

Safety Data Sheet

Material Name: FERROSILICON

SDS ID: 00223973

*** Section 1 - PRODUCT AND COMPANY IDENTIFICATION ***

Material Name: FERROSILICON

Manufacturer Information

CMC Cometals
CONTACT:
2050 Center Avenue, Suite 250
Ft. Lee, NJ 07024
Mfg Contact: CMC Cometals

EMERGENCY

Chemical Family

metal, alloy

Synonyms

FERRO SILICON (74% Si); IRON-SILICON; UN 1408; RTECS: LK1400000

Product Use

Ferro Silicon is classed as a non-hazardous item and not subject to UN 1408 provided that it meets Special Provision 39 and 223 of the Dangerous Goods List. The Dangerous Goods exemption is valid upon presentation of: A) A signed statement by the supplier that the referenced shipment was stored under cover, but in the open air, in the size in which it was packed, for not less than 3 days prior to shipment. B) A certificate from an accredited laboratory stating that the referenced shipment was tested in accordance with 1) The IMDG Code 2) The United Nations recommendations on the transport of Dangerous Goods, Manual of Tests and Criteria Part III-33.4.1.4. Whose Test results indicate that the cargo form which the sampling was done shows that it is non-dangerous cargo.

*** Section 2 - HAZARDS IDENTIFICATION ***

EMERGENCY OVERVIEW

Physical Form: crystals

Odor: odorless

Physical Hazards: Negligible fire and explosion hazard in bulk form. Dust/air mixtures may ignite or explode. Reacts violently with water to generate toxic and/or flammable gases.

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, metal fume fever

Long Term: difficulty breathing, lung damage

Skin

Short Term: irritation

Long Term: no information is available

Eye

Short Term: irritation, glaucoma

Long Term: same as effects reported in short term exposure

Ingestion

Short Term: vomiting, diarrhea

Long Term: no information on significant adverse effects

*** Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS ***

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CAS	Component	Percent	Symbol(s)	Risk Phrase(s)
8049-17-0	FERROSILICON	100.0	---	---

*** Section 4 - FIRST AID MEASURES ***

Inhalation

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

Skin

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.

Eyes

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.

*** Section 5 - FIRE FIGHTING MEASURES ***

See Section 9 for Flammability Properties

NFPA Ratings: Health: 1 Fire: 3 Reactivity: 2

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Flammable Properties

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

Extinguishing Media

regular dry chemical, dry sand, lime, soda ash

Large fires: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn.

Fire Fighting Measures

Do not use water. Do not use foam. Move container from fire area if it can be done without risk. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products.

Thermal Decomposition Products

Water or Moisture: arsine, hydrogen, phosphine

*** Section 6 - ACCIDENTAL RELEASE MEASURES ***

Occupational spill/release

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Do not get water directly on material. Do not get water inside container. Small spills: Collect spilled material in appropriate container for disposal. Move containers away from spill to a safe area. Large spills: Dike for later disposal. Cover with plastic sheet or tarp to minimize spreading and protect from contact with water. Only personnel trained for the hazards of this material should perform clean up and disposal. Keep unnecessary people away, isolate hazard area and deny entry.

*** Section 7 - HANDLING AND STORAGE ***

Handling Procedures

Use methods to minimize dust.

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Storage Procedures

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

*** Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ***

Component Exposure Limits

ACGIH, NIOSH, EU, OSHA (US) and Mexico have not developed exposure limits for any of this product's components.

Ventilation

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face

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

Protective Clothing

Wear appropriate chemical resistant clothing.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any 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 air-purifying full-facepiece respirator equipped with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

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

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

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

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.

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

*** Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ***

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Physical State:	Solid	Appearance:	Not available
Physical Form:	crystals	Odor:	odorless
Odor Threshold:	Not available	Melting Point:	Not available
Boiling Point:	Not applicable	Flash Point:	flammable
Vapor Pressure:	Not applicable	Vapor Density (air = 1):	Not applicable
Density:	Not available	Specific Gravity (water = 1):	5.4
Water Solubility:	reacts	Coef. Water/Oil Dist:	Not available

*** Section 10 - STABILITY AND REACTIVITY ***

Chemical Stability

Reacts violently with water to generate toxic and/or flammable gases.

Conditions to Avoid

Dangerous gases may accumulate in confined spaces. Keep out of water supplies and sewers.

Materials to Avoid

acids, bases, oxidizing materials

FERROSILICON:

ACIDS: May evolve highly toxic and flammable arsine, phosphine, and acetylene gases if impurities present.

ALKALIS: May evolve highly toxic and flammable arsine, phosphine, and acetylene gases if impurities present.

CAUSTIC SODA: May release flammable hydrogen gas.

OXIDIZING MATERIALS: May react.

Decomposition Products

miscellaneous decomposition products

Thermal Decomposition of Products

Water or Moisture: arsine, hydrogen, phosphine

No data available.

Possibility of Hazardous Reactions

Will not polymerize.

*** Section 11 - TOXICOLOGICAL INFORMATION ***

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

FERROSILICON (8049-17-0)

Dermal LD50 Rabbit: >20 g/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

FERROSILICON (8049-17-0)

Skin: >20 gm/kg skin rabbit LD50

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

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HEALTH EFFECTS

Inhalation - Acute Exposure

SILICON: Dust may cause respiratory and mucous membrane irritation and cough. Intratracheal administration of 25 mg in rabbits produced slight pulmonary lesions. IRON: Dust may cause mucous membrane and respiratory irritation due to mechanical action. Metal fume fever, an influenza-like illness, may occur due to the inhalation of freshly formed iron oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns. Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes. Lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur. Tolerance to fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours.

Inhalation - Chronic Exposure

SILICON: Inert dust may cause excessive production of mucous, mucous gland hypertrophy, and increased airway resistance and may contribute to chronic bronchitis. IRON: Prolonged or repeated exposure may cause a mottling of the lungs, a condition called siderosis which is considered to be a benign pneumoconiosis that does not cause significant physiologic impairment. Symptoms may include chronic bronchitis, emphysema, and dyspnea on exertion.

Skin Contact - Acute Exposure

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

Skin Contact - Chronic Exposure

SILICON: No data available. IRON: May cause same effects as reported in acute exposure.

Eye Contact - Acute Exposure

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

Eye Contact - Chronic Exposure

SILICON: No data available. IRON: Repeated and prolonged contact may cause conjunctivitis and other effects reported in acute exposure.

Ingestion - Acute Exposure

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

Ingestion - Chronic Exposure

SILICON: No data available. IRON: Repeated or prolonged exposure may cause hemosiderosis or hemochromatosis.

*** Section 12 - ECOLOGICAL INFORMATION ***
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Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components.

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*** Section 13 - DISPOSAL CONSIDERATIONS ***

Disposal Methods

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.
Hazardous Waste Number(s): D001. D003.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

*** Section 14 - TRANSPORT INFORMATION ***

US DOT Information

Shipping Name: Ferrosilicon
UN/NA #: UN1408 **Hazard Class:** 4.3 **Packing Group:** III
Required Label(s): 4.3, 6.1

TDG Information

Shipping Name: Ferrosilicon
UN #: UN1408 **Hazard Class:** 4.3 **Packing Group:** III
Required Label(s): 4.3, (6.1)

ADR Information

Shipping Name: Ferrosilicon
UN #: UN1408 **Hazard Class:** 4.3 **Packing Group:** III
Required Label(s): 4.3, 6.1

ADR Tunnel Code Restrictions

This list contains tunnel restriction codes for those substances and/or chemically related entries which are found in chapter 3.2 of the ADR regulations.

FERROSILICON (8049-17-0)

RID Information

Shipping Name: Ferrosilicon
UN #: UN1408 **Hazard Class:** 4.3 **Packing Group:** III
Required Label(s): 4.3, 6.1

IATA Information

Shipping Name: Ferrosilicon
UN #: UN1408 **Hazard Class:** 4.3 **Packing Group:** III
Required Label(s): 4.3, 6.1

ICAO Information

Shipping Name: Ferrosilicon
UN #: UN1408 **Hazard Class:** 4.3 **Packing Group:** III
Required Label(s): 4.3, 6.1

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IMDG Information

Shipping Name: Ferrosilicon

UN #: UN1408 Hazard Class: 4.3 Packing Group: III

Required Label(s): 6.1

* * * Section 15 - REGULATORY INFORMATION * * *

U.S. Federal Regulations

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C)

Acute Health: No Chronic Health: No Fire: Yes Pressure: No Reactive: Yes

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
FERROSILICON	8049-17-0	No	No	No	Yes	No	No

Not regulated under California Proposition 65

Canada

Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

FERROSILICON (8049-17-0)

1 %

Safety Phrases

S8 Keep container dry. **S30** Never add water to this product.

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
FERROSILICON	8049-17-0	No	No	No	Yes	Yes	No	No	No	Yes

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*** Section 16 - OTHER INFORMATION ***

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

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