



DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD, SUITE 4616
FT. BELVOIR, VIRGINIA 22060-6220



IN REPLY
REFER TO

July 25, 2000

AMENDMENT NO. 003
SOLICITATION OF OFFERS FOR
TITANIUM SPONGE
UNDER DLA-TITANIUM SPONGE-003

The above referenced Solicitation for the sale of titanium sponge is hereby amended as follows:

1. **SECTION C – INSPECTION/SAMPLING** is deleted in its entirety and replaced with the following:

SECTION C – INSPECTION/SAMPLING

- a. Offerors or their designees may purchase a sample of each line item as listed on the attached I.2 Item Offer Page (AUG FY 00). Each sample will consist of four drums selected by the Government from each item. Each four-drum sample weighs approximately 2,000 lbs. Offerors may purchase only one sample per item. The offeror shall provide the Government with any analysis derived from the sample(s).
- b. The Government does not warrant any sample purchased to be representative of an entire lot or manufacturer. Grab samples are not permitted.
- c. The price for each sample is \$2.30 per pound for type A and type C materials produced in the 1980s (line items 17 and 18) and \$1.60 per pound for all other material. These prices are based on the low prices for TG 100 (12x70mm) and TG 120-150 (12x70mm) European titanium sponge as published by Metal Bulletin on July 19, 2000.
- d. The sale price of these samples shall not be construed to set a precedent for prices that will be accepted for future sales. These prices have been established solely for the purpose of sampling the material offered under this amendment.
- e. No discussions will be held prior to award. Any offer varying the conditions will be deemed nonresponsive and will not be considered for award.
- f. The Government will prepare a contract for any material purchased under this amendment.

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- g.** Contractor shall pay for and remove the material within 30 calendar days from date of award. Payment shall be made prior to shipment and in accordance with SECTION D – PAYMENT of the Solicitation.
- h.** Offers for samples will be accepted through August 9, 2000, 5:00 P.M., local time, Fort Belvoir. Please send requests via mail or facsimile to the following:

Defense Logistics Agency
Defense National Stockpile Center
8725 John J. Kingman Road, Suite 4616
Fort Belvoir, VA 22060-6223
ATTN: DNSC-S1
Caitlin O’Leary

Phone: (703) 767-6753
Fax: (703) 767-5484

- i.** Offers shall include the name and title of the individual requesting the material along with the completed I.1 Sale of Government Property Sales Contract and Section I.2 Item Offer Page. The company official authorized to sign the offer shall initial each line item for which a sample is requested.
- 2.** Delete Section I.2 Item Offer Page (APR 00) in its entirety and insert attached Section I.2 Item Offer Page (AUG 00).
 - 3.** Delete Section J.1 Titanium Sponge Specifications (APR 00) in its entirety and insert attached Section J.1 Titanium Sponge Specifications (AUG 00).
 - 4.** The negotiated sale scheduled for August 9, 2000 is postponed until September 13, 2000. Offers must be received at the address in Section B.2.a. by 2:00 PM, local time, Fort Belvoir, VA.
 - 5.** Except as provided herein, all other terms and conditions of DLA-TITANIUM SPONGE-003 remain unchanged and in full force and effect.

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6. Offerors shall acknowledge receipt of this Amendment by signing in the space provided below and returning this form along with their offers for samples.

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

NAME OF FIRM: _____

ADDRESS: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

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I.2 Item Offer Page (AUG 00)

<u>Item #</u>	<u>Location</u>	<u>Type</u>	<u>Producer</u>	<u>Purchase Specification BHN Range</u>	<u>Qty. / LBS</u>	<u>Quantity Offered (LBS)</u>		<u>Unit Price (Per LB)</u>	=	<u>Total Offered Price</u>	<u>Initials</u>
5	Sharonville, OH	A	Dow	111 to 130	553,608	1760	X	\$ 1.60	=	\$ 2,816.00	
8	Clearfield, UT	B	Timet	less than 100 to 170	15,738,006	1900	X	\$ 1.60	=	\$ 3,040.00	
10	Sharonville, OH	C	Electromet	101 to 120	585,194	1760	X	\$ 1.60	=	\$ 2,816.00	
11	Sharonville, OH	C	Nippon (J)	120 and below	998,498	1600	X	\$ 2.30	=	\$ 3,680.00	
13	Baton Rouge, LA	A	Cramet	101 to 130	162,985	1600	X	\$ 1.60	=	\$ 2,560.00	
14	Baton Rouge, LA	A	Dow	111 to 120	47,474	1600	X	\$ 1.60	=	\$ 2,560.00	
15	Gadsden, AL	C	RMI	100 to 120	2,592,000	1600	X	\$ 1.60	=	\$ 2,560.00	
16	Clearfield, UT	A	Wah Chang	101 to 130	136,819	1900	X	\$ 1.60	=	\$ 3,040.00	
17	Clearfield, UT	A	Osaka	100 and Less	2,215,999	1900	X	\$ 2.30	=	\$ 4,370.00	
18	Clearfield, UT	A	Toho	100 and Less	2,215,999	1900	X	\$ 2.30	=	\$ 4,370.00	
19	Curtis Bay, MD	A	Japan	100 to 140	13,232,986	2204	X	\$ 1.60	=	\$ 3,526.40	
20	New Haven, IN	C	Electromet	101 to 120	2,118,999	2000	X	\$ 1.60	=	\$ 3,200.00	
21	Point Pleasant, WV	A	Japan	100 to 130	308,642	2200	X	\$ 1.60	=	\$ 3,520.00	
22	Point Pleasant, WV	A	Cramet	100 to 130	1,891,200	1920	X	\$ 1.60	=	\$ 3,072.00	
23	Point Pleasant, WV	C	Electromet	101 to 120	463,920	2000	X	\$ 1.60	=	\$ 3,200.00	
24	Somerville, NJ	A	Osaka	100 to 140	1,770,000	2220	X	\$ 1.60	=	\$ 3,552.00	
25	Somerville, NJ	A	Toho	100 to 140	1,720,000	2220	X	\$ 1.60	=	\$ 3,552.00	
26	Somerville, NJ	A	Dow	100 to 140	76,500	1200	X	\$ 1.60	=	\$ 1,920.00	

<u>Item #</u>	<u>Location</u>	<u>Type</u>	<u>Producer</u>	<u>Purchase Specification BHN Range</u>	<u>Qty. / LBS</u>	<u>Quantity Offered (LBS)</u>	<u>Unit Price (Per LB)</u>	<u>Total Offered Price</u>	<u>Initials</u>
27	Somerville, NJ	A	Dupont	100 to 140	2,064,988	2040	X \$ 1.60 =	\$ 3,264.00	
28	Warren, OH	A	Japan	100 to 150	1,010,000	2220	X \$ 1.60 =	\$ 3,552.00	
29	Warren, OH	A	Cramet	100 to 150	556,800	1920	X \$ 1.60 =	\$ 3,072.00	
30	Warren, OH	C	RMI	100 to 150	8,733,200	1600	X \$ 1.60 =	\$ 2,560.00	
31	Warren, OH	C	Electromet	100 to 150	7,124,000	2000	X \$ 1.60 =	\$ 3,200.00	
Grand Total								\$ 73,002.40	

All items on this list will only be available for the September and October 2000 sales.

- Note: (1) Offer quantity per line item is 4 drums only (NO EXCEPTIONS) for the month of August.
(2) There will be no grab samples given.
(3) The material at Clearfield, New Haven, Curtis Bay and Sharonville is stored outside not palletized.**

Company Name: _____

Name and title of person submitting offer: _____

Signature and date: _____

Section J.1 - Titanium Sponge Specifications (AUG 00)						DLA-TITANIUM SPONGE-003	
						Amendment No. 003	
Table of Contents							
						<i>Stockpile Location(s)</i>	
			<i>When Received</i>	<i>Applicable Purchase</i>	<i>Offer</i>	<i>On Current</i>	<i>Type</i>
<i>Producer</i>	<i>Type</i>	<i>Grade</i>	<i>Into DNSC</i>	<i>Specification</i>	<i>Item No.</i>	<i>Offer List</i>	<i>Storage</i>
<i>Dow</i>	<i>A</i>	<i>1</i>	<i>1950s</i>	<i>per contract terms (1956)</i>	<i>5</i>	<i>Sharonville, OH</i>	<i>Open</i>
<i>Dow</i>	<i>A</i>	<i>1</i>	<i>1950s</i>	<i>per contract terms (1956)</i>	<i>14</i>	<i>Baton Rouge, LA</i>	<i>Closed</i>
<i>Dow</i>	<i>A</i>		<i>1950s</i>	<i>per contract terms (1956)</i>	<i>26</i>	<i>Somerville, NJ</i>	<i>Closed</i>
<i>Timet</i>	<i>B</i>	<i>1,1A-O</i>	<i>1950s - 1980s</i>	<i>P-97(50s) to P-97-R7(82)</i>	<i>8</i>	<i>Clearfield, UT</i>	<i>Closed</i>
<i>Electromet</i>	<i>C</i>	<i>1</i>	<i>1950s</i>	<i>P-97-R, 12/10/56</i>	<i>10</i>	<i>Sharonville, OH</i>	<i>Open</i>
<i>Electromet</i>	<i>C</i>	<i>1</i>	<i>1950s</i>	<i>P-97-R, 12/10/56</i>	<i>20</i>	<i>New Haven, IN</i>	<i>Open</i>
<i>Electromet</i>	<i>C</i>	<i>1</i>	<i>1950s</i>	<i>P-97-R, 12/10/56</i>	<i>23</i>	<i>Point Pleasant, WV</i>	<i>Closed</i>
<i>Electromet</i>	<i>C</i>	<i>1</i>	<i>1950s</i>	<i>P-97-R, 12/10/56</i>	<i>31</i>	<i>Warren, OH</i>	<i>Closed</i>
<i>Nippon (J)</i>	<i>C</i>		<i>1980s</i>	<i>P-97-R7, 6/2/82</i>	<i>11</i>	<i>Sharonville, OH</i>	<i>Open</i>
<i>Cramet</i>	<i>A</i>	<i>1</i>	<i>1950s</i>	<i>per contract terms (1956)</i>	<i>13</i>	<i>Baton Rouge, LA</i>	<i>Closed</i>
<i>Cramet</i>	<i>A</i>	<i>1</i>	<i>1950s</i>	<i>per contract terms (1956)</i>	<i>22</i>	<i>Point Pleasant, WV</i>	<i>Closed</i>
<i>Cramet</i>	<i>A</i>	<i>1</i>	<i>1950s</i>	<i>per contract terms (1956)</i>	<i>29</i>	<i>Warren, OH</i>	<i>Closed</i>
<i>RMI</i>	<i>C</i>	<i>1A-O</i>	<i>1960s</i>	<i>P-97-R5,1969</i>	<i>15</i>	<i>Gadsden, AL</i>	<i>Closed</i>
<i>RMI</i>	<i>C</i>	<i>1A-O</i>	<i>1960s</i>	<i>P-97-R5,1969</i>	<i>30</i>	<i>Warren, OH</i>	<i>Closed</i>
<i>Wah Chang</i>	<i>A</i>	<i>1</i>	<i>1950s</i>	<i>per contract terms (1956)</i>	<i>16</i>	<i>Clearfield, UT</i>	<i>Closed</i>
<i>Osaka</i>	<i>A</i>		<i>1980s</i>	<i>P-97-R7, 6/2/82</i>	<i>17</i>	<i>Clearfield, UT</i>	<i>Closed</i>
<i>Osaka</i>	<i>A</i>		<i>1950s</i>	<i>P-97-R, 12/10/56</i>	<i>24</i>	<i>Somerville, NJ</i>	<i>Closed</i>

Section J.1 - Titanium Sponge Specifications (AUG 00)						DLA-TITANIUM SPONGE-003		
						Amendment No. 003		
Table of Contents continued:								
						<i>Stockpile Location(s)</i>		
		<i>When Received Into DNSC</i>		<i>Applicable Purchase Specification</i>		<i>Offer Item No.</i>	<i>On Current Offer List</i>	<i>Type Storage</i>
<i>Producer</i>	<i>Type</i>	<i>Grade</i>						
Toho	A		1980s	P-97-R7, 6/2/82	18	Clearfield, UT	Closed	
Toho	A		1950s	P-97-R, 12/10/56	25	Somerville, NJ	Closed	
Japan	A		1950s	P-97-R, 12/10/56	19	Curtis Bay, MD	Open	
Japan	A		1950s	P-97-R, 12/10/56	21	Point Pleasant, WV	Closed	
Japan	A		1950s	P-97-R, 12/10/56	28	Warren, OH	Closed	
Dupont	A	1	1950s	per contract terms (1956)	27	Somerville, NJ	Closed	
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Section J.1 - Titanium Sponge Specifications (AUG 00)

**Governing Specification
and period covered**

Chemical Percentages/Physical Requirements

Governing Specification and period covered	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Max.	Magnesium (Mg) Max.	Lithium (Li) Max.	Potassium (K) Max.	Aluminum (Al) Max.	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Type A Sponge P-97-R7, June 2, 1982 (6/2/82 to Present)	0.010	0.020	--	0.08	--	--	--	0.10	0.08	0.04
	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	Other Elements Total		Titanium Min.	Aluminum Max. Bhn			
	0.005	0.10	0.02	0.05		99.6	100			
Type B Sponge P-97-R7, June 2, 1982 (6/2/82 to Present)	0.015	0.025	--	0.50	--	--	0.07	0.20	0.10	0.04
	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	Other Elements Total		Titanium Min.	Aluminum Max. Bhn			
	0.030	0.10	0.02	0.05		99.1	120			
Type C Sponge P-97-R7, June 2, 1982 (6/2/82 to Present)	0.015	0.020	0.19	--	--	--	--	0.20	0.04	0.04
	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	Other Elements Total		Titanium Min.	Aluminum Max. Bhn			
	0.05	0.10	0.02	0.05		99.3	120			

Particle Size:

- (1) All material shall pass a three-fourth inch screen.
- (2) Minimum of 95 percent by weight shall pass a one-half inch screen.
- (3) Minimum of 95 percent by weight shall be retained on a 100-mesh screen.

Section J.1 - Titanium Sponge Specifications (AUG 00)

Governing Specification and period covered		Chemical Percentages/Physical Requirements					
P-97-R6, 10/19/77 (10/19/77 - 6/2/82)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.015	0.020	--	0.08	0.12	0.12	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	Other Elements Total		Titanium balance 1/	Max. Bhn
Type A	0.005	0.10	0.02	0.05		99.3	120
P-97-R6, 10/19/77 (10/19/77 - 6/2/82)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.015	0.025	--	0.50	0.20	0.10	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	All other impurities Total		Titanium balance 1/	Max. Bhn
Type B	0.03	0.10	0.02	0.05		99.1	120
P-97-R6, 10/19/77 (10/19/77 - 6/2/82)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.010	0.020	0.19	--	0.20	0.05	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	All other impurities Total		Titanium balance 1/	Max. Bhn
Type C	0.05	0.10	0.02	0.05		99.3	120

1/ Note: Titanium, balance (nominally)

Particle Size:

- (1) Not less than 95 percent by weight of all grades and types of titanium metal sponge shall pass a one-half inch sieve.
- (2) Not less than 95 percent by weight of Grade 1A-0, Type A, shall be retained on a U.S. Std. No. 20 Sieve and not less than 95 percent by weight of Grade 1A-0, Types B and C, shall be retained on a U.S. Std. No. 100 Sieve (ASTM Designation: E-11).

Section J.1 - Titanium Sponge Specifications (AUG 00)

**Governing Specification
and period covered**

Chemical Percentages/Physical Requirements

P-97-R5, 8/15/69 (8/15/69 - 110/19/77)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.015	0.020	--	0.08	0.12	0.12	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	Other Elements Total		Titanium balance 1/	Max. Bhn
Type A	0.005	0.10	0.02	0.05		99.3	120
P-97-R5, 8/15/69 (8/15/69 - 110/19/77)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.015	0.025	--	0.40	0.15	0.10	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	All other impurities Total		Titanium balance 1/	Max. Bhn
Type B	0.03	0.10	0.02	0.05		99.1	120
P-97-R5, 8/15/69 (8/15/69 - 110/19/77)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.010	0.020	0.19	--	0.20	0.05	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	All other impurities Total		Titanium balance 1/	Max. Bhn
Type C	0.05	0.10	0.02	0.05		99.3	120

1/ Note: Titanium, balance (nominally)

Particle Size:

- (1) Not less than 95 percent by weight of all grades and types of titanium metal sponge shall pass a one-half inch sieve.
- (2) Not less than 95 percent by weight of Grade 1A-0, Type A, shall be retained on a U.S. Std. No. 20 Sieve and not less than 95 percent by weight of Grade 1A-0, Types B and C, shall be retained on a U.S. Std. No. 100 Sieve (ASTM Designation: E-11).

Section J.1 - Titanium Sponge Specifications (AUG 00)

Governing Specification and period covered		Chemical Percentages/Physical Requirements					
P-97-R3,4 Dec. 1968 Dec. 1968-Aug. 1969)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.015	0.020	--	0.08	0.12	0.12	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	Other Elements Total		Titanium balance 1/	Max. Bhn
Type A	0.005	0.10	0.02	0.05		99.3	120
P-97-R3,4 Dec. 1968 Dec. 1968-Aug. 1969)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.015	0.025	--	0.40	0.15	0.10	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	All other impurities Total		Titanium balance 1/	Max. Bhn
Type B	0.03	0.10	0.02	0.05		99.1	120
P-97-R3,4 Dec. 1968 Dec. 1968-Aug. 1969)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (Na) Total	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade	0.010	0.020	0.19	--	0.20	0.05	0.04
1A-O	Hydrogen (H) Max.	Oxygen (O) Max.	Water (H2O) Max.	All other impurities Total		Titanium balance 1/	Max. Bhn
Type C	0.05	0.10	0.02	0.05		99.3	120

1/ Note: Titanium, balance (nominally)

Particle Size:

- (1) Not less than 95 percent by weight of all grades and types of titanium metal sponge shall pass a one-half inch sieve.
- (2) Not less than 95 percent by weight of Grade 1A-0, Type A, shall be retained on a U.S. Std. No. 20 Sieve and not less than 95 percent by weight of Grade 1A-0, Types B and C, shall be retained on a U.S. Std. No. 100 Sieve (ASTM Designation: E-11).

Section J.1 - Titanium Sponge Specifications (AUG 00)

Governing Specification and period covered	Chemical Percentages/Physical Requirements						
P-97-R2, 2/10/1965 (2/10/65 - Dec. 1968)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade 1A	0.02	0.025	--	0.08	0.12	0.15	0.04
Type A	Hydrogen (H) Max.	Manganese (Mn) Max.	Titanium balance 1/	Max. Bhn			
	0.005	0.10	99.3	120			
P-97-R2, 2/10/1965 (2/10/65 - Dec. 1968)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade 1A	0.02	0.025	--	0.40	0.15	0.10	0.04
Type B	Hydrogen (H) Max.	Manganese (Mn) Max.	Titanium balance 1/	Max. Bhn			
	0.03	0.04	99.1	120			
P-97-R2, 2/10/1965 (2/10/65 - Dec. 1968)	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
Grade 1A	0.02	0.025	0.02	--	0.30	0.12	0.04
Type C	Hydrogen (H) Max.	Manganese (Mn) Max.	Titanium balance 1/	Max. Bhn			
	0.0125	0.05	99.1	120			

1/ Note: Titanium, balance (nominally)

Particle Size:

- (1) Not less than 95 percent by weight of all grades and types of titanium metal sponge shall pass a one-half inch sieve.
- (2) Not less than 95 percent by weight of Grade 1A, Type A, shall be retained on a U.S. Std. No. 20 Sieve and not less than 95 percent by weight of Grade 1A, Types B and C, shall be retained on a U.S. Std. No. 100 Sieve (ASTM Designation: E-11).

Section J.1 - Titanium Sponge Specifications (AUG 00)

Governing Specification and period covered		Chemical Percentages/Physical Requirements					
P-97-R, 12/10/1956 (12/10/56 - 2/10/65) Grade 1A Type A	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
	0.03	0.030	--	0.10	0.15	0.15	0.10
	Hydrogen (H) Max.	Manganese (Mn) Max.	Total Sum of Above Elements	Metals Not Listed Above Each Max.	Metals Not Listed Above Max.	Titanium plus Oxygen Balance	
	0.005	0.10	0.70	0.10	0.25		
P-97-R, 12/10/1956 (12/10/56 - 2/10/65) Grade 1A Type B	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
	0.03	0.03	--	0.40	0.15	0.15	0.10
	Hydrogen (H) Max.	Manganese (Mn) Max.	Total Sum of Above Elements	Metals Not Listed Above Each Max.	Metals Not Listed Above Max.	Titanium plus Oxygen Balance	
	0.03	0.20	0.80	0.10	0.25		
P-97-R, 12/10/1956 (12/10/56 - 2/10/65) Grade 1A Type C	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
	0.03	0.05	0.05	--	0.30	0.10	0.10
	Hydrogen (H) Max.	Manganese (Mn) Max.	Total Sum of Above Elements	Metals Not Listed Above Each Max.	Metals Not Listed Above Max.	Titanium plus Oxygen Balance	
	0.0125	0.10	0.70	0.10	0.25		

Section J.1 - Titanium Sponge Specifications (AUG 00)

Governing Specification and period covered		Chemical Percentages/Physical Requirements					
P-97, 9/21/1956 (9/21/56 - 12/10/56 Grade 1A Type A	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
	0.03	0.03	--	0.20	0.15	0.20	0.10
	Hydrogen (H) Max.	Manganese (Mn) Max.	Total Sum of Above Elements	Metals Not Listed Above Each Max.	Metals Not Listed Above Max.	Total Sum of Metals Not Listed Above Max. Titanium plus Oxygen Balance	
0.0050	0.20	0.70	0.10	0.25			
P-97, 9/21/1956 (9/21/56 - 12/10/56 Grade 1A Type B	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
	0.03	0.03	--	0.40	0.15	0.15	0.10
	Hydrogen (H) Max.	Manganese (Mn) Max.	Total Sum of Above Elements	Metals Not Listed Above Each Max.	Metals Not Listed Above Max.	Total Sum of Metals Not Listed Above Max. Titanium plus Oxygen Balance	
0.03	0.20	0.80	0.10	0.25			
P-97, 9/21/1956 (9/21/56 - 12/10/56 Grade 1A Type C	Nitrogen (N) Max.	Carbon (C) Max.	Sodium (free) Max.	Magnesium (Mg) Max	Chlorine (Cl) Max.	Iron (Fe) Max.	Silicon (Si) Max.
	0.03	0.05	0.05	--	0.30	0.10	0.10
	Hydrogen (H) Max.	Manganese (Mn) Max.	Total Sum of Above Elements	Metals Not Listed Above Each Max.	Metals Not Listed Above Max.	Total Sum of Metals Not Listed Above Max. Titanium plus Oxygen Balance	
0.0125	0.10	0.70	0.10	0.25			

Section J.1 - Titanium Sponge Specifications (AUG 00)

**Governing Specification
and period covered**

Chemical Percentages/Physical Requirements 1/

Type A Sponge Grade No. 1 Per Contract Terms - early 1956	Nitrogen (N) Max. 0.03	Carbon (C) Max. 0.050	Sodium (free) Max. - -	Magnesium (Mg) Max 2/ 0.20	Chlorine (Cl) Max. 0.15	Iron (Fe) Max. 0.15
	Hydrogen (H) Max. 0.010	Total Sum of Above Elements 0.70	Metals Not Listed Above Each Max. 0.10	Total Sum of Metals Not Listed Above Max. 0.25	Titanium by Difference 99.3	Available in this Solicitation - BHN Range 101 - 140

1/ weighted average applicable
2/ P-97 spec. (1956)

Particle Size:

Ninety-five per cent (95%) of each lot shall be smaller than one-half inch as determined by passing through a screen having a 1/2" x 1/2" square openings or 0.615" diameter round openings. Ninety-five (95%) percent of each lot shall be larger than twenty (20) mesh (U.S. Std.). A U.S. Std. 20 mesh sieve has an opening .033.



**Specification Legend: Type A - Magnesium reduced and finished by vacuum distillation.
Type B - Magnesium reduced and finished by acid leaching or inert gas sweep distillation.
Type C - Sodium reduced and finished by acid leaching .**