



**DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD, SUITE 3229
FT. BELVOIR, VIRGINIA 22060-6223**

IN REPLY
REFER TO: **DNSC-C2**

November 17, 2004

Dear Prospective Tungsten Customer:

Attached is Amendment No. 003 to Solicitation of Offers DLA-TUNGSTEN ORES AND CONCENTRATES-003. On Monday, December 6, 2004, at 10:00 a.m., local time, Fort Belvoir, VA, the Defense Logistics Agency, Defense National Stockpile Center (DNSC), will open and consider offers for the sale of approximately 2,000,000 pounds of contained tungsten under this Solicitation. Offers are to be addressed as follows:

ATTN: DNSC-R (Bid Custodian)
Defense National Stockpile Center
8725 John J. Kingman Road
Suite 3229
Fort Belvoir, VA 22060-6223

Offers may also be faxed in accordance with Section B.6 Facsimile Submissions (JUL 97) of the Solicitation to facsimile number (703) 767-5541.

Please ensure that all documents identified in Section B.1 Submittals (SEP 02) on page 6 of the Solicitation are submitted along with your offer. The copy of Section I.2 for this offering may be found in Amendment No. 003. In addition to submitting the items identified in Section B.1, offerors are also required to acknowledge receipt of Amendment Nos. 002 and 003 to the Solicitation by signing in the space provided in the amendments and submitting a copy along their offer.

Copies of the Solicitation, DLA-TUNGSTEN ORES AND CONCENTRATES-003, and copies of the amendments are available on the DNSC website, <https://www.dnsc.dla.mil>. Sections I.2 Item Offer Page and J.1 Analysis, which are part of Amendment No. 003, will also be available on the DNSC website as Excel files.

Thank you for your interest in DNSC's tungsten sales program. If you have any questions, please contact the tungsten contract specialist, Mr. Chris Hall, by telephone at (703) 767-5498, by facsimile at (703) 767-5494, or by email at: christopher.hall@dla.mil.

Sincerely,

//s//

**MARTHA L. HOCHBERG
Contracting Officer**



DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD, SUITE 3229
FT. BELVOIR, VIRGINIA 22060-6223

IN REPLY
REFER TO

DNSC-C2

November 17, 2004

AMENDMENT NO. 003
TO
SOLICITATION OF OFFERS FOR
TUNGSTEN ORES AND CONCENTRATES
UNDER
DLA-TUNGSTEN ORES AND CONCENTRATES-003

The above referenced Solicitation for the sale of Tungsten Ores and Concentrates is hereby amended to schedule an offering for fiscal year 2005, revise the listing of available material, and update various sections of the Solicitation, as follows:

1. Amendment No. 001 to DLA-TUNGSTEN ORES AND CONCENTRATES-003

Delete this amendment in its entirety.

2. Section A.1 Introduction (JAN 04)

Delete this section in its entirety and replace with the following:

A.1 Introduction (NOV 04)

- a. The Defense Logistics Agency (DLA), Defense National Stockpile Center (DNSC), is soliciting offers for the sale of approximately 2,000,000 pounds of contained "W" (lbs. "W") of Tungsten Ores and Concentrates for one or more contracts with a contract period not to exceed 365 calendar days. The offering will be held on **Monday, December 6, 2004**, at 10:00 am local time, Fort Belvoir, VA. Offers must be received at the address in Section B.2.a. by 10:00 am, local time, Fort Belvoir, VA. In the event that DNSC is closed at that time, offers for that day will be received at 10:00 am on the next DNSC business day.
- b. With the exception of Item 150, Pile 15, located at Herlong, CA, delivery is F.O.B. carrier's conveyance. See Sections **F.1.d.** and **F.1.e.** For Item 150, handling and outloading will be by and at the expense of the Contractor. (See Section **F.1.a.**)

3. Section B.3 Minimum/Maximum Quantity (JAN 95)

Delete this section in its entirety and replace with the following:

B.3 Minimum/Maximum Quantity (NOV 04)

Offers shall be submitted for a minimum of one line item and a maximum of 2,000,000 lbs. "W".

DLA-TUNGSTEN ORES AND CONCENTRATES-003

AMENDMENT NO. 003

Page 2 of 30

4. Section B.4 Reference Price (JAN 97)

Delete this section in its entirety and replace with the following:

B.4 Reference Price and Monthly Declaration (NOV 04)

- a. Offers must clearly state the unit price as described in this section.
- b. Offerors may submit a fixed price or formula price offer.
- c. The contract period for fixed price offers shall not exceed 30 days.
- d. The reference price for formula price offers shall be the average of the following two published prices:
 - 1) *Metal Bulletin* monthly low average for European free market APT (\$ / mtu); and
 - 2) *Ryan's Notes Ferrous and Nonferrous News and Prices* monthly low average RN APT NA (\$ / stu).

The \$ / mtu price will be converted to \$ / stu as follows:

$$\$ / \text{mtu} * 0.9072 = \$ / \text{stu}$$

- e. Offers shall be expressed as a percentage of the reference price, as defined in **paragraph d.**, above, plus a premium (>100%) or minus a discount (<100%) to this reference price. The premium or discount must be expressed as a percentage (e.g., 110%).
- f. The actual contract price for tungsten will be determined on the date the Contractor's monthly declaration for a specified quantity of tungsten is received by the Government, as follows: the unit price (U.S. dollars per WO3 STU) shall be calculated by multiplying the contract percentage, which includes the premium or discount, by the prior month's reference price, as defined in **paragraph d.**, above. The unit price will be rounded to the nearest whole cent.
- g. The Contractor shall identify each calendar month the quantity of tungsten to be priced that month and confirm the calculation of the price as specified above. The Contractor shall submit this declaration to the Contracting Officer no later than the 15th calendar day of each month. (See Section E.1b).

5. SECTION D – PAYMENT

Delete this section in its entirety and replace with the following:

SECTION D – PAYMENT

D.1 Payment (MAY 04)

- a. Payment shall be made in U.S. dollars.
- b. Payment shall be made by wire transfer, U.S. Postal Service money order, or company or bank check.

DLA-TUNGSTEN ORES AND CONCENTRATES-003

AMENDMENT NO. 003

Page 3 of 30

- (1) Wire transfer payment shall be made in accordance with instructions in **Section J.5**. Fees for wire transfers are the responsibility of the Contractor. If payment is by wire transfer and the wrong account number is used, shipment of material may be delayed by up to one week or the wire transfer may be returned to the sender.
 - (2) All checks must be drawn on a U.S. domestic bank or on the United States branch of an acceptable foreign bank and must be payable in United States currency. **A service charge of \$100.00 will be applied to all returned checks.**
- c. Payment shall be made to the **Defense Finance and Accounting Service - Columbus (DFAS-Columbus)**. If a check is not made payable to DFAS-Columbus, the check may be returned and the \$100.00 fee stated in **D.1.b.** charged. Payment shall be accompanied by **identifying information including the contract number, invoice number, and a description of the material purchased**. Payments without the required identification may be returned and shipment delayed. Payments shall be sent to:

ATTN: DNSC-R, Accounts Receivable
Defense National Stockpile Center
8725 John J. Kingman Road
Suite 3229
Fort Belvoir, VA 22060-6223

- d. Invoices issued for adjustments for variations in quantity or weight, storage charges, interest, penalty charges, or administrative charges shall be paid promptly.
- e. If payment is not made in full within 30 calendar days of issuance of an invoice as specified in **D.1.d.**, the Contractor will be considered delinquent and any outstanding charges will be reduced by any subsequent payments. No material will be released until all delinquent charges are paid. (See Sections **F.1.a.** and **G.10**.)

D.2 Payment Due Date (MAY 04)

- a. Payment due dates will be applied as follows:

- (1) If payment terms are not extended, payment will be made before shipment of material and before the end of the contract period specified in the executed **Section I.1 Sale of Government Property Negotiated Sales Contract (OCT 02)**.
- (2) If payment terms are approved, the Contractor shall pay the Government the full amount of **each** shipment no later than **(30)** calendar days after DNSC receives current, accurate and complete Shipping Instructions. Shipping Instructions must be submitted on or before the final day of the contract period. Notwithstanding any other provision of the contract, payment is due with or without the issuance of an invoice by the Government. If the Contractor fails to make payment timely, the Contractor will be considered delinquent (see Section **D.1.e.**, **F.1.a.**, and **G.10**), and the Government, at its sole discretion, may revoke payment terms and take other appropriate action in accordance with Section **G.7**. If the Contractor fails to submit current, accurate and complete Shipping Instructions on or before the final day of the contract period, the Government will revoke payment terms and payment must be made **before** shipment of material.

DLA-TUNGSTEN ORES AND CONCENTRATES-003

AMENDMENT NO. 003

Page 4 of 30

- b.** If payment is not received by 4:30 p.m., local time Fort Belvoir, VA, on the payment due date, payment will not be credited until the next Government business day. Interest and penalty charges will accrue accordingly.
- c.** In the event the payment due date falls on a Saturday, Sunday, or holiday, then the payment due date will be extended to the next Government business day.

D.3 Interest (MAY 04)

- a.** All amounts that become payable by the Contractor to the Government under this contract shall bear simple interest from the date due until paid. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in 41 U.S.C. 611, which is applicable to the period in which the amount becomes due, as provided in paragraph **b.**, below.
- b.** Amounts shall be due at the earliest of the following dates:
 - (1) The final day of the contract period specified in Section **I.1 Sale of Government Property Negotiated Sales Contract (OCT 02)** (with or without the issuance of an invoice by the Government);
 - (2) The date of the first written demand for payment under the contract, including any demand resulting from a default termination, unless paid within 30 days of becoming due; or
 - (3) If payment terms have been approved, **(30)** calendar days after the date that DNSC receives current, accurate and complete Shipping Instructions provided that Shipping Instructions are submitted on or before the final day of the contract period. If Shipping Instructions are not submitted on or before the final day of the contract period, amounts shall be due in accordance with the provisions of Section **D.3.b.(1)**.

D.4 Penalty and Administrative Charges (MAY 04)

In addition to interest charges specified in Section **D.3**, above, a penalty charge of 6 percent per annum shall be assessed on any debt principal that is delinquent more than 90 calendar days. Penalty charges shall accrue from the date the principal amount due becomes delinquent until paid. Additional administrative charges may be assessed, if needed. Administrative charges relate only to delinquent debts and will be assessed to cover expenses incurred by the Government in the recovery of such debts.

6. Section E.1 Removal of Material (JAN 02)

Delete this section in its entirety and replace with the following:

E.1 Removal of Material (NOV 04)

a. The following pertains to fixed price contracts:

- (1) The contract period begins on the date of contract award and shall expire 30 calendar days from the date of contract award.

DLA-TUNGSTEN ORES AND CONCENTRATES-003

AMENDMENT NO. 003

Page 5 of 30

- (2) If the Contractor fails to pay for and remove the material on or before the last day of the contract period, Contractor will be considered delinquent and no material will be shipped until payment has been received.
- (3) The contract period includes Saturdays, Sundays, and holidays. If the last day of the contract period is a Saturday, Sunday, or holiday, or the storage location is otherwise closed that day, the period of contract performance will be extended to the next Government workday

b. The following pertains to formula price contracts:

- (1) The contract period begins on the date of contract award and shall expire 365 calendar days from this date. No later than the fifteenth (15th) calendar day of each calendar month, the Contractor shall furnish the Contracting Officer, in writing, a declaration of the quantity of material to be priced for that month. This quantity declared shall be for at least a minimum of one-twelfth (1/12th) and a maximum of the total quantity awarded under the contract, provided that the total quantity does not exceed 500,000 lbs W (31,525 WO3 STU) from any one storage location. The Contractor shall have 45 calendar days from the date the declaration is received by the Government to remove the declared quantity of material, except that all material under the contract must be removed within the 365 day contract period. The schedule of these minimum and maximum monthly quantities shall be contained in the completed Section **I.3 Anticipated Removal Schedule (OCT 02)** which shall be a part of this contract.
- (2) If the Contractor fails to: (1) submit the monthly declaration by the 15th calendar day of the month and make payment in accordance with Section D; or (2) remove the minimum quantity in accordance with Section **I.3** and **paragraph 1** above, the Contractor shall be considered delinquent and no material will be shipped until payment has been received for either the minimum monthly quantity or the declared quantity, whichever is greater. If the Contractor has failed to complete removal of all of the material on or before the last day of the contract period, the Contractor will be considered delinquent and no material will be shipped until payment for all remaining material has been received.
- (3) The contract period and the 45-calendar day period following the submission of a declaration include Saturdays, Sundays, and holidays. If the last day of either period is a Saturday, Sunday, or holiday, or the storage location is otherwise closed on those days, the period of contract performance or the 45-calendar day period will be extended to the next Government workday.

7. Section E.2 Storage Charges (JUL 97)

Delete this section in its entirety and replace with the following:

E.2 Storage Charges (NOV 04)

- a. Storage charges shall be assessed on (1) all material remaining unshipped from a monthly declaration after the 45-calendar day period following the receipt of the declaration by the Government and/or (2) any and all material remaining unshipped after the last day of the contract period, as applicable. The Government reserves the right to remove any remaining material to a commercial storage facility and be reimbursed by the Contractor for any expenses incurred. Storage charges continue to accrue until all the material has been removed in accordance with the monthly declaration or the end of the contract period, as

DLA-TUNGSTEN ORES AND CONCENTRATES-003

AMENDMENT NO. 003

Page 6 of 30

applicable, or the contract is terminated for default, in which case the Contractor will be liable for damages, as set forth in Section **G.7 Default** of the Solicitation.

- b. The storage charge is the greater of the following: (1) **\$0.10 per WO3 STU** (if a fraction of a WO3 STU remains, the charge will be for a full WO3 STU) per 30 day period regardless of whether the material remains in storage a period of 30 days or less than 30 days; or (2) commercial storage charges, if applicable.
- c. Storage charges will be invoiced upon shipment. Payment shall be made promptly.
- d. Payment of storage charges shall not relieve the Contractor of its obligation to remove the material in a timely manner. Acceptance of storage payments by the Government is not a waiver of the Government's right to default the Contractor for failure to remove the material (See Section **G.7 Default**).

8. Section F.1 Request for Shipment, paragraph a.

Delete the sentence "Delivery is F.O.B. carrier's conveyance" and insert "With the exception of Item 150, Pile 15, located at Herlong, CA, delivery is F.O.B. carrier's conveyance. For Item 150, handling and outloading will be by and at the expense of the Contractor."

9. Section G.10 Setoff of Funds (JUL 98)

Delete this section in its entirety and replace with the following:

G.10 Setoff of Funds (MAY 04)

The Contractor agrees that the Government may use all or a portion of any monies received by the Government to satisfy, in whole or in part, any debt (e.g., delinquent payments, interest, penalty charges, administrative charges, or storage charges), arising out of this or any other transaction.

10. Section I.2 Item Offer Page – Tungsten Ores And Concentrates (Amendment No. 002 dated January 15, 2004)

Delete this section in its entirety and replace with the attached Section **I.2 Item Offer Page – Tungsten Ores and Concentrates (NOV 04)**.

11. Section J.1 Analysis – Tungsten Ores And Concentrates (Amendment No. 002 dated January 15, 2004)

Delete this section in its entirety and replace with the attached Section **J.1 Analysis – Tungsten Ores and Concentrates (NOV 04)**.

12. Section J.2 Storage Locations

Delete this section in its entirety and replace with the attached Section **J.2 Storage Locations (NOV 04)**.

DLA-TUNGSTEN ORES AND CONCENTRATES-003

AMENDMENT NO. 003

Page 7 of 30

13. Section J.4 Material Safety Data Sheet

Delete this section in its entirety and replace with the attached **Section J.4 Material Safety Data Sheet (SEP 03)**.

- 14.** Except as provided herein, all other terms and conditions of DLA-TUNGSTEN ORES AND CONCENTRATES-003, as amended by Amendment No. 002 thereto, remain unchanged and in full force and effect.
- 15.** Offerors shall acknowledge receipt of this Amendment by signing in the space provided below and returning a copy of this form along with their offer to:

ATTN: DNSC-R/Bid Custodian
Defense National Stockpile Center
8725 John J. Kingman Road
Suite 3229
Fort Belvoir, VA 22060-6223
Facsimile No. (703) 767-5541

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

NAME OF FIRM: _____

ADDRESS: _____

TELEPHONE: _____

FACSIMILE: _____

BY: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

I.2 Item Offer Page -- Tungsten Ores and Concentrates (NOV 04)

| | | | | | | Bulk Wt | WO3 | WO3 | W | WO3 | Offered Price | Total |
|--------|----------------|-------------|-----------|----------|------------|-----------|-------|------------|-----------|-----------|----------------|--------------------|
| Item # | Location | Lot # | Type | Origin | # of Units | (lbs) | (%) | (lbsWO3) | (lbsW) | (STU) | (\$ / WO3 STU) | Offered Price (\$) |
| 150 | Herlong, CA | Pile 15 | Ore | Domestic | | 1,703,220 | 1.425 | 24,270.89 | 19,246.81 | 1,213.544 | | |
| | | | | | | | | | | | | |
| 1061 | Binghamton, NY | 29 | Ferberite | Unknown | 62 | 65,602 | 68.43 | 44,891.45 | 35,598.92 | 2,244.572 | | |
| 1064 | Binghamton, NY | 35 | Ferberite | Unknown | 58 | 54,742 | 67.94 | 37,191.71 | 29,493.03 | 1,859.586 | | |
| 1065 | Binghamton, NY | 36 | Ferberite | Unknown | 56 | 54,766 | 69.35 | 37,980.22 | 30,118.32 | 1,899.011 | | |
| 1067 | Binghamton, NY | 38 | Ferberite | Unknown | 58 | 54,745 | 67.58 | 36,996.67 | 29,338.36 | 1,849.834 | | |
| 1068 | Binghamton, NY | 39 | Ferberite | Unknown | 59 | 54,786 | 67.19 | 36,810.71 | 29,190.90 | 1,840.536 | | |
| 1070 | Binghamton, NY | 41 | Ferberite | Unknown | 59 | 54,126 | 67.34 | 36,448.45 | 28,903.62 | 1,822.422 | | |
| 1073 | Binghamton, NY | 49 | Ferberite | Unknown | 55 | 55,074 | 68.80 | 37,890.91 | 30,047.49 | 1,894.546 | | |
| 1075 | Binghamton, NY | 51 | Ferberite | Unknown | 55 | 54,473 | 69.38 | 37,793.37 | 29,970.14 | 1,889.668 | | |
| 1078 | Binghamton, NY | 54 | Ferberite | Unknown | 55 | 54,791 | 69.05 | 37,833.19 | 30,001.72 | 1,891.659 | | |
| 1080 | Binghamton, NY | 56 | Ferberite | Unknown | 58 | 54,399 | 69.20 | 37,644.11 | 29,851.78 | 1,882.205 | | |
| 1086 | Binghamton, NY | 137 | Ferberite | Bolivia | 100 | 54,809 | 67.79 | 37,155.02 | 29,463.93 | 1,857.751 | | |
| 1087 | Binghamton, NY | 138 | Ferberite | Bolivia | 100 | 54,685 | 68.97 | 37,716.24 | 29,908.98 | 1,885.812 | | |
| 1088 | Binghamton, NY | 139 | Ferberite | Bolivia | 100 | 54,642 | 68.60 | 37,484.41 | 29,725.14 | 1,874.221 | | |
| 1091 | Binghamton, NY | 145-(2610) | Ferberite | Bolivia | 100 | 54,780 | 67.55 | 37,003.89 | 29,344.08 | 1,850.195 | | |
| 1093 | Binghamton, NY | 148 | Ferberite | Bolivia | 100 | 54,982 | 65.82 | 36,189.15 | 28,698.00 | 1,809.458 | | |
| 1094 | Binghamton, NY | 149 | Ferberite | Bolivia | 100 | 54,838 | 68.00 | 37,289.84 | 29,570.84 | 1,864.492 | | |
| 1096 | Binghamton, NY | 151 | Ferberite | Bolivia | 99 | 54,341 | 67.07 | 36,446.51 | 28,902.08 | 1,822.325 | | |
| 1097 | Binghamton, NY | 153-(2610) | Ferberite | Bolivia | 100 | 54,766 | 68.42 | 37,470.90 | 29,714.42 | 1,873.545 | | |
| 1098 | Binghamton, NY | 153-(2612) | Ferberite | Unknown | 63 | 64,679 | 67.61 | 43,729.47 | 34,677.47 | 2,186.474 | | |
| 1100 | Binghamton, NY | 154-(2612) | Ferberite | Unknown | 61 | 64,854 | 68.01 | 44,107.21 | 34,977.01 | 2,205.360 | | |
| 1103 | Binghamton, NY | 157 | Ferberite | Unknown | 58 | 54,841 | 67.18 | 36,842.18 | 29,215.85 | 1,842.109 | | |
| 1114 | Binghamton, NY | BI-9 | Ferberite | Unknown | 133 | 129,778 | 69.56 | 90,273.58 | 71,586.95 | 4,513.679 | | |
| 1115 | Binghamton, NY | BI-12 | Ferberite | Unknown | 110 | 109,690 | 69.74 | 76,497.81 | 60,662.76 | 3,824.890 | | |
| 1117 | Binghamton, NY | BI-26 | Ferberite | Unknown | 165 | 161,483 | 69.43 | 112,117.65 | 88,909.29 | 5,605.882 | | |
| 1202 | Scotia, NY | B-60 | Ferberite | Unknown | 167 | 166,352 | 74.25 | 123,516.36 | 97,948.47 | 6,175.818 | | |
| 1203 | Scotia, NY | B-73 | Ferberite | Unknown | 110 | 99,120 | 69.79 | 69,175.85 | 54,856.45 | 3,458.792 | | |
| 1204 | Scotia, NY | 51 | Ferberite | Bolivia | 126 | 65,600 | 69.07 | 45,309.92 | 35,930.77 | 2,265.496 | | |
| 1205 | Scotia, NY | 73-2486 | Ferberite | Bolivia | 126 | 65,454 | 67.37 | 44,096.36 | 34,968.41 | 2,204.818 | | |
| 1206 | Scotia, NY | BMB-4-21274 | Ferberite | Bolivia | 165 | 85,698 | 72.50 | 62,131.05 | 49,269.92 | 3,106.553 | | |
| 1207 | Scotia, NY | 69-2486 | Ferberite | Bolivia | 125 | 64,986 | 72.82 | 47,322.81 | 37,526.98 | 2,366.140 | | |
| 1208 | Scotia, NY | 74-2486 | Ferberite | Bolivia | 125 | 64,838 | 72.84 | 47,228.00 | 37,451.80 | 2,361.400 | | |
| 1209 | Scotia, NY | 71-2486 | Ferberite | Bolivia | 125 | 65,108 | 73.08 | 47,580.93 | 37,731.67 | 2,379.046 | | |
| 1210 | Scotia, NY | 50-2486 | Ferberite | Bolivia | 125 | 64,818 | 72.72 | 47,135.65 | 37,378.57 | 2,356.782 | | |
| 1211 | Scotia, NY | 4 10476 | Ferberite | Bolivia | 99 | 51,055 | 70.18 | 35,830.40 | 28,413.51 | 1,791.520 | | |
| 1212 | Scotia, NY | 30-2486 | Ferberite | Bolivia | 126 | 65,277 | 75.52 | 49,297.19 | 39,092.67 | 2,464.860 | | |
| 1213 | Scotia, NY | 43-2610 | Ferberite | Bolivia | 105 | 54,594 | 70.76 | 38,630.71 | 30,634.16 | 1,931.536 | | |
| 1214 | Scotia, NY | 45-2486 | Ferberite | Bolivia | 125 | 64,800 | 73.48 | 47,615.04 | 37,758.73 | 2,380.752 | | |
| 1215 | Scotia, NY | 48-2486 | Ferberite | Bolivia | 126 | 65,520 | 72.39 | 47,429.93 | 37,611.93 | 2,371.496 | | |
| 1216 | Scotia, NY | 81 | Ferberite | Bolivia | 40 | 54,537 | 68.36 | 37,281.49 | 29,564.22 | 1,864.075 | | |
| 1217 | Scotia, NY | 40 | Ferberite | Bolivia | 47 | 64,935 | 72.95 | 47,370.08 | 37,564.48 | 2,368.504 | | |

I.2 Item Offer Page -- Tungsten Ores and Concentrates (NOV 04)

| | | | | | | Bulk Wt | WO3 | WO3 | W | WO3 | Offered Price | Total |
|--------|----------------|------------|------------|----------|------------|---------|-------|------------|------------|-----------|----------------|--------------------|
| Item # | Location | Lot # | Type | Origin | # of Units | (lbs) | (%) | (lbsWO3) | (lbsW) | (STU) | (\$ / WO3 STU) | Offered Price (\$) |
| 2010 | Binghamton, NY | 11 | Huebnerite | Peru | 57 | 85,207 | 68.27 | 58,170.82 | 46,129.46 | 2,908.541 | | |
| 2013 | Binghamton, NY | 17 | Huebnerite | Peru | 37 | 49,949 | 66.71 | 33,320.98 | 26,423.54 | 1,666.049 | | |
| 2016 | Binghamton, NY | 20 | Huebnerite | Unknown | 96 | 129,599 | 69.39 | 89,928.75 | 71,313.50 | 4,496.437 | | |
| 2302 | Scotia, NY | 66 FMS | Huebnerite | Unknown | 62 | 85,826 | 73.71 | 63,262.34 | 50,167.04 | 3,163.117 | | |
| 2303 | Scotia, NY | 70 FMS | Huebnerite | Unknown | 65 | 89,383 | 73.44 | 65,642.88 | 52,054.80 | 3,282.144 | | |
| 2304 | Scotia, NY | 74 FMS | Huebnerite | Unknown | 56 | 77,379 | 72.23 | 55,890.85 | 44,321.45 | 2,794.543 | | |
| 2305 | Scotia, NY | 78 FMS | Huebnerite | Unknown | 45 | 62,224 | 72.75 | 45,267.96 | 35,897.49 | 2,263.398 | | |
| 2306 | Scotia, NY | FMS 49 | Huebnerite | Peru | 161 | 70,929 | 74.82 | 53,069.08 | 42,083.78 | 2,653.454 | | |
| 2307 | Scotia, NY | 86 | Huebnerite | Unknown | 159 | 67,267 | 72.61 | 48,842.57 | 38,732.16 | 2,442.128 | | |
| 2308 | Scotia, NY | FMS 48 | Huebnerite | Peru | 161 | 70,843 | 74.77 | 52,969.31 | 42,004.66 | 2,648.466 | | |
| 2309 | Scotia, NY | 57 | Huebnerite | Peru | 212 | 88,529 | 74.47 | 65,927.55 | 52,280.54 | 3,296.377 | | |
| 2310 | Scotia, NY | 58 | Huebnerite | Peru | 212 | 88,658 | 74.08 | 65,677.85 | 52,082.53 | 3,283.892 | | |
| 2311 | Scotia, NY | 85 | Huebnerite | Unknown | 161 | 68,155 | 73.93 | 50,386.99 | 39,956.88 | 2,519.350 | | |
| 2312 | Scotia, NY | 82 | Huebnerite | Unknown | 194 | 81,984 | 72.53 | 59,463.00 | 47,154.16 | 2,973.150 | | |
| 2313 | Scotia, NY | 83 | Huebnerite | Unknown | 194 | 81,842 | 71.97 | 58,901.69 | 46,709.04 | 2,945.084 | | |
| 2314 | Scotia, NY | 77 FMS | Huebnerite | Unknown | 182 | 77,310 | 73.05 | 56,474.96 | 44,784.64 | 2,823.748 | | |
| 2315 | Scotia, NY | 72 FMS | Huebnerite | Unknown | 210 | 88,715 | 72.59 | 64,398.22 | 51,067.79 | 3,219.911 | | |
| 2316 | Scotia, NY | 76 FMS | Huebnerite | Unknown | 183 | 77,595 | 72.99 | 56,636.59 | 44,912.82 | 2,831.830 | | |
| 2317 | Scotia, NY | 65 FMS | Huebnerite | Unknown | 206 | 86,857 | 73.21 | 63,588.01 | 50,425.29 | 3,179.400 | | |
| 2318 | Scotia, NY | 75 FMS | Huebnerite | Unknown | 180 | 76,011 | 72.31 | 54,963.55 | 43,586.10 | 2,748.178 | | |
| 2319 | Scotia, NY | 71 FMS | Huebnerite | Unknown | 210 | 88,468 | 72.41 | 64,059.68 | 50,799.33 | 3,202.984 | | |
| 2320 | Scotia, NY | 69 FMS | Huebnerite | Unknown | 207 | 88,775 | 73.00 | 64,805.75 | 51,390.96 | 3,240.288 | | |
| 2321 | Scotia, NY | 68 FMS | Huebnerite | Unknown | 162 | 68,760 | 73.59 | 50,600.48 | 40,126.18 | 2,530.024 | | |
| 2322 | Scotia, NY | 73 FMS | Huebnerite | Unknown | 157 | 66,698 | 72.55 | 48,389.40 | 38,372.79 | 2,419.470 | | |
| 2323 | Scotia, NY | 67 FMS | Huebnerite | Unknown | 162 | 68,226 | 73.62 | 50,227.98 | 39,830.79 | 2,511.399 | | |
| 2602 | Somerville, NJ | 10H | Huebnerite | Domestic | 400 | 172,457 | 73.04 | 125,962.59 | 99,888.34 | 6,298.130 | | |
| 2603 | Somerville, NJ | 11-H | Huebnerite | Domestic | 114 | 50,790 | 72.02 | 36,578.96 | 29,007.11 | 1,828.948 | | |
| 2604 | Somerville, NJ | 12-H | Huebnerite | Domestic | 270 | 118,777 | 72.73 | 86,386.51 | 68,504.50 | 4,319.326 | | |
| 2605 | Somerville, NJ | 1-H | Huebnerite | Domestic | 145 | 61,804 | 74.72 | 46,179.95 | 36,620.70 | 2,308.997 | | |
| 2606 | Somerville, NJ | 21961-1-1H | Huebnerite | Domestic | 500 | 221,646 | 74.51 | 165,148.43 | 130,962.71 | 8,257.422 | | |
| 2607 | Somerville, NJ | 2-H | Huebnerite | Domestic | 140 | 59,190 | 74.44 | 44,061.04 | 34,940.40 | 2,203.052 | | |
| 3010 | Columbus, OH | P-2376-G | Scheelite | Unknown | 77 | 83,016 | 60.51 | 50,232.98 | 39,834.75 | 2,511.649 | | |
| 3012 | Columbus, OH | P-2376-D | Scheelite | Unknown | 87 | 102,100 | 63.22 | 64,547.62 | 51,186.26 | 3,227.381 | | |
| 3013 | Columbus, OH | P-2376-C | Scheelite | Unknown | 82 | 101,509 | 63.37 | 64,326.25 | 51,010.72 | 3,216.313 | | |
| 3014 | Columbus, OH | L-5133 | Scheelite | Unknown | 65 | 83,323 | 63.52 | 52,926.77 | 41,970.93 | 2,646.338 | | |
| 3015 | Columbus, OH | DOM-69 | Scheelite | Unknown | 8 | 2,571 | 63.53 | 1,633.36 | 1,295.25 | 81.668 | | |
| 3016 | Columbus, OH | 2293-B | Scheelite | Unknown | 234 | 85,450 | 63.79 | 54,508.56 | 43,225.28 | 2,725.428 | | |
| 3017 | Columbus, OH | 2287-A | Scheelite | Unknown | 122 | 178,599 | 63.85 | 114,035.46 | 90,430.12 | 5,701.773 | | |
| 3018 | Columbus, OH | R-4197-A | Scheelite | Unknown | 72 | 86,089 | 64.26 | 55,320.79 | 43,869.39 | 2,766.040 | | |
| 3032 | Hammond, IN | C-2/C-2-3 | Scheelite | Canada | 700 | 140,000 | 75.43 | 105,602.00 | 83,742.39 | 5,280.100 | | |
| 3168 | Hammond, IN | 9-2257 -4 | Scheelite | Domestic | 2 | 2,304 | 72.69 | 1,674.78 | 1,328.10 | 83.739 | | |
| 3169 | Hammond, IN | 9-2646 -2 | Scheelite | Domestic | 10 | 14,056 | 67.81 | 9,531.37 | 7,558.38 | 476.569 | | |

I.2 Item Offer Page -- Tungsten Ores and Concentrates (NOV 04)

| | | | | | | Bulk Wt | WO3 | WO3 | W | WO3 | Offered Price | Total |
|--------|----------------|---------------|---------------------|-----------|------------|---------|-------|------------|-----------|-----------|----------------|--------------------|
| Item # | Location | Lot # | Type | Origin | # of Units | (lbs) | (%) | (lbsWO3) | (lbsW) | (STU) | (\$ / WO3 STU) | Offered Price (\$) |
| 3170 | Hammond, IN | 9-2654 -1 | Scheelite | Domestic | 2 | 2,012 | 71.50 | 1,438.58 | 1,140.79 | 71.929 | | |
| 3204 | Hammond, IN | 9-T-7 -5 | Scheelite | Domestic | 5 | 7,500 | 65.96 | 4,947.00 | 3,922.97 | 247.350 | | |
| 3213 | Hammond, IN | 9-T-15 -2 | Scheelite | Domestic | 22 | 31,939 | 62.78 | 20,051.30 | 15,900.68 | 1,002.565 | | |
| 3214 | Hammond, IN | 9-T-15 -1 | Scheelite | Domestic | 54 | 80,640 | 62.48 | 50,383.87 | 39,954.41 | 2,519.194 | | |
| 3215 | Hammond, IN | 9-T-17 -2 | Scheelite | Domestic | 5 | 7,215 | 69.57 | 5,019.48 | 3,980.44 | 250.974 | | |
| 3216 | Hammond, IN | 9-T-17 -3 | Scheelite | Domestic | 49 | 72,802 | 67.06 | 48,821.02 | 38,715.07 | 2,441.051 | | |
| 3224 | Hammond, IN | 9-T-37 -2 | Scheelite | Domestic | 3 | 4,500 | 76.37 | 3,436.65 | 2,725.26 | 171.833 | | |
| 3228 | Hammond, IN | 9-T-54 -1 | Scheelite | Domestic | 4 | 5,811 | 75.89 | 4,409.97 | 3,497.10 | 220.498 | | |
| 3229 | Hammond, IN | 9-T-54 -3 | Scheelite | Domestic | 5 | 7,500 | 75.70 | 5,677.50 | 4,502.26 | 283.875 | | |
| 3230 | Hammond, IN | 9-T-54 -5 | Scheelite | Domestic | 2 | 3,000 | 78.04 | 2,341.20 | 1,856.57 | 117.060 | | |
| 3231 | Hammond, IN | 9-T-54 -6 | Scheelite | Domestic | 3 | 4,058 | 77.53 | 3,146.17 | 2,494.91 | 157.308 | | |
| 3232 | Hammond, IN | 9-T-54 -7 | Scheelite | Domestic | 5 | 7,300 | 75.97 | 5,545.81 | 4,397.83 | 277.291 | | |
| 3234 | Hammond, IN | 9-T-66 -3 | Scheelite | Domestic | 18 | 23,963 | 68.35 | 16,378.71 | 12,988.32 | 818.936 | | |
| 3235 | Hammond, IN | 9-T-66 -4 | Scheelite | Domestic | 9 | 12,206 | 68.37 | 8,345.24 | 6,617.78 | 417.262 | | |
| 3243 | Hammond, IN | 9-T-152 -1 | Scheelite | Domestic | 3 | 3,671 | 76.80 | 2,819.33 | 2,235.73 | 140.966 | | |
| 3244 | Hammond, IN | 9-T-152 -2 | Scheelite | Domestic | 2 | 2,184 | 78.00 | 1,703.52 | 1,350.89 | 85.176 | | |
| 3245 | Hammond, IN | 9-T-173 -1 | Scheelite | Domestic | 2 | 2,026 | 71.01 | 1,438.66 | 1,140.86 | 71.933 | | |
| 3246 | Hammond, IN | 9-T-180 -1 | Scheelite | Domestic | 2 | 2,496 | 73.61 | 1,837.31 | 1,456.98 | 91.865 | | |
| 3303 | Scotia, NY | 45-3658 | Scheelite | Spain | 78 | 38,895 | 74.67 | 29,042.90 | 23,031.02 | 1,452.145 | | |
| 3304 | Scotia, NY | 44-3658 | Scheelite | Spain | 79 | 39,535 | 75.19 | 29,726.37 | 23,573.01 | 1,486.318 | | |
| 3305 | Scotia, NY | P-2843-B | Scheelite | Unknown | 198 | 82,148 | 72.93 | 59,910.54 | 47,509.06 | 2,995.527 | | |
| 3306 | Scotia, NY | L 5209 | Scheelite | Unknown | 215 | 88,118 | 65.73 | 57,919.96 | 45,930.53 | 2,895.998 | | |
| 3307 | Scotia, NY | F 810 KIS309 | Scheelite | Australia | 300 | 105,401 | 65.20 | 68,721.45 | 54,496.11 | 3,436.073 | | |
| 3308 | Scotia, NY | F 821 KIS313 | Scheelite | Australia | 290 | 105,237 | 66.92 | 70,424.60 | 55,846.71 | 3,521.230 | | |
| 3309 | Scotia, NY | P 3071 | Scheelite | Domestic | 201 | 76,210 | 65.89 | 50,214.77 | 39,820.31 | 2,510.738 | | |
| 3310 | Scotia, NY | BMB4-21196 | Scheelite | Bolivia | 23 | 35,469 | 74.71 | 26,498.89 | 21,013.62 | 1,324.944 | | |
| 3311 | Scotia, NY | 415 | Scheelite | Bolivia | 95 | 49,328 | 74.21 | 36,606.31 | 29,028.80 | 1,830.315 | | |
| 3312 | Scotia, NY | 16-White | Scheelite | Unknown | 106 | 55,648 | 65.86 | 36,649.77 | 29,063.27 | 1,832.489 | | |
| 3313 | Scotia, NY | L-5213 | Scheelite | Unknown | 167 | 68,894 | 66.30 | 45,676.72 | 36,221.64 | 2,283.836 | | |
| 3314 | Scotia, NY | L-5210 | Scheelite | Unknown | 190 | 86,585 | 65.48 | 56,695.86 | 44,959.82 | 2,834.793 | | |
| 3601 | Somerville, NJ | 4/49 | Scheelite | Bolivia | 67 | 64,846 | 71.80 | 46,559.43 | 36,921.63 | 2,327.971 | | |
| 3603 | Somerville, NJ | 3658-SCM-22-1 | Scheelite | Unknown | 180 | 79,365 | 72.68 | 57,682.48 | 45,742.21 | 2,884.124 | | |
| 3604 | Somerville, NJ | 4//34 | Scheelite | Chile | 55 | 54,714 | 73.54 | 40,236.68 | 31,907.68 | 2,011.834 | | |
| 4060 | Hammond, IN | 9-T-5 -2 | Synthetic Scheelite | Domestic | 262 | 104,800 | 73.15 | 76,661.20 | 60,792.33 | 3,833.060 | | |
| 4061 | Hammond, IN | 9-T-5 -3 | Synthetic Scheelite | Domestic | 354 | 141,600 | 72.19 | 102,221.04 | 81,061.28 | 5,111.052 | | |
| 4062 | Hammond, IN | 9-T-5 -4 | Synthetic Scheelite | Domestic | 279 | 107,415 | 72.03 | 77,371.02 | 61,355.22 | 3,868.551 | | |
| 4063 | Hammond, IN | 9-T-8 -2 | Synthetic Scheelite | Domestic | 366 | 140,910 | 71.34 | 100,525.19 | 79,716.48 | 5,026.260 | | |
| 4064 | Hammond, IN | 9-T-8 -3 | Synthetic Scheelite | Domestic | 248 | 95,480 | 71.93 | 68,678.76 | 54,462.26 | 3,433.938 | | |
| 4303 | Scotia, NY | P-3030-A | Synthetic Scheelite | Argentina | 219 | 62,922 | 73.42 | 46,197.33 | 36,634.48 | 2,309.867 | | |
| 4304 | Scotia, NY | P-3084-D | Synthetic Scheelite | Argentina | 202 | 63,916 | 72.55 | 46,371.06 | 36,772.25 | 2,318.553 | | |
| 4305 | Scotia, NY | P-2965-A | Synthetic Scheelite | Unknown | 303 | 88,051 | 70.71 | 62,260.86 | 49,372.86 | 3,113.043 | | |
| 4306 | Scotia, NY | P-3088-A | Synthetic Scheelite | Argentina | 59 | 63,246 | 71.88 | 45,461.22 | 36,050.75 | 2,273.061 | | |

I.2 Item Offer Page -- Tungsten Ores and Concentrates (NOV 04)

| | | | | | | Bulk Wt | WO3 | WO3 | W | WO3 | Offered Price | Total |
|--------|----------------|--------------|---------------------|--------------|------------|---------|-------|-----------|-----------|-----------|----------------|--------------------|
| Item # | Location | Lot # | Type | Origin | # of Units | (lbs) | (%) | (lbsWO3) | (lbsW) | (STU) | (\$ / WO3 STU) | Offered Price (\$) |
| 4307 | Scotia, NY | P-2969-A | Synthetic Scheelite | Argentina | 58 | 61,873 | 72.78 | 45,031.17 | 35,709.72 | 2,251.558 | | |
| 4308 | Scotia, NY | P-2832 | Synthetic Scheelite | Brazil | 56 | 59,592 | 71.95 | 42,876.44 | 34,001.02 | 2,143.822 | | |
| 4309 | Scotia, NY | P-2965-B | Synthetic Scheelite | Unknown | 302 | 88,216 | 70.63 | 62,306.96 | 49,409.42 | 3,115.348 | | |
| 4310 | Scotia, NY | P-3029-C | Synthetic Scheelite | Argentina | 234 | 64,257 | 70.49 | 45,294.76 | 35,918.74 | 2,264.738 | | |
| 4311 | Scotia, NY | P-2965-C | Synthetic Scheelite | Unknown | 300 | 88,363 | 70.37 | 62,181.04 | 49,309.57 | 3,109.052 | | |
| 4312 | Scotia, NY | P-3084-E | Synthetic Scheelite | Argentina | 203 | 62,458 | 71.15 | 44,438.87 | 35,240.02 | 2,221.943 | | |
| 4313 | Scotia, NY | P-3022-B | Synthetic Scheelite | Argentina | 271 | 63,513 | 67.85 | 43,093.57 | 34,173.20 | 2,154.679 | | |
| 4314 | Scotia, NY | P-3128-B | Synthetic Scheelite | Argentina | 195 | 63,615 | 72.45 | 46,089.07 | 36,548.63 | 2,304.453 | | |
| 4315 | Scotia, NY | P-3030-B | Synthetic Scheelite | Argentina | 214 | 59,078 | 71.09 | 41,998.55 | 33,304.85 | 2,099.928 | | |
| 4316 | Scotia, NY | P-2987-B | Synthetic Scheelite | Argentina | 223 | 64,226 | 72.92 | 46,833.60 | 37,139.04 | 2,341.680 | | |
| 4317 | Scotia, NY | P-3009-C | Synthetic Scheelite | Argentina | 248 | 64,623 | 71.30 | 46,076.20 | 36,538.43 | 2,303.810 | | |
| 4318 | Scotia, NY | P-3029-E | Synthetic Scheelite | Argentina | 236 | 62,862 | 70.70 | 44,443.43 | 35,243.64 | 2,222.172 | | |
| 4319 | Scotia, NY | P-2987-A | Synthetic Scheelite | Argentina | 224 | 63,868 | 72.77 | 46,476.74 | 36,856.06 | 2,323.837 | | |
| 4320 | Scotia, NY | P-3048-E | Synthetic Scheelite | Argentina | 215 | 63,683 | 69.02 | 43,954.01 | 34,855.53 | 2,197.700 | | |
| 4321 | Scotia, NY | P-3134-C | Synthetic Scheelite | Argentina | 240 | 87,909 | 72.77 | 63,971.38 | 50,729.30 | 3,198.569 | | |
| 4322 | Scotia, NY | P-2833-A | Synthetic Scheelite | Brazil | 237 | 70,036 | 72.17 | 50,544.98 | 40,082.17 | 2,527.249 | | |
| 4323 | Scotia, NY | P-3022-A | Synthetic Scheelite | Argentina | 271 | 66,031 | 68.62 | 45,310.47 | 35,931.20 | 2,265.524 | | |
| 4324 | Scotia, NY | P-2835-C | Synthetic Scheelite | Unknown | 285 | 81,325 | 70.99 | 57,732.62 | 45,781.97 | 2,886.631 | | |
| 4325 | Scotia, NY | P-3134-A | Synthetic Scheelite | Unknown | 243 | 88,017 | 73.17 | 64,402.04 | 51,070.82 | 3,220.102 | | |
| 4326 | Scotia, NY | P-3134-B | Synthetic Scheelite | Unknown | 239 | 88,215 | 73.40 | 64,749.81 | 51,346.60 | 3,237.491 | | |
| 4603 | Somerville, NJ | 1278-3-BS | Synthetic Scheelite | Unknown | 165 | 60,187 | 75.28 | 45,308.77 | 35,929.86 | 2,265.439 | | |
| 4604 | Somerville, NJ | 17135 | Synthetic Scheelite | Domestic | 216 | 73,440 | 70.31 | 51,635.66 | 40,947.08 | 2,581.783 | | |
| 4605 | Somerville, NJ | 21962-2-2 | Synthetic Scheelite | Domestic | 276 | 110,000 | 71.43 | 78,573.00 | 62,308.39 | 3,928.650 | | |
| 4606 | Somerville, NJ | 21962-3-3 | Synthetic Scheelite | Domestic | 275 | 110,000 | 71.70 | 78,870.00 | 62,543.91 | 3,943.500 | | |
| 4607 | Somerville, NJ | 21962-6-6 | Synthetic Scheelite | Domestic | 275 | 110,000 | 71.14 | 78,254.00 | 62,055.42 | 3,912.700 | | |
| 4608 | Somerville, NJ | P-2782 | Synthetic Scheelite | Canada | 231 | 73,894 | 74.60 | 55,124.92 | 43,714.06 | 2,756.246 | | |
| 5006 | Columbus, OH | W-136-E | Wolframite | Domestic | 59 | 88,769 | 64.42 | 57,184.99 | 45,347.70 | 2,859.249 | | |
| 5007 | Columbus, OH | WHB-17 (216) | Wolframite | South Africa | 30 | 13,339 | 67.32 | 8,979.81 | 7,120.99 | 448.991 | | |
| 5008 | Columbus, OH | WHB-44 (737) | Wolframite | South Africa | 54 | 22,450 | 68.12 | 15,292.94 | 12,127.30 | 764.647 | | |
| 5009 | Columbus, OH | WHB-11 (832) | Wolframite | South Africa | 46 | 22,349 | 68.22 | 15,246.49 | 12,090.46 | 762.324 | | |
| 5010 | Columbus, OH | WHB-48 (591) | Wolframite | South Africa | 51 | 22,325 | 68.47 | 15,285.93 | 12,121.74 | 764.296 | | |
| 5012 | Columbus, OH | 37127 - 44 | Wolframite | China | 236 | 112,099 | 68.86 | 77,191.37 | 61,212.76 | 3,859.569 | | |
| 5013 | Columbus, OH | WHB-8 (577) | Wolframite | South Africa | 52 | 24,579 | 68.95 | 16,947.22 | 13,439.15 | 847.361 | | |
| 5014 | Columbus, OH | 37127 - 63 | Wolframite | China | 236 | 112,099 | 68.96 | 77,303.47 | 61,301.65 | 3,865.174 | | |
| 5015 | Columbus, OH | 37127 - 72 | Wolframite | China | 236 | 112,099 | 69.14 | 77,505.25 | 61,461.66 | 3,875.262 | | |
| 5016 | Columbus, OH | WHB-19 (735) | Wolframite | South Africa | 30 | 13,356 | 69.22 | 9,245.02 | 7,331.30 | 462.251 | | |
| 5017 | Columbus, OH | 37127 - 47 | Wolframite | China | 236 | 112,099 | 69.26 | 77,639.77 | 61,568.34 | 3,881.988 | | |
| 5018 | Columbus, OH | 37127 - 16 | Wolframite | China | 236 | 112,099 | 69.42 | 77,819.13 | 61,710.57 | 3,890.956 | | |
| 5019 | Columbus, OH | WHB-42 (836) | Wolframite | South Africa | 32 | 13,408 | 69.49 | 9,317.22 | 7,388.55 | 465.861 | | |
| 5020 | Columbus, OH | WHB-47 (955) | Wolframite | South Africa | 54 | 22,456 | 69.57 | 15,622.64 | 12,388.75 | 781.132 | | |
| 5022 | Columbus, OH | WHB-2 | Wolframite | Unknown | 52 | 24,572 | 69.69 | 17,124.23 | 13,579.51 | 856.211 | | |
| 5025 | Columbus, OH | WHB-16 (924) | Wolframite | South Africa | 35 | 15,615 | 70.30 | 10,977.35 | 8,705.03 | 548.867 | | |

I.2 Item Offer Page -- Tungsten Ores and Concentrates (NOV 04)

| | | | | | | Bulk Wt | WO3 | WO3 | W | WO3 | Offered Price | Total |
|--------|----------------|---------------|------------|---------------|------------|---------|-------|-----------|-----------|-----------|----------------|--------------------|
| Item # | Location | Lot # | Type | Origin | # of Units | (lbs) | (%) | (lbsWO3) | (lbsW) | (STU) | (\$ / WO3 STU) | Offered Price (\$) |
| 5026 | Columbus, OH | WHB-43 (186) | Wolframite | South Africa | 27 | 11,148 | 70.52 | 7,861.57 | 6,234.22 | 393.078 | | |
| 5027 | Columbus, OH | 1(WHB-60) | Wolframite | South Africa | 15 | 6,764 | 70.80 | 4,788.91 | 3,797.61 | 239.446 | | |
| 5029 | Columbus, OH | WHB-12 (77A) | Wolframite | South Africa | 38 | 17,665 | 70.93 | 12,529.78 | 9,936.12 | 626.489 | | |
| 5030 | Columbus, OH | WHB-155 (099) | Wolframite | South Africa | 48 | 22,380 | 70.97 | 15,883.09 | 12,595.29 | 794.154 | | |
| 5031 | Columbus, OH | WHB-22 (657) | Wolframite | South Africa | 35 | 15,660 | 70.97 | 11,113.90 | 8,813.32 | 555.695 | | |
| 5033 | Columbus, OH | WHB-41 (058) | Wolframite | South Africa | 47 | 22,309 | 71.23 | 15,890.70 | 12,601.33 | 794.535 | | |
| 5035 | Columbus, OH | WHB-31 | Wolframite | Unknown | 24 | 11,230 | 71.97 | 8,082.23 | 6,409.21 | 404.112 | | |
| 5037 | Columbus, OH | 3 | Wolframite | Thailand/Siam | 25 | 11,829 | 72.07 | 8,525.16 | 6,760.45 | 426.258 | | |
| 5038 | Columbus, OH | WHB-28 (908) | Wolframite | South Africa | 45 | 20,064 | 72.26 | 14,498.25 | 11,497.11 | 724.912 | | |
| 5039 | Columbus, OH | 11 | Wolframite | Thailand/Siam | 47 | 21,923 | 72.27 | 15,843.75 | 12,564.10 | 792.188 | | |
| 5113 | Binghamton, NY | 1 | Wolframite | Unknown | 22 | 21,823 | 69.69 | 15,208.45 | 12,060.30 | 760.422 | | |
| 5114 | Binghamton, NY | 4 | Wolframite | Unknown | 21 | 21,965 | 70.88 | 15,568.79 | 12,346.05 | 778.440 | | |
| 5115 | Binghamton, NY | 6 | Wolframite | Unknown | 21 | 21,386 | 68.55 | 14,660.10 | 11,625.46 | 733.005 | | |
| 5117 | Binghamton, NY | 7-(3727) | Wolframite | Unknown | 21 | 21,828 | 68.84 | 15,026.40 | 11,915.93 | 751.320 | | |
| 5119 | Binghamton, NY | 11 | Wolframite | Unknown | 20 | 19,956 | 72.19 | 14,406.24 | 11,424.15 | 720.312 | | |
| 5120 | Binghamton, NY | 12-(942) | Wolframite | Unknown | 20 | 19,928 | 71.86 | 14,320.26 | 11,355.97 | 716.013 | | |
| 5121 | Binghamton, NY | 12-(2352) | Wolframite | Unknown | 44 | 58,590 | 68.56 | 40,169.30 | 31,854.26 | 2,008.465 | | |
| 5122 | Binghamton, NY | 13-(942) | Wolframite | Unknown | 20 | 19,968 | 72.89 | 14,554.68 | 11,541.86 | 727.734 | | |
| 5124 | Binghamton, NY | 13-(3658) | Wolframite | Spain | 59 | 79,521 | 68.39 | 54,384.41 | 43,126.84 | 2,719.221 | | |
| 5125 | Binghamton, NY | 14 | Wolframite | Unknown | 20 | 19,853 | 72.46 | 14,385.48 | 11,407.69 | 719.274 | | |
| 5126 | Binghamton, NY | 16 | Wolframite | Spain | 49 | 65,938 | 68.46 | 45,141.15 | 35,796.94 | 2,257.058 | | |
| 5127 | Binghamton, NY | 17-(2352) | Wolframite | Spain | 38 | 50,493 | 69.34 | 35,011.85 | 27,764.39 | 1,750.592 | | |
| 5129 | Binghamton, NY | 18 | Wolframite | Spain | 68 | 91,299 | 68.25 | 62,311.57 | 49,413.07 | 3,115.578 | | |
| 5130 | Binghamton, NY | 19 | Wolframite | Unknown | 21 | 19,969 | 72.74 | 14,525.45 | 11,518.68 | 726.273 | | |
| 5131 | Binghamton, NY | 20 | Wolframite | Spain | 46 | 61,618 | 68.46 | 42,183.68 | 33,451.66 | 2,109.184 | | |
| 5133 | Binghamton, NY | 23-(2610) | Wolframite | Unknown | 62 | 53,709 | 68.82 | 36,962.53 | 29,311.29 | 1,848.127 | | |
| 5136 | Binghamton, NY | 26 | Wolframite | Spain | 32 | 42,371 | 67.88 | 28,761.43 | 22,807.82 | 1,438.072 | | |
| 5137 | Binghamton, NY | 27-(942) | Wolframite | Unknown | 21 | 19,906 | 67.51 | 13,438.54 | 10,656.76 | 671.927 | | |
| 5138 | Binghamton, NY | 27-(2352) | Wolframite | Spain | 32 | 43,176 | 67.55 | 29,165.39 | 23,128.15 | 1,458.269 | | |
| 5139 | Binghamton, NY | 28-(942) | Wolframite | Unknown | 21 | 19,916 | 72.26 | 14,391.30 | 11,412.30 | 719.565 | | |
| 5140 | Binghamton, NY | 28-(2352) | Wolframite | Spain | 33 | 43,786 | 67.05 | 29,358.51 | 23,281.30 | 1,467.926 | | |
| 5141 | Binghamton, NY | 29 | Wolframite | Spain | 83 | 111,540 | 68.96 | 76,917.98 | 60,995.96 | 3,845.899 | | |
| 5148 | Binghamton, NY | 1 // 02 | Wolframite | Spain | 64 | 85,564 | 67.75 | 57,969.61 | 45,969.90 | 2,898.481 | | |
| 5149 | Binghamton, NY | 1 // 03 | Wolframite | Spain | 42 | 55,986 | 66.40 | 37,174.70 | 29,479.54 | 1,858.735 | | |
| 5153 | Binghamton, NY | 1/14 | Wolframite | Spain | 41 | 55,043 | 67.88 | 37,363.19 | 29,629.01 | 1,868.159 | | |
| 5154 | Binghamton, NY | 1/15 | Wolframite | Spain | 83 | 111,662 | 67.25 | 75,092.70 | 59,548.51 | 3,754.635 | | |
| 5155 | Binghamton, NY | 1/16 | Wolframite | Spain | 48 | 63,729 | 66.27 | 42,233.21 | 33,490.93 | 2,111.660 | | |
| 5157 | Binghamton, NY | 1/23 | Wolframite | Spain | 206 | 102,653 | 67.59 | 69,383.16 | 55,020.85 | 3,469.158 | | |
| 5158 | Binghamton, NY | 1/33 | Wolframite | Spain | 120 | 59,892 | 69.04 | 41,349.44 | 32,790.10 | 2,067.472 | | |
| 5163 | Binghamton, NY | 1/40 | Wolframite | Spain | 126 | 70,237 | 66.03 | 46,377.49 | 36,777.35 | 2,318.875 | | |
| 5164 | Binghamton, NY | 1/41 | Wolframite | Spain | 124 | 67,805 | 69.14 | 46,880.38 | 37,176.14 | 2,344.019 | | |
| 5165 | Binghamton, NY | 1/42 | Wolframite | Spain | 120 | 65,678 | 69.46 | 45,619.94 | 36,176.61 | 2,280.997 | | |
| 5167 | Binghamton, NY | 1/47 Blue | Wolframite | Spain | 118 | 64,515 | 69.32 | 44,721.80 | 35,464.39 | 2,236.090 | | |

I.2 Item Offer Page -- Tungsten Ores and Concentrates (NOV 04)

NOTE: Minimum bid is one entire line item.

Company Name:

Name and Title of Person Submitting Offer:

Signature and Date:

| SECTION J.1 ANALYSIS - TUNGSTEN ORES AND CONCENTRATES (NOV 04) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|-----|------------|-----------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|------------------|
| Item | Depot | Lot | Type | Percent * | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | WO ₃ | Al | As | Ba | Be | Bi | Ca | Cd | Co | Cr | Cu | Fe | K | Mg | Mn | Sn | Mo | Na | Nb/Cb | Ni | P | Pb | S | Sb | Si | Ta | Tl | V | Zn | Th | U | Bq/g** | H ₂ O |
| 5605 | Somerville, NJ | 26 | Wolframite | 72.57 | 0.10 | <0.01 | <0.01 | <0.01 | <0.01 | 0.04 | <0.01 | <0.01 | <0.01 | 14.03 | <0.01 | 0.03 | 4.99 | 0.25 | <0.01 | <0.01 | 0.05 | <0.01 | 0.02 | 0.03 | 0.01 | <0.01 | 0.19 | <0.01 | 0.07 | <0.01 | 0.01 | 0.002 | 0.003 | 1 | 0.07 | |
| 5606 | Somerville, NJ | 58 | Wolframite | 73.84 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.62 | <0.01 | <0.01 | <0.01 | 0.03 | 15.06 | <0.01 | 0.14 | 2.68 | 0.12 | <0.01 | <0.01 | 0.01 | <0.01 | 0.02 | 0.23 | <0.01 | 0.16 | <0.01 | <0.01 | <0.01 | 0.02 | <0.001 | 0.004 | 1 | 0.04 | |
| 5607 | Somerville, NJ | 59 | Wolframite | 73.11 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.48 | <0.01 | <0.01 | <0.01 | <0.01 | 15.67 | <0.01 | 0.15 | 2.74 | 0.12 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | 0.02 | 0.19 | <0.01 | 0.06 | <0.01 | 0.03 | <0.01 | 0.02 | <0.001 | 0.004 | 1 | 0.00 |
| 5608 | Somerville, NJ | 61 | Wolframite | 74.50 | <0.01 | 0.01 | <0.01 | <0.01 | <0.01 | 0.51 | <0.01 | 0.01 | <0.01 | 0.02 | 15.04 | <0.01 | 0.15 | 2.67 | 0.11 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 | 0.06 | <0.01 | 0.02 | <0.01 | 0.02 | <0.01 | 0.004 | 1 | 0.02 | | |
| 5609 | Somerville, NJ | 62 | Wolframite | 73.91 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.76 | <0.01 | 0.01 | <0.01 | 0.03 | 15.00 | <0.01 | 0.14 | 2.64 | 0.09 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 | 0.12 | <0.01 | 0.07 | <0.01 | 0.03 | <0.01 | 0.02 | <0.001 | 0.003 | 1 | 0.07 |
| 5610 | Somerville, NJ | 63 | Wolframite | 73.86 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.73 | <0.01 | <0.01 | <0.01 | 0.02 | 14.76 | <0.01 | 0.13 | 2.87 | 0.12 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 | 0.22 | <0.01 | 0.14 | <0.01 | 0.01 | <0.01 | 0.02 | <0.001 | 0.005 | 1 | 0.04 |
| 5611 | Somerville, NJ | 64 | Wolframite | 73.34 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.51 | <0.01 | <0.01 | <0.01 | <0.01 | 15.48 | <0.01 | 0.14 | 2.71 | 0.12 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 | 0.15 | <0.01 | 0.07 | <0.01 | 0.03 | <0.01 | 0.02 | <0.001 | 0.004 | 1 | 0.00 |
| 5612 | Somerville, NJ | 66 | Wolframite | 73.55 | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | 0.75 | <0.01 | 0.01 | <0.01 | 0.04 | 15.07 | <0.01 | 0.16 | 2.62 | 0.09 | <0.01 | <0.01 | 0.02 | <0.01 | <0.01 | <0.01 | 0.24 | <0.01 | 0.09 | <0.01 | 0.03 | <0.01 | 0.02 | <0.001 | 0.003 | 1 | 0.07 |
| 5613 | Somerville, NJ | 67 | Wolframite | 71.67 | <0.01 | <0.01 | <0.01 | <0.01 | 0.01 | 0.51 | <0.01 | <0.01 | <0.01 | <0.01 | 16.32 | <0.01 | 0.18 | 2.71 | 0.12 | <0.01 | <0.01 | 0.01 | <0.01 | <0.01 | 0.02 | 0.16 | <0.01 | 0.08 | <0.01 | 0.04 | <0.01 | 0.02 | <0.001 | 0.004 | 1 | 0.07 |

* All analyses performed in dry state.

** Activity is derived from chemical analysis and 49 CFR 173.435 values for natural U and Th. If activity is >10, then DNSC packaging is unsuitable for foreign shipment.

J.2 Storage Locations (NOV 04)

Page 22 of 30

DNSC STORAGE LOCATIONS

| Depot | Status | Address | Manager | Phone # | Fax # | Shipping Hours | Access |
|----------------|---------------|---|---------------------|----------------------------|----------------------------------|-----------------------|-------------------------------------|
| Binghamton, NY | Staffed | Hoyt Avenue Binghamton, NY 13901-1699 | Bill Guiton | (607) 773-2602 | (607) 773-2722 | Mon-Thu Fri | 0700-1430 0800-1430 |
| Columbus, OH | Unstaffed | DSCC 3990 East Broad Street Columbus, OH 43213 | | Contact Warren, OH, Depot | | Mon Tue-Thu Fri | 1200-1430 0730-1430 0730-1030 |
| Hammond, IN | Staffed | 3200 Sheffield Avenue Hammond, IN 46327-1003 | John Olszewski x104 | (219) 937-5383 | (219) 937-5284 (800) 373-4102 | Mon-Fri | 0700-1630 |
| Herlong, CA | Unstaffed | Sierra Army Depot 74 C Street Herlong, CA 96113 | | Contact Hammond, IN, Depot | | Mon-Fri | 0700-1500 |
| Scotia, NY | Staffed | Route 5, Bldg #2 Scotia, NY 12302-7463 | Dennis Wesolowski | (518) 370-3347 | (518) 370-0323 | Mon-Fri | 0715-1430 |
| Somerville, NJ | Staffed | 152 U.S.Highway 206 S Hillsborough, NJ 08844-4135 | Jim Farley | (908) 725-6400 | (908) 707-4350 (800) 742-0620 | Mon-Fri | 0700-1430 |
| Warren, OH | Staffed | Pine Street Extension Warren, OH 44482-9999 | Jack Pittano | (330) 652-1456 | (330) 652-5167 (800) 373-4110 | Mon-Fri | 0730-1430 |

J.4 MATERIAL SAFETY DATA SHEET (SEP 03)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| | |
|--|---------------------------------------|
| DEFENSE LOGISTICS AGENCY | EMERGENCY TELEPHONE NUMBER: |
| DEFENSE NATIONAL STOCKPILE CENTER | 1-800-424-9300 (NORTH AMERICA) |
| 8725 JOHN J. KINGMAN ROAD | 1-703-527-3887 (INTERNATIONAL) |
| SUITE 3339 | |
| FORT BELVOIR, VA 22060-6223 | |

SUBSTANCE: TUNGSTEN ORES AND CONCENTRATES (NON-RADIOACTIVE)

TRADE NAMES/SYNONYMS:

TUNGSTEN; WOLFRAM; TUNGSTEN ELEMENT; W; 00229908; RTECS YO7175000

CHEMICAL FAMILY: metal

CREATION DATE: May 30 2003

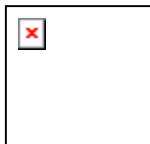
REVISION DATE: Sep 18 2003

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TUNGSTEN
CAS NUMBER: 7440-33-7
EC NUMBER (EINECS): 231-143-9
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=0 REACTIVITY=0



EMERGENCY OVERVIEW:

COLOR: white to gray or black

PHYSICAL FORM: solid

MAJOR HEALTH HAZARDS: No significant target effects reported.

PHYSICAL HAZARDS: Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: lung damage

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: irritation

EYE CONTACT:

SHORT TERM EXPOSURE: irritation

LONG TERM EXPOSURE: irritation

INGESTION:

SHORT TERM EXPOSURE: irritation, nausea, vomiting

LONG TERM EXPOSURE: no information on significant adverse effects

CARCINOGEN STATUS:

OSHA: No

NTP: No

IARC: No

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode.

EXTINGUISHING MEDIA: dolomite, dry powder for metal fires, dry sand, graphite, soda ash, sodium chloride

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the

following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products.

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Collect spilled material in appropriate container for disposal.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances.

HANDLING: Use methods to minimize dust.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

TUNGSTEN ORES AND CONCENTRATES (NON-RADIOACTIVE):

TUNGSTEN AND INSOLUBLE COMPOUNDS (as W):

5 mg/m³ OSHA TWA (vacated by 58 FR 35338, June 30, 1993)

10 mg/m³ OSHA STEL (vacated by 58 FR 35338, June 30, 1993)

5 mg/m³ ACGIH TWA

10 mg/m³ ACGIH STEL

5 mg/m³ NIOSH recommended TWA 10 hour(s)

10 mg/m³ NIOSH recommended STEL

5 mg/m³ UK OES TWA

10 mg/m³ UK OES STEL

MEASUREMENT METHOD: Particulate filter; Acid; Atomic absorption spectrometry; NIOSH III # 7074

TUNGSTEN ORE (WOLFRAMITE):

5 mg(W)/m³ ACGIH TWA

10 mg(W)/m³ ACGIH STEL (insoluble compounds)

1 mg(W)/m³ ACGIH TWA

3 mg(W)/m³ ACGIH STEL (soluble compounds)

5 mg(W)/m³ NIOSH recommended TWA 10 hour(s)

10 mg(W)/m³ NIOSH recommended STEL

MEASUREMENT METHOD: Particulate filter; Acid; Atomic absorption spectrometry; NIOSH III # 7074

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

Measurement Element:

Tungsten (W)

50 mg/m³

Any air-purifying respirator with a high-efficiency particulate filter.

Any supplied-air respirator.

Any self-contained breathing apparatus with a full facepiece.

Escape -

Any air-purifying respirator with a full facepiece and a high-efficiency particulate filter.

Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: solid

COLOR: white to gray or black

ODOR: Not available

MOLECULAR WEIGHT: 183.85

MOLECULAR FORMULA: W

BOILING POINT: 10220 F (5660 C)

MELTING POINT: 6134-6206 F (3390-3430 C)

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SPECIFIC GRAVITY (water=1): 19.35

WATER SOLUBILITY: insoluble

PH: Not applicable

VOLATILITY: Not applicable

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not applicable

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

SOLVENT SOLUBILITY:

Soluble: nitric acid/hydrofluoric acid mixtures, fused sodium hydroxide/sodium nitrate, fused potassium hydroxide, sodium carbonate

Very Slightly Soluble: nitric acid, aqua regia, sulfuric acid

Insoluble: hydrogen fluoride, potassium hydroxide solutions

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: None reported.

INCOMPATIBILITIES: acids, halogens, reducing agents, oxidizing materials, bases

TUNGSTEN:

ALKALI AND ALKALINE-EARTH METALS WITH HALOCARBONS: May explode with heat or on impact.

AQUA REGIA: Attacked superficially.

BROMINE PENTAFLUORIDE: Violent reaction and possible ignition.

BROMINE TRIFLUORIDE: Violent reaction.

CHLORINE TRIFLUORIDE: Violent reaction.

FLUORINE: Incandescent reaction.

HYDROGEN SULFIDE: Incandescent reaction.

IODINE PENTAFLUORIDE: Incandescent reaction when heated.

LEAD(IV) DIOXIDE: Incandescent reaction when heated.

NITRIC ACID: Attacked superficially.

NITRYL FLUORIDE: Incandescent reaction when heated.

OXIDIZERS (STRONG): Fire and explosion hazard.

OXYGEN DIFLUORIDE: Explodes at 400 C.

POTASSIUM DICHROMATE: Combustion attains a temperature of 1700 C in 0.1-0.2 seconds.

SODIUM PEROXIDE: Incandescent reaction when heated.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

TUNGSTEN ORES AND CONCENTRATES (NON-RADIOACTIVE):

IRRITATION DATA:

500 mg/24 hour(s) skin-rabbit mild; 500 mg/24 hour(s) eyes-rabbit mild

TOXICITY DATA:

5 gm/kg intraperitoneal-rat LD50

ACUTE TOXICITY LEVEL: Insufficient Data.

REPRODUCTIVE EFFECTS DATA:

1210 ug/kg oral-rat TDLo 35 week(s) pre pregnancy continuous; 1160 ug/kg oral-rat TDLo 30 week(s) pre pregnancy/1-20 day(s) pregnant female continuous

HEALTH EFFECTS:

INHALATION:

ACUTE EXPOSURE:

TUNGSTEN: May cause irritation and coughing.

CHRONIC EXPOSURE:

TUNGSTEN: Prolonged or repeated exposure has been reported to cause pulmonary fibrosis. Intratracheal injection into the lungs of experimental animals revealed the metallic dust to be inert, with the only pulmonary effect being areas of pigmentation. One conflicting study found the dust to cause interstitial pneumonitis and bronchiolitis in guinea pigs after intratracheal injection of 50 mg a week for 3 weeks. After one year, slight residual lesions in the form of minor atrophic emphysema were present.

SKIN CONTACT:

ACUTE EXPOSURE:

TUNGSTEN: Application of 500 mg to the skin of rabbits caused mild irritation. May cause redness.

CHRONIC EXPOSURE:

TUNGSTEN: May cause dermatitis.

EYE CONTACT:

ACUTE EXPOSURE:

TUNGSTEN: Application of 500 mg to the eyes of rabbits caused mild irritation. May cause redness and conjunctivitis.

CHRONIC EXPOSURE:

TUNGSTEN: May cause conjunctivitis.

INGESTION:

ACUTE EXPOSURE:

TUNGSTEN: May cause nausea, vomiting, and irritation of the gastrointestinal tract.

CHRONIC EXPOSURE:

TUNGSTEN: When rats were fed 2%, 5% or 10% powdered tungsten in their diets, the females gained 15.4% less weight than the control females; there was no difference between tungsten-fed and control males. The sex specific effect was suggested to depend on metabolic utilization of foodstuffs. Reproductive effects have been reported in animals.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION: No classification assigned.

CANADIAN TRANSPORTATION OF DANGEROUS GOODS: No classification assigned.

LAND TRANSPORT ADR: No classification assigned.

LAND TRANSPORT RID: No classification assigned.

AIR TRANSPORT IATA: No classification assigned.

AIR TRANSPORT ICAO: No classification assigned.

MARITIME TRANSPORT IMDG: No classification assigned.

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: No

CHRONIC: No

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:

EC CLASSIFICATION (CALCULATED): Not determined.

GERMAN REGULATIONS:

WATER HAZARD CLASS (WGK):

STATE OF CLASSIFICATION: VwVwS

CLASSIFICATION UNDER HAZARD TO WATER: 0

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

16. OTHER INFORMATION

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