

Ferrochromium, Low Carbon



Safety Data Sheet

Section 1: Identification

1.1 Product Identifier

Product Name: Ferrochromium, Low Carbon
 Product Form: Solid
 Chemical Family: Metal Alloy
 CAS Number: 11114-46-8 (for Ferrochromium)
 Molecular Formula: See **Section 3.1**.
 Molecular Weight: Varies. See **Section 3.1**.

1.2 Other Means of Identification

Synonyms: DLANA385

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

Acute Toxicity (Oral): Category 4
 Skin Irritation: Category 2
 Eye Irritation: Category 2B
 Skin Sensitization: Category 1A
 Germ Cell Mutagenicity: Category 2
 Reproductive Toxicity: Effects on or via Lactation

2.2 Label Elements

Signal Word: DANGER

Symbol(s):



Hazard Statements:	Harmful if swallowed. Causes skin and eye irritation. May cause an allergic skin reaction. Suspected of causing genetic defects via inhalation. May cause harm to breast-fed children.
Precautionary Statements:	<p><u>Prevention:</u> Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands and exposed skin thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves, protective clothing, eye protection, and/or face protection. Avoid breathing dusts or mists. Contaminated clothing must not be allowed out of the workplace. Avoid contact during pregnancy and/or while nursing.</p> <p><u>Response:</u> If swallowed, immediately call a poison center and/or doctor. Rinse mouth. If on skin, wash with plenty of water. 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 skin or eye irritation persists or rash occurs, get medical advice and/or attention. If exposed or concerned, get medical advice and/or attention.</p> <p><u>Storage:</u> Store locked up.</p> <p><u>Disposal:</u> Dispose of contents/container in accordance with federal, state, and local regulations.</p>

2.3 Other Hazards

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

2.4 Unknown Acute Toxicity

Does not apply to this product.

Section 3: Composition / Information on Ingredients

3.1 Composition

Chemical Name: Ferrochromium, Low Carbon
Composition: 66.08%-72.16% Cr

The health and physical hazards information provided in this SDS are for its major component. Low Carbon Ferrochromium contains other elements in addition to Cr. 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: 11114-46-8 (for Ferrochromium)

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 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. Get immediate medical attention.

Ingestion: If swallowed, get medical attention.

4.2 Most Important Symptoms/Effects, Acute and Delayed

Inhalation (Acute):	Irritation.
Inhalation (Chronic):	Irritation.
Skin Contact (Acute):	Irritation.
Skin Contact (Chronic):	Irritation, skin disorders.
Eye Contact (Acute):	Irritation.
Eye Contact (Chronic):	Irritation.
Ingestion (Acute):	Vomiting, stomach pain, and dizziness.
Ingestion (Chronic):	No information on significant adverse effects.

4.3 Indication of Immediate Medical Attention/Special Treatment

Get 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 in bulk form. Dust/air mixtures may ignite or explode.

5.3 Special Protective Equipment and Precautions

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 all unauthorized 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.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment, and Emergency Procedures

Persons not wearing protective equipment and clothing should be restricted from areas of spills until cleanup has been completed. 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). Personal protective equipment is discussed in **Section 8.3**.

6.2 Methods and Materials for Containment and Cleaning Up

Collect spilled material in appropriate container for disposal. 1. Remove all ignition sources where metallic chromium has been spilled. 2. Ventilate area of spill. 3. Collect spilled material in the most convenient and safe manner and deposit in sealed containers for reclamation or for disposal in a secured sanitary landfill. Liquid containing chromium metal or insoluble chromium salts should be absorbed in vermiculite, dry sand, earth, or a similar material.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling

Handle in accordance with all current regulations and standards. Use methods to minimize dust. 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. Materials which are toxic as stored or which can decompose into toxic components should be stored in a cool, well-ventilated place, out of direct rays of the sun, away from areas of high fire hazard, and should be periodically inspected. Keep separated from incompatible substances. Incompatible materials are identified in **Section 10.5**.

Section 8: Exposure Controls / Personal Protection

8.1 Exposure Limits

Chromium:	
OSHA PEL TWA:	1 mg(Cr)/m ³ (metal)
ACGIH TWA:	0.5 mg(Cr)/m ³ (metal)
IDLH:	15 mg(Cr VI)/m ³
	25 mg(Cr III)/m ³
NIOSH REL TWA (8 hours):	0.5 mg(Cr)/m ³ (metal)
EC OEL TWA (IOELV):	2 mg/m ³ (metal)
UK WEL TWA (8 hours):	0.5 mg/m ³ (metal)

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.

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.

2.5 mg/m³: 1. Any quarter-mask respirator.

5 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.

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

25 mg/m³: 1. Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.
2. Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.
3. Any self-contained breathing apparatus with a full facepiece.
4. Any supplied-air respirator with a full facepiece.

250 mg/m³: 1. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

Unknown Concentration/IDLH: 1. 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:
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 self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
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)

Insoluble: No data available.
Soluble: Slightly soluble in water (Cr III).

9.15 Partition Coefficient

No data available.

9.16 Auto-Ignition Temperature

Format: GHS
Language: English (US)

Revised: April 23, 2015
Version 2

No data available.

9.17 Decomposition Temperature

No data available.

9.18 Viscosity

No data available.

Section 10: Stability and Reactivity

10.1 Reactivity

Stable at normal temperatures and pressures.

10.2 Chemical Stability

Stable at normal temperatures and pressures.

10.3 Possibility of Hazardous Reactions

Chromium

Alkali Carbonates:	Attacked.
Alkalies (Caustic):	Attacked.
Ammonium Nitrate (Fused):	Violent or explosive reaction.
Bromine Pentafluoride:	Violent reaction and possible ignition.
Hydrogen Peroxide:	Violent decomposition reaction.
Lithium (Molten):	Vigorous reaction at elevated temperatures.
Nitrogen Oxide:	Incandescent reaction.
Oxidizers (Strong):	Fire and explosion hazard.
Potassium Chlorate (Fused):	Vigorous incandescent reaction.
Sulphur Dioxide:	Incandescent reaction

10.4 Conditions to Avoid

None reported.

10.5 Incompatible Materials

Bases, oxidizing materials, halogens, peroxides, and metals.

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

All short and long term effects listed refer to Chromium metal.

Inhalation (Acute):	High concentrations of dusts or fumes may cause irritation.
Inhalation (Chronic):	Repeated or prolonged exposure to various chromium compounds has been reported to result in ulceration and perforation of the nasal septum, irritation of the throat and lower respiratory tract, less commonly in gastrointestinal disturbances, blood changes, pulmonary sensitization, pulmonary pneumoconiosis or fibrosis, and rarely liver effects. These effects have not

been reported from exposure to the metal per se.

Skin Contact (Acute):
Skin Contact (Chronic):

Contact with dusts or powder may cause irritation.
Repeated or prolonged exposure to various chromium compounds has been reported to cause various types of dermatitis, including eczema, "chrome holes", sensitization, and, in contact with damaged skin, kidney damage. These effects have not been reported from exposure to the metal per se.

Eye Contact (Acute):
Eye Contact (Chronic):

Contact with dusts or powders may cause irritation.
Repeated or prolonged exposure to some chromium compounds may cause conjunctivitis and lacrimation. These effects have not been reported from exposure to the metal per se.

Ingestion (Acute):

Chromium metal is poorly absorbed by the intestinal tract. Absorption of sufficient amounts of some chromium compounds may result in dizziness, intense thirst, abdominal pain, vomiting, shock, oliguria or anuria, and uremia, which may be fatal.

Ingestion (Chronic):

No data available.

11.4 Numerical Measures of Toxicity

Toxicity Data:

27,500 µg/kg unreported-rat LD₅₀

Tumorigenic Data:

2,160 µg/kg intravenous-rat TDL₀/6 week(s) intermittent; 1,200 µg/kg implant-rat TDL₀/6 week(s) intermittent; 75 mg/kg implant-rabbit TDL₀

Mutagenic Data:

DNA damage - human lung 1 µmol/L

Additional Data:

May cross the placenta. May be excreted in breast milk.

11.5 Carcinogen Status

IARC:

Human Inadequate Evidence, Animal Inadequate Evidence, Group 3 (Chromium)

ACGIH:

A4 -Not Classifiable as a Human Carcinogen (Chromium)

Section 12: Ecological Information

12.1 Ecotoxicity

No data available.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

There is little tendency for chromium to accumulate along food chains in the trivalent inorganic form.

12.4 Mobility in Soil

The adsorption of Cr(III) and Cr(VI) is complicated by redox changes that can occur in soil environments. Organic matter in soils can bring about the spontaneous reduction of Cr(VI) to Cr(III), even under alkaline conditions. In contrast to Cr(VI), the adsorption of Cr(III) increases as pH increases.

12.5 Other Adverse Effects

No data available.

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations. A solid waste containing chromium may or may not become characterized as a hazardous waste when subjected to the Toxicity Characteristic Leaching Procedure listed in 40 CFR 261.24, and if so characterized, must be managed as a hazardous waste. Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number D007, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste.

Section 14: Transport Information

14.1 UN Number

Not applicable.

14.2 UN Proper Shipping Name

Not applicable.

14.3 Transport Hazard Class(es)

U.S. Department Of Transportation:	No classification assigned.
CA Transportation/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.

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.

Section 15: Regulatory Information

US Regulations

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

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):	Not regulated.
Section 313 (40 CFR 372.65):	Yes (Chromium)

OSHA Process Safety:	Not regulated.
----------------------	----------------

State Regulations

California Proposition 65:	Not regulated.
----------------------------	----------------

National Inventory Status

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

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.

Reference:

ChemAdvisor. *Material Safety Data Sheet Product Name: Ferrochromium, Low Carbon*. Revised March 13, 2008. (as provided by the Defense Logistics Agency)

American Conference of Governmental Industrial Hygienists. *2013 TLVs® and BEIs®, ACGIH® Publication #0113*. 2013.
US Department of Transportation. *Emergency Response Guidebook*. 2012

Centers for Disease Control and Prevention. *NIOSH Pocket Guide to Chemical Hazards*, <http://www.cdc.gov/niosh/npg/>.

National Institute of Health, Toxicology Data Network. <http://toxnet.nlm.nih.gov/>

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

Date of Preparation of Updated SDS: April 23, 2015