Ferromanganese, High Carbon

Safety Data Sheet

Section 1: Identification

1.1 Product Identifier
Product Name: Ferromanganese, High Carbon
Product Form: Solid
Chemical Family: Metal Alloy
CAS Number: 12604-53-4 (for Ferromanganese)
Molecular Formula: See Section 3.1.
Molecular Weight: Varies. See Section 3.1.

1.2 Other Means of Identification
Synonyms: DLANA389

1.3 Recommended Uses
Recommended Use: Alloy

1.4 Manufacturer, Importer, or Responsible Party
Responsible Party: Defense Logistics Agency Strategic Materials
8725 John J. Kingman Road
Fort Belvoir, Virginia 22060-6223
(571) 767-5525

1.5 Emergency Phone Number
Emergency Phone Number: (800) 424-9300 (CHEMTREC)
(703) 527-3887 (CHEMTREC INTERNATIONAL)

Section 2: Hazard(s) Identification

2.1 Classification of Chemical per OSHA CFR 1910.1200
Skin Irritation: Category 2
Eye Irritation: Category 2B
Respiratory Sensitization: Category 1A
Carcinogenicity: Category 1A
Reproductive Toxicity: Category 1A
Target Organ- Prolonged: Category 1 (Immune and Nervous Systems)
Flammable Gas Emitter (Water): Category 3

2.2 Label Elements
Signal Word: DANGER
Symbol(s):

Hazard Statements: Causes skin and eye irritation. Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause cancer. May damage fertility or the unborn child. Causes damage to the immune system and nervous system through prolonged or repeated exposure. In contact with water releases flammable gas.

Precautionary Statements: Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing, eye protection, and face protection. Wash thoroughly after handling. Do not breathe dust, fume, vapors, and spray. In case of inadequate ventilation, wear respiratory protection. Do not eat, drink, or smoke when using this product. Handle under inert gas. Protect from moisture. Response: If on skin, wash with plenty of water. If skin irritation occurs, get medical advice and/or attention. Take off contaminated clothing and wash it before reuse. If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice and/or attention. If inhaled and breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, call a doctor. If exposed or concerned, get medical advice and/or attention. Get medical advice and/or attention if you feel unwell. In case of fire: Use dolomite, dry powder for metal fires, dry sand, graphite, soda ash, sodium chloride to extinguish.

Storage: Store locked up. Store in a dry place. Store in a closed container.

Disposal: Dispose of contents in accordance with local, regional, national, and international regulations.

2.3 Other Hazards
Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode. Contact with water or moist air may generate flammable and/or toxic gases.

2.4 Unknown Acute Toxicity
Does not apply to this product.

Section 3: Composition / Information on Ingredients

3.1 Composition
Chemical Name: Ferromanganese, High Carbon
Composition: 75.06%-76.88% Mn

The health and physical hazards information provided in this SDS are for its major component. High Carbon Ferromanganese contains other elements in addition to Mn. For concentrations of other components, see the Certificates of Analysis for each lot.

3.2 Common Names/Synonyms
Synonyms: See Section 1.2 for common names and synonyms.

3.3 CAS Number/Unique Identifiers
CAS Number: 12604-53-4 (for Ferromanganese)

3.4 Impurities/Stabilizing Additives
No data available.
Section 4: First-Aid Measures

4.1 Description of 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. Remove 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. Get immediate medical attention.

Ingestion: Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Get medical attention.

4.2 Most Important Symptoms/Effects, Acute and Delayed

Inhalation (Acute): Irritation, changes in body temperature, nausea, vomiting, diarrhea, and headache.

Inhalation (Chronic): Irritation, loss of appetite, difficulty breathing, disorientation, difficulty speaking, sleep disturbances, emotional disturbances, hallucinations, mood swings, tremors, muscle cramps, loss of coordination, hearing loss, visual disturbances, lung damage, blood disorders, kidney damage, liver damage, nerve damage, and cancer.

Skin Contact (Acute): Irritation.

Skin Contact (Chronic): Irritation and cancer.

Eye Contact (Acute): Irritation.

Eye Contact (Chronic): Irritation.

Ingestion (Acute): Gastrointestinal irritation, nausea, vomiting, and diarrhea.

Ingestion (Chronic): Drowsiness and cancer.

4.3 Indication of Immediate Medical Attention/Special Treatment

Seek immediate medical attention if inhaled, exposed to eyes, and/or ingested.

Section 5: Fire Fighting Measures

5.1 Suitable Extinguishing Media

Dolomite, dry powder for metal fires, dry sand, graphite, soda ash, and sodium chloride.

5.2 Specific Hazards

Negligible fire and explosion hazard. Dust/air mixtures may ignite or explode. Contact with water or moist air may generate flammable and/or toxic gases.

5.3 Special Protective Equipment and Precautions

Protect container from physical damage. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Do not allow water to enter the containers. 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 bum. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to
6.2 Methods and Materials for Containment and Cleaning Up
Collect spilled material in appropriate container for disposal.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling
High standard of personal cleanliness and hygiene is essential. Adequate sanitary facilities, clothing, and time must be provided so that compulsory showering after work is completed. A change of clothes and ban on eating and smoking at work place can be effective. Personal protective equipment is discussed in Section 8.3.

7.2 Conditions for Safe Storage
Store in accordance with all current regulations and standards. See original container for storage recommendations. Keep separated from incompatible substances. Incompatible materials are identified in Section 10.5.

Section 8: Exposure Controls / Personal Protection

8.1 Exposure Limits
Exposure Limits:
Manganese, Manganese and Compounds (as Mn)
OSHA PEL Ceiling: 5 mg/m³ (metal) (fume) (compounds)
ACGIH TWA (2013): 0.02 mg/m³ (metal and inorganic compounds) (respirable fraction)
ACGIH TWA: 0.1 mg/m³ (metal and inorganic compounds) (inhalable fraction)
NIOSH REL TWA (10 hours): 1 mg/m³ (metal) (fume) (compounds)
NIOSH REL STEL: 3 mg/m³ (metal) (fume) (compounds)
IDLH: 500 mg/m³ (metal) (fume) (compounds)
DFG MAK: 0.5 mg/m³ (inhalable fraction) (metal and inorganic compounds)
UK WEL TWA: 0.5 mg/m³ (metal) (inorganic compounds)

ACGIH Excursion Limit Recommendation: Excursions in worker exposure levels may exceed 3 times the TLV-TWA for no more than a total of 30 minutes during a work day, and under no circumstances should they exceed 5 times the TLV-TWA, provided that the TLV-TWA is not exceeded.

Arsenic
OSHA PEL TWA: 10 μg (As)/m³
ACGIH TWA: 0.01 mg/m³
NIOSH REL Ceiling: 0.002 mg/m³ 15 minute(s)
IDLH: 5 mg/m³
UK WEL TWA: 0.1 mg/m³

8.2 Appropriate Engineering Controls
Ventilation: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

8.3 Individual Protection Measures
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.

10 mg/m³:
1. 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.
2. Any supplied-air respirator.

25 mg/m³:
1. Any supplied-air respirator operated in a continuous-flow mode.
2. Any powered air-purifying respirator with a high-efficient particulate filter.

50 mg/m³:
1. Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.
2. Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode.
3. Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.
4. Any self-contained breathing apparatus with a full facepiece.
5. Any supplied-air respirator with a full facepiece.

500 mg/m³:
1. Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode.

Unknown Concentrations/IDLH:
1. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
2. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape:
1. Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.
2. Any appropriate escape-type, self-contained breathing apparatus.

Section 9: Physical and Chemical Properties

9.1 Appearance
Physical State: Solid
Physical Description: Hard, dense lumps, bricks, briquettes or pellets.

9.2 Odor
No data available.

9.3 Odor Threshold
No data available.

9.4 pH
Not applicable.

9.5 Melting/Freezing Points
Melting Point: No data available.
Freezing Point: No data available.

9.6 Initial Boiling Point and Boiling Range
Not applicable.

9.7 Flash Point
No data available.
9.8 Evaporation Rate
Not applicable.

9.9 Flammability
No data available.

9.10 Upper/Lower Explosive Limits
No data available.

9.11 Vapor Pressure
Not applicable.

9.12 Vapor Density
Not applicable.

9.13 Relative Density
No data available.

9.14 Solubility(ies)
No data available.

9.15 Partition Coefficient
No data available.

9.16 Auto-Ignition Temperature
No data available.

9.17 Decomposition Temperature
No data available.

9.18 Viscosity
No data available.

Section 10: Stability and Reactivity

10.1 Reactivity
Contact with water or moist air may form flammable and/or toxic gases or vapors.

10.2 Chemical Stability
Stable at normal temperatures and pressures.

10.3 Possibility of Hazardous Reactions
Manganese:
Aluminum (Dust): Forms explosive mixtures with air.
Ammonium Nitrate (Fused): Violent or explosive reaction.
Bromine Pentafluoride: Violent reaction and possible ignition.
Carbon Dioxide: Ignoites.
Chlorine: Ignoites.
Fluorine: Incandescent reaction.
Hydrogen Peroxide: Violent decomposition and/or ignition.
Nitric Acid: Incandescent reaction and feeble explosion.
Nitrogen Dioxide: Ignition.
Oxidizers (Strong): Fire and explosion hazard.
Phosphorus: Incandescent reaction when heated.
Sulfur Dioxide: Burns brilliantly on warming.

Carbon
10.4 Conditions to Avoid
None reported.

10.5 Incompatible Materials
Metals, oxidizing materials, halogens, peroxides, combustible materials, acids, reducing agents, and water.

Safe storage of the material is discussed in Section 7.2.

10.6 Hazardous Decomposition Products
Thermal Decomposition Products: Miscellaneous Decomposition Products

Section 11: Toxicological Information

11.1 Likely Routes of Exposure
Routes of entry include inhalation, skin contact, eye contact, and ingestion.

11.2 Symptoms
See Section 4.2 for symptoms related to the physical, chemical, and toxicological characteristics.

11.3 Short and Long Term Effects
Inhalation
Acute Exposure (Manganese): Dust or fumes may be irritating to the mucous membranes. Occupational exposure to dust or fumes has been reported to cause upper respiratory tract problems, black mucous membrane discharge from the nose, and neurological damage. 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.

Acute Exposure (Carbon):
Inhalation of dust may cause slight mucous membrane irritation.

Chronic Exposure (Manganese):
If sufficient quantities of manganese dust or fumes are inhaled and absorbed, systemic poisoning known as "manganism", a Parkinsonian-like syndrome may occur. 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, and 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.

Chronic Exposure (Carbon):
Repeated or prolonged exposure may cause irritation and pulmonary disorders. Lung damage may result if sufficient exposure occurs.

Skin Contact
Acute Exposure (Manganese):
500 mg applied to the skin of rabbits caused mild irritation.

Acute Exposure (Carbon):
Contact may cause irritation.

Chronic Exposure (Manganese):
Sensitization has been reported in guinea pigs.

Chronic Exposure (Carbon):
Repeated or prolonged contact may cause mechanical irritation.

Eye Contact
Acute Exposure (Manganese):
Dust or fumes may be irritating to the eyes. 500 mg applied to the eyes of rabbits caused mild irritation.

Acute Exposure (Carbon):
Contact with dust may cause mechanical irritation. May also cause conjunctivitis.

Chronic Exposure (Manganese):
Fumes may cause conjunctivitis.

Chronic Exposure (Carbon):
Repeated or prolonged exposure may cause mechanical irritation.

Ingestion
Acute Exposure (Manganese):
Extremely large doses may cause gastrointestinal irritation and possibly systemic toxicity.

Acute Exposure (Carbon):
Extremely large doses may produce gastrointestinal disturbances.

Chronic Exposure (Manganese):
Manganese poisoning has been reported in persons drinking manganese-contaminated well water. Prolonged ingestion of manganese in water has produced lethargy, edema, and decreased movement of the eyes and eyelids.

Chronic Exposure (Carbon):
No data available.
11.4 Numerical Measures of Toxicity

Manganese

Irritation Data:
- 500 mg/24 hour(s) skin-rabbit mild
- 500 mg/24 hour(s) eyes-rabbit mild

Toxicity Data:
- 2,300 μg/m³ inhalation-man TCLₙ/6 hour(s)-13 week(s) intermittent inhalation-rat TCLₙ;
- 180 mg/kg/30 day(s) intermittent intraperitoneal-rat TDLₙ;
- 210 μg/m³/5 year(s) intermittent inhalation-man TCLₙ;
- 0.3 mg/m³/24 hour(s)-26 week(s) intermittent inhalation-rat TCLₙ;
- 0.3 mg/m³/26 week(s) intermittent inhalation-monkey TCLₙ;
- 0.7 mg/m³/24 hour(s)-22 week(s) continuous inhalation-rat TCLₙ;
- 0.7 mg/m³/24 hour(s)-22 week(s) continuous inhalation-mouse TCLₙ;
- 250 mg/m³/1 year(s) intermittent inhalation-human TCLₙ;
- 0.5 mg/m³/39 week(s) intermittent inhalation-human TCLₙ;
- 200 mg/kg/20 day(s) intermittent oral-rat TDLₙ;
- 216 mg/kg/15 week(s) intermittent intraperitoneal-rat TDLₙ;
- 104 mg/kg/5 week(s) intermittent intraperitoneal-rat TDLₙ;
- 57.6 mg/kg/4 week(s) intermittent intraperitoneal-rat TDLₙ;
- 0.71 mg/m³/2 hour(s)-10 day(s) intermittent inhalation-rat;
- 5.25 mg/kg/21 day(s) intermittent oral-rat;
- 185 mg/kg/37 day(s) continuous oral-rat TDLₙ.

Acute Toxicity Level: Slightly Toxic (ingestion)
Target Organs: Nervous System
Conditions Aggravated By Exposure: History of alcoholism, blood system disorders, liver disorders, nervous system disorders, and respiratory disorders.
Tumorigenic Data: 400 mg/kg intramuscular-rat TDLₙ/1 year(s) intermittent
Mutagenic Data: Dominant lethal test - rat intraperitoneal 25 mg/kg
Reproductive Effects Data: 50 mg/kg oral-rat TDLₙ 20 day(s) post pregnancy continuous; 322.5 mg/kg oral-mouse TDLₙ 43 day(s) male; 1,290 mg/kg oral-mouse TDLₙ 43 day(s) male; 0.71 mg/m³ inhalation-rat TCLₙ 15-16 day(s) pregnant female continuous; 0.71 mg/m³ inhalation-rat TCLₙ multigenerations; 90 mg/kg oral-rat TDLₙ 18 day(s) post pregnancy continuous.
Additional Data: Symptoms may depend on a combination of contributing factors including genetic predisposition, age, nutrition, anemia or alcohol.

Carbon

Toxicity Data:
- >5 gm/kg oral-rat LDₙ;
- >5 gm/kg intraperitoneal-rat LDₙ;
- >5 gm/kg subcutaneous-rat LDₙ;
- >5 gm/kg oral-mouse LDₙ;
- >5 gm/kg intraperitoneal-mouse LDₙ;
- >5 gm/kg subcutaneous-mouse LDₙ;
- 440 mg/kg intravenous-mouse LDₙ;
- >5 gm/kg oral-dog LD;
- >5 gm/kg intraperitoneal-dog LD;
- >5 gm/kg subcutaneous-dog LD.

Reproductive Effects Data:
- 167 mg/kg subcutaneous-rat TDLₙ 8 day(s) pregnant female continuous

Arsenic

Toxicity Data:
- 7,857 mg/kg/55 year(s) oral-rat TDLₙ;
- 4 mg/kg oral-child TDLₙ;
- 763 mg/kg oral-rat LDₙ;
- 13,390 μg/kg intraperitoneal-rat LDₙ;
- 145 mg/kg oral-mouse LDₙ;
- 46,200 μg/kg intraperitoneal-mouse LDₙ;
- 300 mg/kg subcutaneous-rabbit LDₙ;
- 10 mg/kg intraperitoneal-guinea pig LDₙ;
- 300 mg/kg subcutaneous-guinea pig LDₙ;
- 144 mg/kg oral-mouse LDₙ;
- 1,000 mg/kg intraperitoneal-mouse LDₙ;
- 5 mg/kg oral-rat TDLₙ;
- 1,360 mg/kg/17 day(s) intermittent oral-rat TDLₙ;
- 280 mg/kg/4 week(s) continuous oral-mouse TDLₙ;
- 0.35 mg/kg/5 week(s) continuous oral-mouse TDLₙ.

Local Effects:
- Irritant: Inhalation, skin, and eye.

Acute Toxicity Level: Moderately Toxic (ingestion)
Target Organs: Immune (sensitizer) and Nervous System
Conditions Aggravated By Exposure: Diabetes, heart or cardiovascular disorders, immune system disorders or allergies, kidney disorders, liver disorders, nervous system disorders, skin disorders, and allergies.

Tumorigenic Data:
- 76 mg/kg oral-man TDLₙ/12 year(s) intermittent; 75 mg/kg implant-rabbit
Mutagenic Data:

- Cytogenetic analysis - human unreported 4,286 μg/kg; cytogenetic analysis - mouse oral 280 mg/kg 8 week(s); sister chromatid exchange - human oral 0.211 mg/L 15 year(s); cytogenetic analysis - human oral 0.211 mg/L 15 year(s); DNA damage - human lung 5 μmol/L; cytogenetic analysis - human lung 5 μmol/L; DNA damage - mouse fibroblast 5 nmol/L 24 hour(s); cytogenetic analysis - human lymphocyte 131.90 μg/L; micronucleus test - other fish multiple 451.40 ppb 15 day(s)-continuous

Reproductive Effects Data:

- 605 μg/kg oral-rat TDL₀ 35 week(s) pre pregnancy continuous; 580 μg/kg oral-rat TDL₀ 30 week(s) pre pregnancy/1-20 day(s) pregnant female continuous
- 187 mg/kg oral-mouse TDL₀ 8-18 day(s) pregnant female continuous

### 11.5 Carcinogen Status

**Arsenic**

- OSHA: Carcinogen
- NTP: Known Human Carcinogen
- IARC: Human Sufficient Evidence, Animal Limited Evidence, Group 1
- ACGIH: A1-Confirmed Human Carcinogen

An increased incidence of urinary bladder, skin, lung, liver, and kidney cancer has been associated with inorganic arsenic compounds through medical treatment, contaminated drinking water, arsenical pesticide residues or occupational exposure. Cancers at other sites have also been reported, but a clear association has not been confirmed.

### Section 12: Ecological Information

#### 12.1 Ecotoxicity

No data available.

#### 12.2 Persistence and Degradability

No data available.

#### 12.3 Bioaccumulative Potential

No data available.

#### 12.4 Mobility in Soil

No data available.

#### 12.5 Other Adverse Effects

No data available.

### Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations.

### Section 14: Transport Information

#### 14.1 UN Number

UN Number: Not applicable.

#### 14.2 UN Proper Shipping Name

UN Proper Shipping Name: Not applicable.

#### 14.3 Transport Hazard Class(es)
14.4 Packing Group
No classification assigned.

14.5 Environmental Hazards
No data available.

14.6 Transport in Bulk
No data available.

14.7 Special Precautions
No data available.

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**Section 15: Regulatory Information**

**US Regulations**
CERCLA 102A/103 (40 CFR 302.4):
- Arsenic: 1 lbs. RQ (solid metal particles < 100 micrometer diameter (0.004 inches))
- Phosphorus, White: 1 lbs. RQ
- Chromium: 5,000 lbs. RQ (solid metal particles < 100 micrometer diameter (0.004 inches))
- Lead: 10 lbs. RQ (solid metal particles < 100 micrometer diameter (0.004 inches))

**SARA Title III**
Section 302 (40 CFR 355.30):
- Not regulated.
Section 304 (40 CFR 355.40):
- Not regulated.
Sections 311/312 (40 CFR 370.21):
- Yes (Chronic, Reactive)
Section 313 (40 CFR 372.65):
- Yes (Arsenic, Manganese and Compounds {as Mn})

**OSHA Process Safety:**
Not regulated.

**State Regulations**
California Proposition 65:
- Arsenic: Cancer (Feb 27, 1987)
- Lead: Cancer (Oct 01, 1992); Developmental toxicity (Feb 27, 1987); Male reproductive toxicity (Feb 27, 1987); Female reproductive toxicity (Feb 27, 1987)

**National Inventory Status**
U.S. Inventory (TSCA):
- Listed on inventory.
TSCA 12(b) Export Notification:
- Not listed.

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**Section 16: Other Information**

The information in this Safety Data Sheet meets the requirements of the United States Department of Labor OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION and regulations promulgated thereunder (29 CFR 1910.1200 et. seq.). This document is intended only as a guide to the appropriate precautionary material handling by a person trained in, or supervised by a person trained in, chemical handling. Exposure to this chemical may have serious adverse health effects. This chemical may interact with other substances. Since the potential uses are so varied, all of the potential hazards of use or interaction with other chemicals or materials cannot be identified on this Safety Data Sheet. The user should recognize that this chemical can cause injury, especially if improperly handled, precautionary measures are not followed,
and personal protective equipment not worn. Read and understand all precautionary information prior to use. The Defense Logistics Agency (DLA) shall not be held liable for any damage resulting from handling or from contact with the above chemical.

References:

ChemAdvisor, Inc. Material Safety Data Sheet: Ferromanganese, High Carbon. Revision Date: March 13, 2008. (as provided by the Defense Logistics Agency.)

American Conference of Governmental Industrial Hygienists. 2013 TLVs® and BEIs®, ACGIH® Publication #0113. 2013.


NOTE: No data available: no data for this topic found using references listed.

Date of Preparation of Updated SDS: April 24, 2015