No. 18475

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

ustomer: Defense Logistics Agency
abot Order Number: C017402
ustomer Part Number: CLIN0003
ustomer Purchase Order Number: DLA300-92-C-0057
escription: Tantalum Ingot

Lot Number: 80690 Material: TANTALUM Temper:

EMISTRY: CTEH 78

Element	Result	Element	Result	Element	Result
C	5	Mn	<5	Mo	5
O	<10	Si	5	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.97%	Cr	<5	Mg	<5
Nb	180	Ca	10	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	<1	Hf	<25	V	<5
Sb	<5	Pb	1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 8.905"/8.825"/8.790" x 42.000" Long
B 8.935"/8.930"/9.060" x 41.750" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 10/10/95

No. 18476

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80693 **Material:** TANTALUM **Temper:**

CHEMISTRY: ATCH 80

Element	Result	Element	Result	Element	Result
C	10	Mn	<5	Mo	<5
O	70	Si	15	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	60	Ca	<5	B	1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	25	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 8.855"/9.265"/9.185" x 39.6250" Long
B 9.190"/9.165"/9.160" x 39.6250" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicabl

This document certifies that the above material conforms to the requirements of your order and your specification.

Laurie Little
Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 10/26/95

No. 18672

CABOT PERFORMANCE MATERIALS
COUNTY LINE ROAD
P.O. BOX 1608
BOYERTOWN, PA 19512-1608
PHONE: 215-367-2181

MATERIAL EVALUATION REPORT - CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80705 **Material:** TANTALUM **Temper:**

CHEMISTRY: GTH B1

Element	Result	Element	Result	Element	Result
C	5	Mn	<5	Mo	<5
O	20	Si	10	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.97%	Cr	<5	Mg	<5
Nb	145	Ca	<5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	<1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	50	Th	<25	Cl	

All results in parts per million (ppm) unless noted

COMMENTS:

DIMENSIONS:
A 9.215"/9.225"/9.235" x 39.500" Long
B 9.265"/9.345"/9.315" x 39.6250" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 10/26/95

No. 18674

Cabot Performance Materials

MATERIAL EVALUATION REPORT

CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80709 Material: TANTALUM Temper:

CHEMISTRY: 2704 03

Element	Result	Element	Result	Element	Result
C	10	Mn	<5	Mo	5
O	<10	Si	10	Cu	<5
N	10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	110	Ca	5	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	10		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 8.845"/9.103"/8.935" x 40.000" Long
B 8.950"/9.215"/8.800" x 40.500" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicab

This document certifies that the above material conforms to the requirements of your order and your specification.

Specification:
P117 Dated May 20, 1992

Authorized Signature

Date:

Cabot Performance Materials

MATERIAL EVALUATION REPORT

CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80712 Material: TANTALUM Temper:

CHEMISTRY: CTEM B4

Element	Result	Element	Result	Element	Result
C	<5	Mn	<5	Mo	<5
O	15	Si	10	Cu	10
N	15	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	100	Ca	<5	B	1
Ti	<5	Na	<50	W	<25
Fe	<5	Al	5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 9.435"/9.430"/9.425" x 41.000" Long
B 9.370"/9.380"/9.290" x 40.500" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 12-07-95

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Materials

MATERIAL EVALUATION REPORT

CERTIFICATE OF COMPLIANCE

stomer: Defense Logistics Agency
bot Order Number: C017402
stomer Part Number: CLIN0003
stomer Purchase Order Number: DLA300-92-C-0057
scription: Tantalum Ingot

Lot Number: 80713 ITEM #5 Material: TANTALUM Temper:

EMISTRY:

Element	Result	Element	Result	Element	Result
C	10	Mn	<5	Mo	<5
O	35	Si	10	Cu	5
N	20	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	110	Ca	<5	B	1
Ti	<5	Na	<50	W	<25
Fe	30	Al	5		
Ag	5	Hf	<25	V	<5
Sb	<5	Pb	1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 8.870"/8.855"/8.850" x 41.6250" Long
B 8.985"/8.990"/9.035" x 41.6250" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Dawne Lutchard
Authorized Signature

Specification:
P117 Dated May 20, 1992

Date: 11-20-95

18973

Cabot Performance Materials

MATERIAL EVALUATION REPORT

CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80714 Material: TANTALUM Temper:

ITEM 86

CHEMISTRY:

Element	Result	Element	Result	Element	Result
C	5	Mn	<5	Mo	<5
O	<10	Si	10	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	115	Ca	<5	B	1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	5	Hf	<25	V	<5
Sb	<5	Pb	1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 8.920"/8.915"/8.865" x 40.750" Long
B 9.200"/9.225"/8.940" x 41.6250" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Specification:
P117 Dated May 20, 1992

Authorized Signature

Date: 12-07-95

Performance Materials

MATERIAL EVALU...

CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80715 ITEM 87 Material: TANTALUM Temper:

CHEMISTRY:

Element	Result	Element	Result	Element	Result
C	10	Mn	<5	Mo	5
O	10	Si	10	Cu	5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	140	Ca	10	B	<1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	<5		
Ag	1	Hf	<25	V	10
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 9.000"/9.000"/8.975" x 41.750" Long
B 9.155"/9.308"/9.145" x 42.000" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicable

This document certifies that the above material conforms to the requirements of your order and your specification.

Specification:
P117 Dated May 20, 1992

Dawne Pritchard
Authorized Signature

Date: 12-07-95

No. 19143

144 Holly Road ◆ Boyertown, PA 19512 ◆ Phone (610) 367-1500 FAX (610) 369-8259

Performance Materials

MATERIAL EVALUATION REPORT

CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80719 Material: TANTALUM Temper:

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CHEMISTRY:

Element	Result	Element	Result	Element	Result
C	5	Mn	<5	Mo	5
O	15	Si	<5	Cu	<5
N	15	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	140.	Ca	5	B	1
Ti	<5	Na	<50.	W	<25
Fe	<5	Al	<5		
Ag	5	Hf	<25	V	<5
Sb	<5	Pb	2	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 9.225"/9.245"/9.220" x 41.000" Long
B 9.245"/9.295"/9.325" x 41.500" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicab

This document certifies that the above material conforms to the requirements of your order and your specification.

Specification:
P117 Dated May 20, 1992

Authorized Signature

No. 19267 Date: 12/18/95

144 Holly Road ◆ Boyertown, PA 19512 ◆ Phone (610) 367-1500 FAX (610) 369-8259

Cabot Performance Materials

MATERIAL EVALUATION REPORT

CERTIFICATE OF COMPLIANCE

Customer: Defense Logistics Agency
Cabot Order Number: C017402
Customer Part Number: CLIN0003
Customer Purchase Order Number: DLA300-92-C-0057
Description: Tantalum Ingot

Lot Number: 80722 Material: TANTALUM Temper:

CHEMISTRY: ITEM 39

Element	Result	Element	Result	Element	Result
C	5	Mn	<5	Mo	<5
O	15	Si	10	Cu	<5
N	<10	Sn	<5	Zr	<5
H	<5	Ni	<5	Co	<5
Ta	99.98%	Cr	<5	Mg	<5
Nb	60	Ca	<5	B	1
Ti	<5	Na	N.D.	W	<25
Fe	<5	Al	5		
Ag	1	Hf	<25	V	<5
Sb	<5	Pb	<1	Zn	<25
As	<5	Re	<10	P	
Bi	<1	Te	<1	S	<10
Cd	<10	Tl	<1	Se	<1
Ga	<5	Th	<25	Cl	

All results in parts per million (ppm) unless noted

ADDITIONAL INFORMATION:

DIMENSIONS:
A 9.110"/9.090"/9.085" x 42.000" Long
B 9.225"/9.210"/9.210" x 41.750" Long

Note N.D. means Not Detected, N.T. means Not Tested, N.A. means Not Applicabl

This document certifies that the above material conforms to the requirements of your order and your specification.

Specification:
P117 Dated May 20, 1992

Authorized Signature

No. 19268 Date: 12/18/95

144 Holly Road • Boyertown, PA 19512 • Phone (610) 367-1500 FAX (610) 369-8259