



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

October 19, 2005

**AMENDMENT NO. 003
TO
SOLICITATION OF OFFERS FOR
FERROTUNGSTEN AND TUNGSTEN METAL POWDER
UNDER
DLA-FERROTUNGSTEN AND TUNGSTEN METAL POWDER-003**

The above referenced Solicitation for the sale of Ferrotungsten and Tungsten Metal Powder is hereby amended to schedule an offering for fiscal year 2006, revise the listing of available material, and update various sections of the Solicitation, as follows:

- 1. Amendment No. 001 to this Solicitation is deleted in its entirety.**
- 2. Section A.1 Introduction (AUG 05)**

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

A.1 Introduction (OCT 05)

- a. The Defense Logistics Agency (DLA), Defense National Stockpile Center (DNSC), is soliciting offers for the sale of approximately 300,000 pounds of Ferrotungsten and 300,000 lbs of Tungsten Metal Powder in Fiscal Year 2006.

The offering for **Ferrotungsten** will be held on **Tuesday, November 1, 2005, at 2:00 pm** local time, Fort Belvoir, VA.

The offering for **Tungsten Metal Powder** will be announced at a later date.

Offers must be received at the address in Section B.2.a. by 2:00 pm, local time, Fort Belvoir, VA. In the event that DNSC is closed at that time, offers for that day will be received at 2:00 pm on the next DNSC business day.

- b. Delivery of any and all Tungsten is F.O.B. carrier's conveyance. (See Sections F.1.d. and F.1.e.)

3. **Section D – PAYMENT**

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

SECTION D – PAYMENT

D.1 Payment (OCT 05)

- a. Payment shall be made in U.S. dollars.
- b. Payment *for material* shall be made *only* by wire transfer (Fedwire). Payment for *adjustments for variations in quantity or weight of material shipped*, storage charges, interest, penalty charges, or administrative charges may be made by wire transfer, electronic funds transfer, or company or bank check. If payments for material (other than payments for adjustments for variations in quantity or weight) are made by electronic funds transfer or check, delays in shipment will result, and the payment may be returned to the sender.
- c. Payment by wire transfer (Fedwire).
 - (1) Wire transfer payment shall be made in accordance with instructions in **Section J.7**. Fees for wire transfers are the responsibility of the Contractor. Payment shall be accompanied by **identifying information including the contract number, invoice number (if applicable), and a description of the material purchased**.
 - (2) If wire transfer payment is not made in accordance with the instructions in **Section J.7**, or if identifying information is not provided, shipment of material may be delayed by up to one week, the wire transfer may be returned to the sender or a Contractor may incur charges if payments are delinquent.
- d. Payment by electronic funds transfer.
 - (1) Electronic funds transfer payment shall be made in accordance with instructions in **Section J.7**. Any fees for electronic funds transfers are the responsibility of the Contractor. Payment shall be accompanied by **identifying information including the contract number, invoice number, and a description of the material purchased**.
 - (2) If payment by electronic funds transfer is not made in accordance with the instructions in **Section J.7**, or if identifying information is not provided, payment may be returned to the sender and the Contractor may incur charges if payments are delinquent.
- e. Payment by company or bank check.
 - (1) 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.**

- (2) 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.e.(1)** charged. Payment shall be accompanied by **identifying information including the contract number, invoice number, and a description of the material purchased**. Check payments which do not have the required identification may be returned and the Contractor may incur charges if payments are delinquent. Check 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

- f. Invoices issued for adjustments for variations in quantity or weight, storage charges, interest, penalty charges, or administrative charges shall be paid promptly.
- g. If payment is not made in full within 30 calendar days of issuance of an invoice as specified in **D.1.f.**, 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 (OCT 05)

- 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 (MAR 03)**.
 - (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.g.**, **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.

- b. If payment is not received by 2:00 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 (MAR 03)** (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.

4. **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.

5. **Section I.3 Item Offer Page – Ferrotungsten – 003 (MAR 03)**

Delete this section in its entirety and replace with the attached **Section I.3 Item Offer Page – Ferro Tungsten (OCT 05)**.

6. **Section J.2 Analysis Ferrotungsten (MAR 03)**

Delete this section in its entirety and replace with the attached **Section J.2 Analysis – Ferro Tungsten (OCT 05)**.

7. **Section J.6 Material Safety Data Sheet – Ferrotungsten**

Delete this section in its entirety and replace with the attached **Section J.6 Material Safety Data Sheet – Ferro Tungsten**.

8. **Section J.7 Fedwire Procedures (JAN 95)**

Delete this section in its entirety and replace with the attached **Section J. 7 FEDWIRE AND ELECTRONIC FUNDS TRANSFER PROCEDURES (OCT 05)**

9. Except as provided herein, all other terms and conditions of DLA-FERROTUNGSTEN AND TUNGSTEN METAL POWDER-003, as amended by Amendment No. 002 thereto, remain unchanged and in full force and effect.

10. 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.3 Item Offer Page -- Ferro Tungsten (OCT 05)

Item	Location	Lot	Origin / Producer	# of Units	Bulk Wt. (lbs)	W Content (%)	W Content (lbsW)	W Content (kgW)		Offered Unit Price (\$ / kgW)	Total Offered Price (\$)
262	Warren, OH	OFT	Japan	25	11,009	65.45	7,205.39	3,268.31	X	=	
293	Somerville, NJ	B-164	Japan	38	80,276	77.73	62,398.53	28,303.50	X	=	
297	Somerville, NJ	00B	Japan	249 bxs	20,743	75.32	15,623.63	7,086.76	X	=	
298	Somerville, NJ	00C	Japan	853 bxs	65,062	78.17	50,858.97	23,069.24	X	=	
299	Somerville, NJ	00D	Japan	632 bxs	69,626	73.32	51,049.78	23,155.79	X	=	
300	Somerville, NJ	00E	Japan	130 bxs	14,396	73.70	10,609.85	4,812.55	X	=	
303	Somerville, NJ	00H	Japan	115 bxs	12,611	79.25	9,994.22	4,533.30	X	=	
311	Somerville, NJ	OMT	Japan	500 bxs	55,034	80.14	44,104.25	20,005.35	X	=	
322	Somerville, NJ	363H	Japan	45 bxs	5,345	70.93	3,791.21	1,719.66	X	=	
326	Somerville, NJ	MT64	Japan	64 bxs	7,105	81.69	5,804.07	2,632.68	X	=	
330	Somerville, NJ	T-1011 BLK STRP	Japan	1 bx	105	72.60	76.23	34.58	X	=	
332	Somerville, NJ	T-1012 WHT STRP BX	Japan	31 bxs	3,258	79.93	2,604.12	1,181.21	X	=	
333	Somerville, NJ	T-1011 WHT STRP DR	Japan	8	4,067	68.86	2,800.54	1,270.30	X	=	
335	Somerville, NJ	T-1013 RD STRP	Japan	70 bxs	7,750	79.40	6,153.50	2,791.18	X	=	
336	Somerville, NJ	T-1013 BLK STRP	Japan	97 bxs	9,982	73.64	7,350.74	3,334.24	X	=	
337	Somerville, NJ	T-1011 WHT STRP BX	Japan	225 bxs	17,755	73.67	13,080.11	5,933.04	X	=	
					384,124		293,505.14	133,131.70			

Note: Minimum bid is one entire line item. FY06 AMP is 300,000 lbsW (136,078 kgW).

Company Name

Name and Title of Person Submitting Offer

Signature and Date

DLA-FERROTUNGSTEN AND TUNGSTEN METAL POWDER-003

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J.2 Analysis - Ferro Tungsten (OCT 05)

Item #	Material	Lot	Depot	Percent														
				W	C	P	S	Si	Mo	Al	Mn	Cu	Ni	As	Sb	Sn	Bi	Pb
262	Ferro W	OFT	Warren, OH	65.45	0.29	1.250	0.018	0.12	0.81	<0.01	0.40	0.13	0.150	<0.005	0.080	0.02	<0.005	<0.005
293	Ferro W	B-164	Somerville, NJ	77.73	1.65	0.082	0.042	0.88	1.22	0.07	0.41	0.05	0.023	<0.005	0.010	0.022	0.023	0.028
297	Ferro W	00B	Somerville, NJ	75.32	1.06	0.086	0.159	1.03	0.68	0.12	0.81	0.14	0.022	0.102	0.022	0.36	0.098	0.011
298	Ferro W	00C	Somerville, NJ	78.17	0.78	0.018	0.054	1.06	0.92	0.27	0.47	0.06	0.020	0.007	0.019	0.13	0.031	<0.005
299	Ferro W	00D	Somerville, NJ	73.32	1.13	0.076	0.045	1.15	0.58	0.14	1.86	0.13	0.047	0.102	0.017	0.38	0.089	0.052
300	Ferro W	00E	Somerville, NJ	73.70	1.52	0.053	0.092	1.02	0.82	0.13	1.20	0.11	0.032	<0.005	0.019	0.22	0.068	<0.005
303	Ferro W	00H	Somerville, NJ	79.25	0.94	0.028	0.035	0.27	0.62	0.02	0.52	0.08	0.030	0.103	0.018	0.17	0.044	<0.005
311	Ferro W	MT	Somerville, NJ	80.14	0.60	<0.005	0.021	0.23	0.37	0.02	0.29	0.04	0.034	0.120	0.023	0.051	0.006	0.070
322	Ferro W	3 63H	Somerville, NJ	70.93	0.57	0.032	0.099	0.39	0.47	0.02	2.30	0.08	0.027	0.012	0.019	0.041	0.039	<0.005
326	Ferro W	MT-64	Somerville, NJ	81.69	0.63	0.017	0.205	0.67	0.63	0.03	0.47	0.06	0.025	<0.005	0.020	<0.005	0.026	0.041
330	Ferro W	T-1011BLACKSTRIPE	Somerville, NJ	72.60	0.51	0.020	0.126	0.47	0.52	0.11	2.59	0.07	0.028	<0.005	0.011	0.043	0.029	0.013
332	Ferro W	T-1012WHITESTRIPE-Bx	Somerville, NJ	79.93	1.02	0.360	0.17	0.80	0.28	1.20	0.87	0.44	0.027	0.199	0.019	0.082	0.392	0.118
333	Ferro W	T-1011WHITESTRIPE-Drm	Somerville, NJ	68.86	1.15	0.007	0.071	2.13	0.57	1.62	0.66	0.05	0.075	<0.005	0.011	0.038	0.014	0.015
335	Ferro W	T-1013REDSTRIPE	Somerville, NJ	79.40	0.69	0.061	0.199	1.05	0.52	0.18	0.52	0.11	0.019	0.040	0.017	0.21	0.076	0.017
336	Ferro W	T-1013BLACKSTRIPE	Somerville, NJ	73.64	2.17	0.164	0.105	0.65	0.31	0.19	0.86	0.23	0.027	<0.005	0.016	0.27	0.179	<0.005
337	Ferro W	T-1011WHITESTRIPE-Bx	Somerville, NJ	73.67	1.29	0.116	0.118	1.25	0.57	0.31	0.50	0.18	0.045	0.046	0.018	0.31	0.135	0.055

NOTE: All ferrotungsten at Somerville, NJ, exhibits considerable variation in particle size within and among the lots, some being lumps much larger than the standard 1/4", 3/8", and 1".



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD
SUITE 3339
FORT BELVOIR, VA 22060-6223**

**EMERGENCY TELEPHONE NUMBER:
1-800-424-9300 (NORTH AMERICA)
1-703-527-3887 (INTERNATIONAL)**

CAS NUMBER: 12604-57-8

SUBSTANCE: TUNGSTEN, FERRO

TRADE NAMES/SYNONYMS:
DLA09878

CHEMICAL FAMILY: metal, alloy

CREATION DATE: Jul 01 1992

REVISION DATE: Jun 16 2005

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TUNGSTEN

CAS NUMBER: 7440-33-7

EC NUMBER (EINECS): 231-143-9

PERCENTAGE: 72-80

COMPONENT: IRON

CAS NUMBER: 7439-89-6

EC NUMBER (EINECS): 231-096-4

PERCENTAGE: 19-28

COMPONENT: OXYGEN, COMPRESSED GAS

CAS NUMBER: 7782-44-7

EC NUMBER (EINECS): 231-956-9

PERCENTAGE: 0-0.6

COMPONENT: CARBON

CAS NUMBER: 7440-44-0

EC NUMBER (EINECS): 231-153-3

PERCENTAGE: 0-0.6

COMPONENT: PHOSPHORUS, WHITE

CAS NUMBER: 7723-14-0

EC NUMBER (EINECS): 231-768-7

PERCENTAGE: 0-0.1

COMPONENT: SULFUR

CAS NUMBER: 7704-34-9

EC NUMBER (EINECS): 231-722-6

PERCENTAGE: 0-0.1

COMPONENT: SILICON

CAS NUMBER: 7440-21-3

EC NUMBER (EINECS): 231-130-8

PERCENTAGE: 0-0.1

3. HAZARDS IDENTIFICATION

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



EMERGENCY OVERVIEW:

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, metal fume fever

LONG TERM EXPOSURE: difficulty breathing, lung congestion, lung damage

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation, skin discoloration

LONG TERM EXPOSURE: irritation, skin discoloration

EYE CONTACT:

SHORT TERM EXPOSURE: irritation, eye damage

LONG TERM EXPOSURE: irritation, eye damage

INGESTION:

SHORT TERM EXPOSURE: irritation, nausea, vomiting, diarrhea

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. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. See original container for storage recommendations. Keep separated from incompatible substances.

HANDLING: Use methods to minimize dust.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

TUNGSTEN:

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 WEL TWA

10 mg/m³ UK WEL STEL

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

IRON:

IRON OXIDE DUST AND FUME (as Fe):

10 mg/m³ OSHA TWA

5 mg/m³ ACGIH TWA

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

1.5 mg/m³ DFG MAK (respirable dust fraction)

5 mg/m³ UK WEL TWA

10 mg/m³ UK WEL STEL

MEASUREMENT METHOD: Particulate filter; Acid; Inductively coupled plasma; NIOSH IV # 7300, Elements

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: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any dust, mist, and fume respirator.

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

Any powered, air-purifying respirator with a dust, mist, and fume filter.

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

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

ODOR: Not available

BOILING POINT: Not applicable

MELTING POINT: Not available

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SPECIFIC GRAVITY: Not available

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: molten steel

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: None reported.

INCOMPATIBILITIES: acids, halogens, reducing agents, oxidizing materials, bases, combustible materials, peroxides, metals

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.

IRON:

ACETALDEHYDE: Polymerizes readily.
AMMONIUM NITRATE: Violent or explosive reaction.
AMMONIUM PEROXODISULFATE: Violent reaction.
BROMINE PENTAFLUORIDE: Violent reaction and possible ignition.
CHLORIC ACID: Forms explosive compound.
CHLORINE (GAS): Ignites.
CHLORINE TRIFLUORIDE: Violent reaction and possible ignition.
CHLOROFORMAMIDINIUM NITRATE: Explosive ignition.
DINITROGEN TETRAOXIDE: Ignites.
FLUORINE: Ignites.
HYDROGEN PEROXIDE: Violent decomposition.
MINERAL ACIDS: Readily attacked.
NITROGEN DIOXIDE: Incandescent reaction.
NITRYL FLUORIDE: Incandesces when heated.
ORGANIC ACIDS: Attacked or dissolved.
PEROXYFORMIC ACID: Incompatible.
PHOSPHORUS: Incandesces when heated.
POLYSTYRENE BEADS: Possible static ignition.
POTASSIUM DICHROMATE: Ignites on contact.
POTASSIUM PERCHLORATE + MANGANESE DIOXIDE: Ignites.
SODIUM ACETYLIDE: Possible violent reaction.
SODIUM PEROXIDE: Ignites under friction @ 240 C.
SULFURIC ACID: Possible explosion hazard.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: miscellaneous decomposition products

POLYMERIZATION: Will not polymerize.

[11. TOXICOLOGICAL INFORMATION](#)

TUNGSTEN:**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

IRON:**TOXICITY DATA:**

77 mg/kg oral-child TDLo; 30 gm/kg oral-rat LD50; 20 mg/kg intraperitoneal-rabbit LDLo; 20 gm/kg oral-guinea pig LD50; 200 mg/kg oral-human LD50; 63 gm/kg/6 week(s) continuous oral-rat TDLo; 250 mg/m³/6 hour(s)-4 week(s) intermittent inhalation-rat TCLo; 105 mg/kg/5 week(s) continuous oral-rat TDLo

CARCINOGEN STATUS: Iron itself has not been evaluated by IARC. However iron and steel founding has been evaluated as IARC Group 1 (Human Sufficient Evidence). Studies have shown that certain exposures in iron and steel founding can cause lung cancer in humans. Excesses of leukemia and urogenital and digestive system cancers have also been reported.

ACUTE TOXICITY LEVEL:

Relatively Non-toxic: ingestion

TUMORIGENIC DATA:

450 mg/kg intratracheal-rat TDLo/15 week(s) intermittent

HEALTH EFFECTS:**INHALATION:****ACUTE EXPOSURE:**

TUNGSTEN: May cause irritation and coughing.

IRON: Dust may cause mucous membrane and respiratory irritation due to mechanical action. Metal fume fever, an influenza-like illness, may occur due to the inhalation of freshly formed iron oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns. Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes. Lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur. Tolerance to fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours.

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.

IRON: Prolonged or repeated exposure may cause a mottling of the lungs, a condition called siderosis which is considered to be a benign pneumoconiosis that does not cause significant physiologic impairment. Symptoms may include chronic bronchitis, emphysema, and dyspnea on exertion.

SKIN CONTACT:**ACUTE EXPOSURE:**

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

IRON: Dust may cause irritation. Penetration of iron particles in the skin may cause an exogenous siderosis which may be characterized by a red-brown pigmentation of the affected area.

CHRONIC EXPOSURE:

TUNGSTEN: May cause dermatitis.

IRON: May cause same effects as reported in acute exposure.

EYE CONTACT:**ACUTE EXPOSURE:**

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

IRON: May cause irritation due to mechanical action. Iron particles imbedded in the eye may cause ocular siderosis. Effects may include discoloration of the cornea and iris, and pupillary effects including poor reaction to light and accommodation. If a particle enters the lens there may be cataract formation. Glaucoma occurs rarely in some cases of ocular siderosis.

CHRONIC EXPOSURE:

TUNGSTEN: May cause conjunctivitis.

IRON: Repeated and prolonged contact may cause conjunctivitis and other effects reported in acute exposure.

INGESTION:

ACUTE EXPOSURE:

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

IRON: There are no reports available on poisoning from metallic iron, which is poorly absorbed. The principal manifestations of poisoning with iron compounds are vomiting, diarrhea, and circulatory collapse.

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.

IRON: Repeated or prolonged exposure may cause hemosiderosis or hemochromatosis.

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):

PHOSPHORUS, WHITE: 1 LBS RQ

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: No

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.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): All the components of this substance are listed on or are exempt from the inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

16. OTHER INFORMATION

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