



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

IN REPLY

REFER TO DNSC-CC

June 6, 2008

**AMENDMENT NUMBER 016
TO SOLICITATION OF OFFERS
DLA-MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE
BATTERY GRADES-002**

The above referenced Solicitation of Offers, DLA-MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE BATTERY GRADES-002, dated June 17, 2003, is hereby amended to provide a **June 26, 2008** offering date, revise various sections of the solicitation and update the material analysis, storage locations, and listing of available manganese synthetic and manganese natural dioxide battery grade material as follows:

1. SPECIAL NOTE: All references to shipment of material by rail, in either the Solicitation or any current Amendment, are hereby deleted in their entirety. **Shipments may only be accomplished by truck.**

2. SECTION A – SOLICITATION:

A.1 Introduction (Sep 02), paragraph a. is hereby deleted and replaced with the following:

a. The Defense Logistics Agency (DLA), Defense National Stockpile Center (DNSC), is soliciting offers for the sale of approximately **1,363.92** short dry tons (SDT) of manganese dioxide synthetic battery grade and **17,520.00** short dry tons (SDT) of manganese dioxide natural battery grade ore under DLA-MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE BATTERY GRADES-002 in Fiscal Year 2008. **The offering will be held June 26, 2008, at 1:00 p.m., local time, Fort Belvoir, VA.** Offers must be received at the address in Section B.2.a. by 1:00 p.m., local time, Fort Belvoir, VA. In the event that June 26, 2008 is a holiday, or DNSC is otherwise closed, offers for that day will be received at 1:00 p.m. on the next DNSC business day.

3. SECTION D – PAYMENT:

Section D - Payment is hereby deleted in its entirety and replaced with the following:

SECTION D – PAYMENT

D.1 Payment (DEC 07)

- a. Payment shall be made in U.S. dollars.
- b. Payment **for material** shall be made **only** by wire transfer (Fedwire for domestic, within U.S. wire payment; or International wire transfer for wire payments from outside the U.S.). 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 (Fedwire or International), or company or bank check. If attempted payments for material (other than payments for adjustments for variations in quantity or weight) are made by check, delays in shipment will result, and the payment may be returned to the sender. The Contractor may incur charges if payments are delinquent.
- c. Payment by wire transfer (Fedwire or International).
 - (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. 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.5**, 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 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 and additional charges could be added.**
 - (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.d.(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-BF, Accounts Receivable
Defense National Stockpile Center
8725 John J. Kingman Road
Suite 3229
Fort Belvoir, VA 22060-6223

- e. Invoices issued for adjustments for variations in quantity or weight, storage charges, interest, penalty charges, or administrative charges shall be paid promptly.
- f. If payment is not made in full within 30 calendar days of issuance of an invoice as specified in **D.1.e.**, 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 (JUN 08)**.

(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 (JUN 08)** (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 relating only to delinquent debts will be assessed to cover expenses incurred by the Government in the recovery of such debts.

4. SECTION E – REMOVAL:

E.1 Removal of Material (JAN 02), paragraph a., is hereby deleted in its entirety and replaced with the following:

a. The contract period is based on the quantity of material awarded and begins on the date of the contract award. The contract periods are as follows:

<u>Quantity (Unit) SDT</u>	<u>Contract period (in Calendar Days)</u>
6,000 or below	30 days
6,001 or above	90 days

5. SECTION G – CONTRACT ADMINISTRATION DATA:

A. Section G.10 Setoff of Funds, is hereby deleted in its entirety and replaced 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.

B. Section G.7 DEFAULT, paragraph b, is hereby deleted in its entirety and replaced with the following:

b. If the contract is terminated, the Contractor could be held liable for damages resulting from the resale of the material, as described below. The Contractor may also be liable for additional charges including, not limited to: interest, storage charges, penalty charges, consideration fees, and administrative charges relating to the termination.

C. Section **G.9 Excusable Delay (MAY 95)**, is hereby deleted in its entirety and replaced with the following:

G.9 Excusable Delay (DEC 07)

a. In the event either party should be prevented from performing under this contract by reason of any unforeseeable cause beyond its control and without its fault or negligence, including, but not restricted to, acts of God or of the public enemy, sovereign acts of the United States, acts of a foreign Government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather, performance under the contract shall be suspended in whole or in part until the cause ceases to exist and thereafter the time for fulfillment of the contract shall be extended by the length of time during which the cause prevented performance under the contract.

b. The Contracting Officer shall make a written determination that an excusable delay condition exists.

c. This section shall also apply to an excusable delay condition that prevents delivery at a consignee's plant if –

- (1) the delay meets the criteria in paragraph a. above; and

- (2) the identity of the consignee is known to the Government prior to commencement of the excusable delay condition.

d. The Contractor shall notify the Contracting Officer, in writing, of the nature and extent of the excusable delay condition promptly after the commencement thereof, but in any event prior to outloading of the material from the storage location from which it is to be shipped. The Contractor shall notify the Contracting Officer, in writing, within ten (10) calendar days when the excusable delay condition ceases to exist.

6. SECTION I – SUBMITTALS:

Section I - Submittals, is hereby deleted in its entirety and replaced with the following:

SECTION I - SUBMITTALS

COMPLETE AND RETURN ALL OF THE FOLLOWING WITH YOUR OFFER.

- I.1 Sale of Government Property Negotiated Sales Contract (JUN 08)
- I.2 Item Offer Page - DLA-Manganese, Metallurgical, Synthetic and Natural Dioxide Battery Grade-002 (JUN 08)
- I.3 Certificate of Independent Price Determination (JAN 01)
- I.4 Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters (FEB 07)
- I.5 Type of Business Organization (APR 96)
- I.6 Authorized Negotiators (JUN 08)
- I.7 Persons Authorized to Request Shipment of Material (JUL 06)
- I.8 Offeror's Billing Address (JUN 08)
- I.9 Disputes: Agreement to Alternative Dispute Resolution (JUL 06)

I.1 Sale of Government Property Negotiated Sales Contract (JUN 08)

SALE OF GOVERNMENT PROPERTY NEGOTIATED SALES CONTRACT		CONTRACT NUMBER		PAGE 1 OF	
This contract is entered into by and between the United States of America, hereinafter called the "Government", represented by the Contracting Officer executing this Contract and the Contractor identified below. The Government agrees to sell and the Contractor agrees to buy the material described below in accordance with the terms and conditions of <u>DLA-MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE BATTERY GRADE-002</u> . In the event of a conflict between the terms on the Solicitation and this Negotiated Sales Contract, the terms on the Negotiated Sales Contract shall govern.					
ITEM No.	PROPERTY DESCRIPTION AND LOCATION	QUANTITY (No. of Units)	UNIT	UNIT PRICE	AMOUNT
CONTRACT PERIOD EXPIRES ON:					
EXECUTION BY CONTRACTOR			EXECUTION BY GOVERNMENT		
DATE (Day, Month, Year)			UNITED STATES OF AMERICA		DATE:
NAME and SIGNATURE OF CONTRACTOR Name and Title: _____ _____ Signature and Title of Person Authorized to Sign			BY: _____		
CONTRACTOR'S NAME AND ADDRESS (Street, City, State and Zip) _____ _____ _____ Telephone Number: _____ Facsimile Number: _____			NAME AND TITLE OF CONTRACTING OFFICIAL Name: _____ Contracting Officer DNSC-C		

I.2 Item Offer Page – DLA MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE BATTERY GRADES-002 (JUN 08)

Shopping List (JUN 08)
MANGANESE - DIOXIDE - BATTERY GRADE - NATURAL

Item	Location	Pile	Grade	Net Weight (SDT)	Origin	Unit Price Per SDT	Quantity (SDT)	Total Offer Price
31	Warren, OH	1	B	17,520.00	Domestic	\$		\$
Total:				17,520.00				

Shopping List (JUN 08)
MANGANESE - DIOXIDE - BATTERY GRADE - SYNTHETIC

Item #	Location	Lot #	# of			SDT	Unit Price per SDT	Quantity SDT	Total Offer Price
			Drums	LBS	SWT				
1	HAMMOND, IN	001	152	19,000.00	9.50	9.41165			
2	HAMMOND, IN	001	92	79,500.00	39.75	39.31275			
3	HAMMOND, IN	002	92	80,500.00	40.25	39.85555			
4	HAMMOND, IN	007	488	61,000.00	30.50	30.13095			
5	HAMMOND, IN	030	800	100,000.00	50.00	49.235			
6	HAMMOND, IN	043	80	10,000.00	5.00	4.97			
7	HAMMOND, IN	787	12	10,000.00	5.00	4.92			
8	HAMMOND, IN	788	12	10,000.00	5.00	4.90			
9	HAMMOND, IN	789	11	10,000.00	5.00	4.90			
10	HAMMOND, IN	790	12	10,000.00	5.00	4.90			
11	HAMMOND, IN	791	11	10,000.00	5.00	4.89			
12	HAMMOND, IN	792	12	10,000.00	5.00	4.93			
13	HAMMOND, IN	831	11	10,000.00	5.00	4.93			
14	HAMMOND, IN	832	12	10,000.00	5.00	4.93			
15	HAMMOND, IN	833	11	10,000.00	5.00	4.93			
16	HAMMOND, IN	834	11	10,000.00	5.00	4.93			
17	HAMMOND, IN	835	12	10,000.00	5.00	4.93			
18	HAMMOND, IN	836	11	10,000.00	5.00	4.93			
56	HAMMOND, IN	032	800	100,000.00	50.00	49.18			
57	HAMMOND, IN	033	800	100,000.00	50.00	49.30			

58	HAMMOND, IN	034	800	100,000.00	50.00	49.26			
59	HAMMOND, IN	035	800	100,000.00	50.00	49.32			
60	HAMMOND, IN	036	800	99,985.00	49.99	49.34			
61	HAMMOND, IN	037	800	100,000.00	50.00	49.39			
62	HAMMOND, IN	039	800	100,000.00	50.00	49.43			
63	HAMMOND, IN	041	800	99,990.00	50.00	49.42			
64	HAMMOND, IN	042	800	100,000.00	50.00	49.44			
65	HAMMOND, IN	043	801	100,000.00	50.00	49.37			
66	HAMMOND, IN	045	800	100,000.00	50.00	49.43			
67	HAMMOND, IN	046	800	99,985.00	49.99	49.29			
68	HAMMOND, IN	047	800	100,000.00	50.00	49.52			
69	HAMMOND, IN	048	800	100,000.00	50.00	49.54			
70	HAMMOND, IN	049	800	100,000.00	50.00	49.55			
71	HAMMOND, IN	050	800	100,000.00	50.00	49.53			
72	HAMMOND, IN	051	800	100,000.00	50.00	49.41			
73	HAMMOND, IN	052	800	100,000.00	50.00	49.54			
74	HAMMOND, IN	053	800	99,985.00	49.99	49.39			
75	HAMMOND, IN	055	130	97,500.00	48.75	48.33			
76	HAMMOND, IN	056	130	97,500.00	48.75	48.38			
77	HAMMOND, IN	057	130	97,500.00	48.75	48.33			
78	HAMMOND, IN	058	130	97,500.00	48.75	48.36			
	HAMMOND, IN	043 (Sweepings)	1	30.00					
Available For Sale			17,564	2,759,975.00	1,379.97	1,363.92			

NAME OF FIRM: _____

COMPLETED BY: _____

SIGNATURE: _____

TITLE: _____

DATE: _____

I.3 Certificate of Independent Price Determination (JAN 01)

- a. The Offeror certifies that:
- (1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other Offeror or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the methods or factors used to calculate the prices offered;
 - (2) The prices in this offer have not been and will not be knowingly disclosed by the Offeror, directly or indirectly, to any other Offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and
 - (3) No attempt has been made or will be made by the Offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.
- b. Each signature on the offer is considered to be a certification by the signatory that the signatory:
- (1) Is the person in the Offeror's organization responsible for determining the prices being offered in this bid or offer, and that the signatory has not participated and will not participate in any action contrary to subparagraphs a.(1) through a.(3) above; or
 - (2)(i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs a.(1) through a.(3), above
-
- (insert full name of person(s) in the Offeror's organization responsible for determining the prices offered in this bid or offer, and the title of his or her position in the Offeror's organization);
- (ii) As an authorized agent, does certify that the principals named in subdivision b.(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs a.(1) through a.(3) above; and
 - (iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs a.(1) through a.(3) above.
- c. If the Offeror deletes or modifies subparagraph a.(2) above, the Offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

I.4 Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters (FEB 07)

- a.(1) The Offeror certifies, to the best of its knowledge and belief, that -
- (i) The Offeror and/or any of its Principals -
 - (A) Are are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;
 - (B) Have have not , within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
 - (C) Are are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision a. (1)(i)(B) of this provision.
 - (ii) The Offeror has has not , within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.
- (2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

- b. The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

- c. A certification that any of the items in paragraph a. of this provision exists will not necessarily result in withholding of an award under this Solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.
- d. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph a. of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- e. The certification in paragraph a. of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to the other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this Solicitation for default.

I.5 Type of Business Organization (APR 96)

The Offeror represents that--

- a. It operates as a corporation incorporated under the laws of the State of _____, an individual, a partnership, a nonprofit organization, or a joint venture.
- b. If the Offeror is a foreign entity, it operates as an individual, a partnership, a nonprofit organization, a joint venture, or a corporation registered for business in _____ (country)
- c. If the Offeror is a corporation, it is independent (not owned or controlled by another company), owned or controlled by _____ corporation company registered for business in _____ (state/country).
- d. If the Offeror is owned or controlled by another, state the relationship (e.g., wholly owned subsidiary, etc.): _____
- e. The Offeror agrees to provide additional information relating to the above representations if requested to do so by the Contracting Officer.

I.6 Authorized Negotiators (JUN 08)

The Offeror represents that the following individuals are authorized to negotiate on its behalf.

TYPED NAME	TITLE	PHONE #	FAX #	EMAIL ADDRESS

(Offeror's Signature and Date)

I.7 Persons Authorized to Request Shipment of Material (JUL 06)

The Contractor shall provide the name(s), title(s), signature(s), and telephone number(s) of representative(s) authorized to sign Section J.2 Shipping Instructions or to submit shipping instructions via the Internet through DWAS:

Typed Name	Title
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Signature	Telephone
-----------	-----------

Typed Name	Title
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Signature	Telephone
-----------	-----------

Typed Name	Title
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Signature	Telephone
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I.8 Offeror's Billing Address (JUN 08)

The Offeror shall provide its billing address, billing facsimile number and email address below.

FAX: _____

Email: _____

I.9 Disputes: Agreement to Use Alternative Dispute Resolution (JUL 06)

- a. The parties agree to negotiate with each other to try to resolve any disputes that may arise. If unassisted negotiations are unsuccessful, the parties will use alternative dispute resolution (ADR) techniques to try to resolve the dispute. Litigation will only be considered as a last resort when ADR is unsuccessful or has been documented by the party rejecting ADR to be inappropriate for resolving the dispute.
- b. Before either party determines ADR inappropriate, that party must discuss the use of ADR with the other party. The documentation rejecting ADR must be signed by an official authorized to bind the contractor, or, for the Agency, by the contracting officer, and approved at a level above the contracting officer after consultation with the ADR Specialist and with legal counsel. Contractor personnel are also encouraged to include the ADR Specialist in their discussions with the contracting officer before determining ADR to be inappropriate.
- c. If you wish to opt out of this clause, check here (___). Alternate wording may be negotiated with the contracting officer.

7. All previous Sections J.1, Description or Analysis, are deleted in their entirety and replaced with the following Section J.1, Description or Analysis (JUN 08).

**Analysis (All values reflect percentages)
 MANGANESE DIOXIDE, BATTERY GRADE, NATURAL**

LOCATION	PILE	GRADE	ORIGIN	MN02	MN	FE	PB	T.H.M.	INSOL	SI	AL	MAGFE	AS	CU	P	ZN
WARREN, OH	1	B	DOMESTIC	60.84	41.70	1.81	0.31		19.76	18.16	1.32	0.06	0.06	0.03	0.08	0.93

**Analysis
 MANGANESE DIOXIDE BATTERY GRADE SYNTHETIC**

Storage	Location	Contract #	Lot #	MN	MN O2	FE	PB	Insolubles	Total Heavy	Total Alkali	Total Alkali Earth	
									Metals	Metals	Metals	
	HAMMOND, IN	0104940	001			87.10%	0.130%	0.020%	2.500%	0.030%	0.500%	
	HAMMOND, IN	NSP1850	001	56.18%	88.90%	0.200%	0.060%			0.300%		0.500%
	HAMMOND, IN	NSP1850	002	55.92%	88.50%	0.200%	0.050%			0.300%		0.500%
	HAMMOND, IN	0104940	007	59.50%	88.90%	0.070%	0.020%	1.980%	0.030%	0.500%	0.500%	
	HAMMOND, IN	0107710	030	60.92%	88.28%	0.100%	0.020%	2.690%	0.030%	0.700%	0.350%	
	HAMMOND, IN	0104940	043	58.76%	88.49%	0.100%	0.020%					
	HAMMOND, IN	NSP1850	787	56.80%	88.50%	0.210%	0.020%					0.670%
	HAMMOND, IN	NSP1850	788	57.70%	88.60%	0.130%	0.020%					0.670%
	HAMMOND, IN	NSP1850	789	58.30%	88.70%	0.150%	0.060%					0.780%
	HAMMOND, IN	NSP1850	790	57.00%	88.50%	0.140%	0.020%					0.770%
	HAMMOND, IN	NSP1850	791	58.10%	88.80%	0.100%	0.020%					0.750%
	HAMMOND, IN	NSP1850	792	58.20%	87.80%	0.120%	0.020%					0.750%
	HAMMOND, IN	NSP1850	831		90.30%	0.080%	0.020%		0.030%			0.500%
	HAMMOND, IN	NSP1850	832	59.60%	90.30%	0.080%	0.020%		0.030%			0.500%
	HAMMOND, IN	NSP1850	833	59.60%	90.30%	0.080%	0.020%		0.030%			0.500%
	HAMMOND, IN	NSP1850	834	59.60%	90.30%	0.080%	0.020%		0.030%			0.500%
	HAMMOND, IN	NSP1850	835	59.60%	90.30%	0.080%	0.020%		0.030%			0.500%
	HAMMOND, IN	NSP1850	836	59.60%	90.30%	0.080%	0.020%		0.030%			0.500%
	HAMMOND, IN	0107710	32	59.25%	88.60%	0.200%	0.020%	2.230%	0.020%	0.400%	0.460%	
	HAMMOND, IN	0107710	33	59.57%	88.60%	0.200%	0.020%	1.530%	0.020%	0.500%	0.460%	
	HAMMOND, IN	0107710	34	59.00%	88.24%	0.200%	0.020%	1.660%	0.010%	0.400%	0.460%	
	HAMMOND, IN	0107710	35	59.21%	88.38%	0.200%	0.020%	1.910%	0.020%	0.500%	0.350%	
	HAMMOND, IN	0107710	36	58.94%	88.40%	0.100%	0.020%	1.950%	0.020%	0.500%	0.360%	
	HAMMOND, IN	0107710	37	58.65%	87.70%	0.100%	0.020%	2.570%	0.020%	0.500%	0.360%	
	HAMMOND, IN	0107710	39	58.87%	88.28%	0.080%	0.020%	1.510%	0.010%	0.600%	0.350%	
	HAMMOND, IN	0107710	41	59.27%	88.25%	0.100%	0.020%	2.090%	0.020%	0.050%	0.360%	
	HAMMOND, IN	0107710	42	58.60%	87.90%	0.100%	0.020%	2.730%	0.020%	0.400%	0.460%	
	HAMMOND, IN	0107710	43	58.76%	88.49%	0.100%	0.020%	2.450%	0.010%	0.600%	0.360%	

HAMMOND, IN	0107710	45	58.98%	87.07%	0.050%	0.020%	2.670%	0.020%	0.200%	0.350%
HAMMOND, IN	0107710	46	58.84%	86.91%	0.080%	0.020%	3.170%	0.020%	0.800%	0.350%
HAMMOND, IN	0107710	47	59.46%	88.50%	0.040%	0.020%	2.140%	0.010%	0.500%	0.340%
HAMMOND, IN	0107710	48	58.87%	87.94%	0.030%	0.020%	2.510%	0.010%	0.500%	0.340%
HAMMOND, IN	0107710	49	58.45%	87.89%	0.040%	0.020%	1.970%	0.010%	0.600%	0.350%
HAMMOND, IN	0107710	50	58.59%	87.80%	0.050%	0.020%	1.780%	0.010%	0.600%	0.350%
HAMMOND, IN	0107710	51	58.49%	87.68%	0.030%	0.020%	2.620%	0.010%	0.600%	0.250%
HAMMOND, IN	0107710	52	58.08%	87.97%	0.030%	0.020%	2.220%	0.010%	0.600%	0.350%
HAMMOND, IN	0107710	53	60.20%	90.20%	0.050%	0.010%	1.720%	0.014%	0.220%	0.420%
HAMMOND, IN	0107710	55	59.10%	88.70%	0.080%	0.010%	2.750%	0.012%	0.240%	0.420%
HAMMOND, IN	0107710	56	59.00%	89.10%	0.070%	0.010%	2.580%	0.014%	0.230%	0.400%
HAMMOND, IN	0107710	57	58.80%	88.80%	0.070%	0.010%	1.650%	0.010%	0.240%	0.440%
HAMMOND, IN	0107710	58	59.00%	88.80%	0.080%	0.010%	1.920%	0.012%	0.240%	0.410%
HAMMOND, IN	0107710	43	58.76%	88.49%	0.100%	0.020%	2.450%	0.010%	0.600%	0.360%

8. All previous Sections **J.3, Storage Locations**, are deleted in their entirety and replaced with the following Section **J.3, Storage Locations (JUN 08)**.

Locations	Operational Status	Days	Hours	Accessibility	Responsible Depot	Depot Mgr
Hammond, IN	Staffed	Mon - Fri	0730 - 1530	Trucks Only	Hammond, IN	J. Olszewski 219-937-5383 Eric Deal Frank Falgier
Warren, OH	Staffed	Mon - Fri	0730 - 1430	Trucks Only	Warren, OH	J. Pittano 330-652-1456 Sally Miller

NOTE 1: Prior arrangements must be made before shipping.

NOTE 2: Truck scale is available.

DNCS HQ Point of Contact - Charles Harder 703-767-1163



9. All previous **Sections J.4, Material Safety Data Sheet**, are deleted in their entirety and replaced with the following **Section J.4, Material Safety Data Sheet (DEC 07)**.

MATERIAL SAFETY DATA SHEET

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: MANGANESE DIOXIDE, NATURAL

TRADE NAMES/SYNONYMS:

MANGANESE OXIDE; MANGANESE SUPEROXIDE; MANGANESE BLACK; BLACK MANGANESE OXIDE; BOG MANGANESE; CEMENT BLACK; MANGANESE BINOXIDE; MANGANESE PEROXIDE; PYROLUSITE BROWN; MANGANESE OXIDE (MnO₂); MANGANESE DIOXIDE; MANGANESE (IV) OXIDE; MnO₂; 00229894; RTECS OP0350000

CHEMICAL FAMILY: metal oxides

CREATION DATE: May 27 2003

REVISION DATE: Dec 13 2007

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: MANGANESE DIOXIDE
CAS NUMBER: 1313-13-9
EC NUMBER (EINECS): 215-202-6
EC INDEX NUMBER: 025-001-00-3
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: gray, brown or black

PHYSICAL FORM: solid or powder

ODOR: odorless

MAJOR HEALTH HAZARDS: skin irritation, eye irritation, nerve damage

PHYSICAL HAZARDS: Strong oxidizer. May ignite combustibles.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, metal fume fever, lung damage

LONG TERM EXPOSURE: loss of appetite, headache, difficulty speaking, sleep disturbances, mood swings, loss of coordination, hearing loss, visual disturbances, lung damage, blood disorders, kidney damage, nerve 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: nausea, vomiting, diarrhea

LONG TERM EXPOSURE: loss of appetite, headache, difficulty speaking, sleep disturbances, mood swings, loss of coordination, hearing loss, visual disturbances, lung damage, blood disorders, kidney damage, nerve damage

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.

ANTIDOTE: calcium disodium edetate/dextrose, intravenous; calcium disodium edetate/procaine, intramuscular.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials.

EXTINGUISHING MEDIA: water

Large fires: Flood with water. Apply water from a protected location or from a safe distance.

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. Flood with water. Cool containers with water spray until well after

the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 800 meters (1/2 mile).

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Avoid contact with combustible materials. Do not touch spilled material. Small dry spills: Move containers away from spill to a safe area. Small liquid spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. Keep separated from incompatible substances.

HANDLING: Use methods to minimize dust.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

MANGANESE DIOXIDE, NATURAL:

MANGANESE AND COMPOUNDS (as Mn):

5 mg/m³ OSHA ceiling (metal) (fume) (compounds)
1 mg/m³ OSHA TWA (particulate) (vacated by 58 FR 35338, June 30, 1993)
3 mg/m³ OSHA STEL (particulate) (vacated by 58 FR 35338, June 30, 1993)
0.2 mg/m³ ACGIH TWA (metal and inorganic compounds)
1 mg/m³ NIOSH recommended TWA 10 hour(s) (metal) (fume) (compounds)
3 mg/m³ NIOSH recommended STEL (metal) (fume) (compounds)
0.5 mg/m³ DFG MAK (inhalable fraction) (metal and inorganic compounds)
0.5 mg/m³ UK WEL TWA (metal) (inorganic compounds)

MEASUREMENT METHOD: NIOSH IV # 7300, 7301, 7303, 9102; OSHA # ID121, ID125G

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

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. 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:

Manganese (Mn)

10 mg/m³

Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100,

R100 or P100.

Any supplied-air respirator.

25 mg/m3

Any supplied-air respirator operated in a continuous-flow mode.

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

50 mg/m3

Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter.

Any supplied-air respirator with a tight-fitting facepiece that is operated in a continuous-flow mode.

Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

500 mg/m3

Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: solid

COLOR: gray, brown or black

PHYSICAL FORM: solid or powder

ODOR: odorless

MOLECULAR WEIGHT: 86.94

MOLECULAR FORMULA: Mn-O2

BOILING POINT: Not applicable

MELTING POINT: Not available

DECOMPOSITION POINT: 995 F (535 C)

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SPECIFIC GRAVITY: Not available

DENSITY: 5.026 g/cc

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:

Insoluble: nitric acid, sulfuric acid, acetone

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid contact with combustible materials. May ignite or explode on contact with combustible materials. Keep out of water supplies and sewers.

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

MANGANESE DIOXIDE:

ALUMINUM: Violent reaction when heated.

ANILINIUM PERCHLORATE: Explodes.

BARIUM CHLORATE: May explode.

CALCIUM CHLORATE: May explode.

CALCIUM HYDRIDE: Incandesces when warmed.

CHLORATES: May explode.

CHLORINE TRIFLUORIDE: Incandescent reaction.

COMBUSTIBLE MATERIALS: May increase the burning rate or cause ignition on contact; contact with finely divided materials may result in an explosion.

DIBORON TETRAFLUORIDE: Violent reaction at 15 C.

HYDROCHLORIC ACID: Releases chlorine fumes.

HYDROGEN PEROXIDE: May explode.

HYDROGEN SULFIDE: May ignite.

HYDROXYLAMINIUM CHLORIDE (20% SOLN): Vigorous reaction.

HYPOPHOSPHITES: Fire and explosion hazard.

ORGANIC MATERIALS: May increase the burning rate or cause ignition on contact; finely divided materials may result in an explosion.

PERMONOSULFURIC ACID (92%): Explosive decomposition.

PHOSPHIDES: Fire and explosion hazard.

POTASSIUM AZIDE: Violent reaction when heated.

REDUCING MATERIALS: Fire and explosion hazard.

RUBIDIUM CARBIDE: Incandescent reaction at 350 C.

SODIUM PEROXIDE: Violent decomposition.

SULFIDES: Fire and explosion hazard.

SULFUR: Fire and explosion hazard.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of manganese

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

MANGANESE DIOXIDE, NATURAL:

TOXICITY DATA: 50 mg/kg intratracheal-rat LDLo; 422 mg/kg subcutaneous-mouse LD50; 45 mg/kg intravenous-rabbit LDLo; 3478 mg/kg oral-rat LD50; 1800 ug/m³/24 hour(s)-35 day(s) continuous inhalation-rat TCLo; 21 ug/m³/5.3 year(s) intermittent intramuscular-human TDLo; 6000 mg/kg/12 day(s) intermittent subcutaneous-mouse TDLo; 150 mg/kg/3 week(s) intermittent subcutaneous-monkey TDLo; 7 mg/m³/24 hour(s)-34 week(s) continuous inhalation-rat TCLo; 0.6 mg/m³/1 hour(s)-17 week(s) intermittent inhalation-monkey TCLo

LOCAL EFFECTS:

Irritant: skin, eye

ACUTE TOXICITY LEVEL:

Moderately Toxic: ingestion

TARGET ORGANS: nervous system

REPRODUCTIVE EFFECTS DATA: 49 mg/m³ inhalation-mouse TCLo/7 hour(s) 75 day(s) pre pregnancy/1-18 day(s) pregnant female continuous

HEALTH EFFECTS:

INHALATION:

MANGANESE DIOXIDE: See information on metal fume fever and manganese compounds.

ACUTE EXPOSURE:

METAL FUME FEVER: Metal fume fever, an influenza-like illness, may occur due to the inhalation of freshly formed metal 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.

MANGANESE COMPOUNDS: No data available.

CHRONIC EXPOSURE:

METAL FUME FEVER: There is no form of chronic metal fume fever, however, repeated bouts with symptoms as described above are quite common. Resistance to the condition develops after a few days of exposure, but is quickly lost in 1 or 2 days.

MANGANESE COMPOUNDS: Repeated or prolonged exposure to manganese compounds may result in systemic poisoning known as "manganism", a Parkinsonian-like syndrome. It is characterized initially by anorexia, asthenia, headache, insomnia or somnolence, irritability, restlessness, and spasm or pain in the muscles. Manganese psychosis may follow with uncontrollable behavior, unaccountable laughing or crying, visual hallucinations, confusion and euphoria. Sexual excitement followed by impotence may occur. These symptoms may disappear with the onset of true neurological manifestations of slow, slurred and irregular speech, monotonous tone, double vision, impaired hearing, difficulty with fine motor movements, and disturbances in gait and balance with frequent propulsion or retropulsion. Mask-like face, decreased movement of the eyelids and eyes and tremors of the upper extremities and head may also occur. Other signs and symptoms may include urinary bladder disturbances, excessive salivation and sweating, hematological changes, vasomotor disorders, decreased pulmonary function, kidney and possibly liver damage. Removal from exposure shortly after onset of symptoms usually results in improvement, although there may be residual disturbances in gait and speech. Once manganism is well established it becomes irreversible and progressive, but not fatal. An increased incidence of bronchitis and pneumonitis has been reported in studies of workers exposed to manganese dust and fume, and although these effects have been confirmed by animal experiments, they may represent an aggravation of a pre-existing condition. Allergic diseases of the respiratory tract have also been reported in one study.

SKIN CONTACT:

ACUTE EXPOSURE:

MANGANESE DIOXIDE: May cause irritation with redness and pain.

CHRONIC EXPOSURE:

MANGANESE DIOXIDE: Repeated or prolonged contact may cause dermatitis.

EYE CONTACT:

ACUTE EXPOSURE:

MANGANESE DIOXIDE: May cause redness, pain, tearing and irritation.

CHRONIC EXPOSURE:

MANGANESE DIOXIDE: Repeated or prolonged contact may cause conjunctivitis.

INGESTION:

MANGANESE DIOXIDE: See information on manganese compounds.

ACUTE EXPOSURE:

MANGANESE COMPOUNDS: Ingestion of extremely large doses of manganese compounds may cause gastrointestinal irritation, resulting in nausea, vomiting, and diarrhea, making less available for absorption.

CHRONIC EXPOSURE:

MANGANESE COMPOUNDS: Manganese poisoning, as described in chronic inhalation, has been reported in persons drinking manganese-contaminated well water.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

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: Yes

CHRONIC: Yes

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: No

**SARA TITLE III SECTION 313 (40 CFR 372.65):
MANGANESE AND COMPOUNDS (as Mn)**

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

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:

EC CLASSIFICATION (ASSIGNED):

Xn	Harmful
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EC Classification may be inconsistent with independently-researched data.

DANGER/HAZARD SYMBOL:



EC RISK AND SAFETY PHRASES:

R 20/22	Harmful by inhalation and if swallowed.
S 2	Keep out of the reach of children.
S 25	Avoid contact with eyes.

GERMAN REGULATIONS:

WATER HAZARD CLASS (WGK):

STATE OF CLASSIFICATION: Annex 3

CLASSIFICATION UNDER HAZARD TO WATER: 1

NATIONAL INVENTORY STATUS:

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

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

[16. OTHER INFORMATION](#)

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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)

SUBSTANCE: MANGANESE DIOXIDE, SYNTHETIC BATTERY GRADE

TRADE NAMES/SYNONYMS:

MANGANESE OXIDE; MANGANESE DIOXIDE; MANGANESE OXIDE (MnO₂); MANGANESE SUPEROXIDE; MANGANESE BLACK; MANGANESE(IV) OXIDE; BLACK MANGANESE OXIDE; BOG MANGANESE; CEMENT BLACK; MANGANESE BINOXIDE; MANGANESE PEROXIDE; PYROLUSITE BROWN; MnO₂; DLA13610; RTECS OP0350000

CHEMICAL FAMILY: metal oxides

CREATION DATE: Jul 01 1992
REVISION DATE: Dec 13 2007

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: MANGANESE DIOXIDE
CAS NUMBER: 1313-13-9
EC NUMBER (EINECS): 215-202-6
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: gray, brown or black

PHYSICAL FORM: powder, solid

ODOR: odorless

MAJOR HEALTH HAZARDS: skin irritation, eye irritation, nerve damage

PHYSICAL HAZARDS: May ignite combustibles.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, metal fume fever, lung damage

LONG TERM EXPOSURE: loss of appetite, headache, difficulty speaking, sleep disturbances, mood swings, loss of coordination, hearing loss, visual disturbances, lung damage, blood disorders, kidney damage, nerve 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: nausea, vomiting, diarrhea

LONG TERM EXPOSURE: loss of appetite, headache, difficulty speaking, sleep disturbances, mood swings, loss of coordination, hearing loss, visual disturbances, lung damage, blood disorders, kidney damage, nerve damage

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.

ANTIDOTE: calcium disodium edetate/dextrose, intravenous; calcium disodium edetate/procaine, intramuscular.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer. May ignite or explode on contact with combustible materials.

EXTINGUISHING MEDIA: water

Large fires: Flood with water. Apply water from a protected location or from a safe distance.

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. Flood with water. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material

or combustion by-products. Evacuate if fire gets out of control or containers are directly exposed to fire. Evacuation radius: 800 meters (1/2 mile).

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:

Avoid contact with combustible materials. Do not touch spilled material. Small dry spills: Move containers away from spill to a safe area. Small liquid spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. See original container for storage recommendations. Keep separated from incompatible substances.

HANDLING: Use methods to minimize dust.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

MANGANESE DIOXIDE, SYNTHETIC BATTERY GRADE:

MANGANESE AND COMPOUNDS (as Mn):

5 mg/m³ OSHA ceiling (metal) (fume) (compounds)
1 mg/m³ OSHA TWA (particulate) (vacated by 58 FR 35338, June 30, 1993)
3 mg/m³ OSHA STEL (particulate) (vacated by 58 FR 35338, June 30, 1993)
0.2 mg/m³ ACGIH TWA (metal and inorganic compounds)
1 mg/m³ NIOSH recommended TWA 10 hour(s) (metal) (fume) (compounds)
3 mg/m³ NIOSH recommended STEL (metal) (fume) (compounds)
0.5 mg/m³ DFG MAK (inhalable fraction) (metal and inorganic compounds)
0.5 mg/m³ UK WEL TWA (metal) (inorganic compounds)

MEASUREMENT METHOD: NIOSH IV # 7300, 7301, 7303, 9102; OSHA # ID121, ID125G

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

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. 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:

Manganese (Mn)

10 mg/m³

Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100,

R100 or P100.

Any supplied-air respirator.

25 mg/m3

Any supplied-air respirator operated in a continuous-flow mode.

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

50 mg/m3

Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter.

Any supplied-air respirator with a tight-fitting facepiece that is operated in a continuous-flow mode.

Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

500 mg/m3

Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying, full-facepiece respirator equipped with an N100, R100, or P100 filter.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: solid

COLOR: gray, brown or black

PHYSICAL FORM: powder, solid

ODOR: odorless

MOLECULAR WEIGHT: 86.94

MOLECULAR FORMULA: Mn-O2

BOILING POINT: Not applicable

MELTING POINT: Not available

DECOMPOSITION POINT: 995 F (535 C)

VAPOR PRESSURE: Not applicable

VAPOR DENSITY: Not applicable

SPECIFIC GRAVITY (water=1): 5.026

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:

Insoluble: nitric acid, sulfuric acid, acetone

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid contact with combustible materials. May ignite or explode on contact with combustible materials. Keep out of water supplies and sewers.

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

MANGANESE DIOXIDE:

ALUMINUM: Violent reaction when heated.

ANILINIUM PERCHLORATE: Explodes.

BARIUM CHLORATE: May explode.

CALCIUM CHLORATE: May explode.

CALCIUM HYDRIDE: Incandesces when warmed.

CHLORATES: May explode.

CHLORINE TRIFLUORIDE: Incandescent reaction.

COMBUSTIBLE MATERIALS: May increase the burning rate or cause ignition on contact; contact with finely divided materials may result in an explosion.

DIBORON TETRAFLUORIDE: Violent reaction at 15 C.

HYDROCHLORIC ACID: Releases chlorine fumes.

HYDROGEN PEROXIDE: May explode.

HYDROGEN SULFIDE: May ignite.

HYDROXYLAMINIUM CHLORIDE (20% SOLN): Vigorous reaction.

HYPOPHOSPHITES: Fire and explosion hazard.

ORGANIC MATERIALS: May increase the burning rate or cause ignition on contact; finely divided materials may result in an explosion.

PERMONOSULFURIC ACID (92%): Explosive decomposition.

PHOSPHIDES: Fire and explosion hazard.

POTASSIUM AZIDE: Violent reaction when heated.

REDUCING MATERIALS: Fire and explosion hazard.

RUBIDIUM CARBIDE: Incandescent reaction at 350 C.

SODIUM PEROXIDE: Violent decomposition.

SULFIDES: Fire and explosion hazard.

SULFUR: Fire and explosion hazard.

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of manganese

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

MANGANESE DIOXIDE, SYNTHETIC BATTERY GRADE:

TOXICITY DATA: 50 mg/kg intratracheal-rat LDLo; 422 mg/kg subcutaneous-mouse LD50; 45 mg/kg intravenous-rabbit LDLo; 3478 mg/kg oral-rat LD50; 1800 ug/m³/24 hour(s)-35 day(s) continuous inhalation-rat TCLo; 21 ug/m³/5.3 year(s) intermittent intramuscular-human TDLo; 6000 mg/kg/12 day(s) intermittent subcutaneous-mouse TDLo; 150 mg/kg/3 week(s) intermittent subcutaneous-monkey TDLo; 7 mg/m³/24 hour(s)-34 week(s) continuous inhalation-rat TCLo; 0.6 mg/m³/1 hour(s)-17 week(s) intermittent inhalation-monkey TCLo

LOCAL EFFECTS:

Irritant: skin, eye

ACUTE TOXICITY LEVEL:

Moderately Toxic: ingestion

TARGET ORGANS: nervous system

REPRODUCTIVE EFFECTS DATA: 49 mg/m³ inhalation-mouse TCLo/7 hour(s) 75 day(s) pre pregnancy/1-18 day(s) pregnant female continuous

HEALTH EFFECTS:

INHALATION:

MANGANESE DIOXIDE: See information on metal fume fever and manganese compounds.

ACUTE EXPOSURE:

METAL FUME FEVER: Metal fume fever, an influenza-like illness, may occur due to the inhalation of freshly formed metal 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.

MANGANESE COMPOUNDS: No data available.

CHRONIC EXPOSURE:

METAL FUME FEVER: There is no form of chronic metal fume fever, however, repeated bouts with symptoms as described above are quite common. Resistance to the condition develops after a few days of exposure, but is quickly lost in 1 or 2 days.

MANGANESE COMPOUNDS: Repeated or prolonged exposure to manganese compounds may result in systemic poisoning known as "manganism", a Parkinsonian-like syndrome. It is characterized initially by anorexia, asthenia, headache, insomnia or somnolence, irritability, restlessness, and spasm or pain in the muscles. Manganese psychosis may follow with uncontrollable behavior, unaccountable laughing or crying, visual hallucinations, confusion and euphoria. Sexual excitement followed by impotence may occur. These symptoms may disappear with the onset of true neurological manifestations of slow, slurred and irregular speech, monotonous tone, double vision, impaired hearing, difficulty with fine motor movements, and disturbances in gait and balance with frequent propulsion or retropulsion. Mask-like face, decreased movement of the eyelids and eyes and tremors of the upper extremities and head may also occur. Other signs and symptoms may include urinary bladder disturbances, excessive salivation and sweating, hematological changes, vasomotor disorders, decreased pulmonary function, kidney and possibly liver damage. Removal from exposure shortly after onset of symptoms usually results in improvement, although there may be residual disturbances in gait and speech. Once manganism is well established it becomes irreversible and progressive, but not fatal. An increased incidence of bronchitis and pneumonitis has been reported in studies of workers exposed to manganese dust and fume, and although these effects have been confirmed by animal experiments, they may represent an aggravation of a pre-existing condition. Allergic diseases of the respiratory tract have also been reported in one study.

SKIN CONTACT:

ACUTE EXPOSURE:

MANGANESE DIOXIDE: May cause irritation with redness and pain.

CHRONIC EXPOSURE:

MANGANESE DIOXIDE: Repeated or prolonged contact may cause dermatitis.

EYE CONTACT:

ACUTE EXPOSURE:

MANGANESE DIOXIDE: May cause redness, pain, tearing and irritation.

CHRONIC EXPOSURE:

MANGANESE DIOXIDE: Repeated or prolonged contact may cause conjunctivitis.

INGESTION:

MANGANESE DIOXIDE: See information on manganese compounds.

ACUTE EXPOSURE:

MANGANESE COMPOUNDS: Ingestion of extremely large doses of manganese compounds may cause



gastrointestinal irritation, resulting in nausea, vomiting, and diarrhea, making less available for absorption.

CHRONIC EXPOSURE:

MANGANESE COMPOUNDS: Manganese poisoning, as described in chronic inhalation, has been reported in persons drinking manganese-contaminated well water.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

ID NUMBER: UN1479

HAZARD CLASS OR DIVISION: 5.1

PACKING GROUP: III

LABELING REQUIREMENTS: 5.1

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

UN NUMBER: UN1479

CLASS: 5.1

PACKING GROUP/RISK GROUP: III

LAND TRANSPORT ADR:

PROPER SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

UN NUMBER: UN1479

CLASS: 5.1

CLASSIFICATION CODE: O2

PACKING GROUP: III

LABELS: 5.1

LAND TRANSPORT RID:

PROPER SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

UN NUMBER: UN1479

CLASS: 5.1

CLASSIFICATION CODE: O2

PACKING GROUP: III

LABELS: 5.1

AIR TRANSPORT IATA:

PROPER SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

UN/ID NUMBER: UN1479

CLASS OR DIVISION: 5.1

HAZARD LABELS: 5.1

PACKING GROUP: III

AIR TRANSPORT ICAO:

PROPER SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

UN NUMBER: UN1479

CLASS OR DIVISION: 5.1

LABELS: 5.1

UN PACKING GROUP: III

MARITIME TRANSPORT IMDG:

PROPER SHIPPING NAME: Oxidizing solid, n.o.s. (MANGANESE DIOXIDE)

UN NUMBER: UN1479

CLASS OR DIVISION: 5.1

PACKING GROUP: III

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: Yes

CHRONIC: Yes

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):

MANGANESE AND COMPOUNDS (as Mn)

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

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: Not determined.

EUROPEAN REGULATIONS:

EC CLASSIFICATION (ASSIGNED):

Xn	Harmful
----	---------

EC Classification may be inconsistent with independently-researched data.

DANGER/HAZARD SYMBOL:



Xn

EC RISK AND SAFETY PHRASES:

R 20/22	Harmful by inhalation and if swallowed.
S 2	Keep out of the reach of children.
S 25	Avoid contact with eyes.

GERMAN REGULATIONS:

WATER HAZARD CLASS (WGK):

STATE OF CLASSIFICATION: Annex 3

CLASSIFICATION UNDER HAZARD TO WATER: 1

NATIONAL INVENTORY STATUS:

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

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

16. OTHER INFORMATION

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10. All previous Sections J.5, FEDWIRE AND INTERNATIONAL WIRE TRANSFER, are deleted in their entirety and replaced with the following Sections J.5, FEDWIRE AND INTERNATIONAL WIRE TRANSFER Procedures (NOV 07).

J.5 FEDWIRE AND INTERNATIONAL WIRE TRANSFER Procedures (NOV 07)

Fedwire (domestic wire transfer)

The Sender must use a bank that offers Fedwire funds transfer capability. Information regarding Fedwire, including listings of Fedwire funds transfer participants, may be found at <http://www.frbervices.org>.

To ensure the funds are credited to the Defense National Stockpile Center the following information is required for any wire transfer of funds.

1. Bank Name, Location, and Routing Number.

Bank Name: TREAS NYC
Location: New York, NY
Routing Number: 021030004

2. Amount of funds to be transferred.

3. Beneficiary Name: 6355
DFAS/DNSC

4. Third Party Information – Contractor's Name, Commodity, and Contract Number.

NOTE: Under Item 3, the number 6355 is the ALC = Agency Location Code (this is the same as account number)

International Wire Payment

The following information is required for payments made through international wire payment.

1. Bank Name, Bank Address, Swift Code, Account Number, ABA Number, Account Name.

Bank Name: Citibank
Bank Address: 388 Greenwich Street, New York, NY 10013
Swift Code: CITIUS33XXX
Account Number: 40523666
ABA Number: 021000089
Account Name: Citibank Europe plc

IMPORTANT NOTE: All international wire payments must include the following reference for payments to post to the Defense Finance and Accounting Service (DFAS) account:

CL329930001, FRB-ITS, ALC 00006355, DOD Columbus

2. Amount of funds to be transferred.

3. Addendum Information:

Payment for DNSC Contract No. _____
Invoice No. _____

11. Offerors shall indicate acknowledgment of receipt of this Amendment by signing in the space provided below and returning this form and the attached Sections **I.1** through **I.9** along with their offer to:

ATTN: DNSC-BA/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 ineligible for award. Except as provided herein, all other terms and conditions of DLA-MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE BATTERY GRADES-002 and (as amended by) Amendment Nos. 006, 011, and 015 remain unchanged and in full force and effect.

NAME OF FIRM: _____

ADDRESS: _____

TELEPHONE: _____

FACSIMILE: _____

EMAIL: _____

BY: _____

TITLE: _____

SIGNATURE: _____

DATE: _____

Solicitation of Offers DLA-MANGANESE, METALLURGICAL, SYNTHETIC AND NATURAL DIOXIDE BATTERY GRADES-002, and Amendment Nos. 006, 011, 015, and this amendment 016, are available on the DNSC Website:
<https://www.dnsc.dla.mil>.