



SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Silico Manganese

CAS Number: SiMn 12743-28-1

Synonyms: Ferrosilco Manganese, Silico Manganese high grade/standard grade

Use/Description: Silico Manganese metallurgical grade metal

Company Identification: Felman Production LLC

4442 Graham Station

Road Letart, WV

25253

24 Hour Contact – CHEMTREC 1-800-424-9300

Safety Contact [8:00 am – 5:00 pm]: 1-(304) 882-1424

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

SiMn PRODUCTS AS SOLD BY FELMAN PRODUCTION, L.L.C. ARE NOT HAZARDOUS PER OSHA GHS 29 CFR 1910, 1915, 1926.

However, individual customer processes, (such as welding, sawing, brazing, grinding, abrasive blasting, and machining or adding to smelted products such as steel) may result in the formation of fumes, dust (combustible or otherwise), and/or particulates that may present the following hazards:

OSHA Hazards: Carcinogen
Skin Sensitizer
Target Organ Effect – Lungs

GHS Classification: Carcinogenicity (Category 2)
Skin Sensitization (Category 1)
Specific Target Organ Toxicity-Repeated Exposure (Category 1)

Pictogram(s):



Silico Manganese

Signal Word: Danger

Hazard Statement(s)

H317: Dust/fumes may cause an allergic skin reaction.

H351: Dust/fumes suspected of causing cancer via inhalation.

H372: Inhalation of dust/fumes causes damage to respiratory tract through prolonged or repeated exposure

Precautionary Statement(s)

P202: Do not handle until all safety precautions have been read and understood.

P261: Avoid breathing dust/fumes.

P281: Use personal protective equipment as required.

P308+P313: If exposed or concerned: Get medical advice/attention.

Potential Health Effects

Eye Contact

Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.

Skin Contact

Dusts or particulates may cause mechanical irritation due to abrasion. Coated Silico Manganese may cause skin irritation in sensitive individuals (see Section 16 for additional information.) Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.

Inhalation

Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 to 48 hours.

Ingestion

Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

Potential Fire and Explosion Hazards

Under normal conditions, SiMn products do not present fire or explosion hazards, and dust generated by handling SiMn products is oxidized and not combustible. Processing of SiMn product by some individual customers may produce potentially combustible dust that may represent a fire or explosion hazard.

Chronic or Special Toxic Effects

Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur. Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NTP, OSHA, or IARC as carcinogens: manganese. See Section 11, for additional, specific information on effects noted above.

Target Organs

Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system,.

Medical Conditions Aggravated by Exposure

Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

No Permissible Exposure Limits or Threshold Limit Values exist for SilicoManganese (SiMn). The Table Below lists the Exposure Limits for the Elemental Species that are used in SiMn production and which may be present in various forms and oxidation states in customer applications using our products.

Components	CAS No.	% Weight	Exposure Limits			
			ACGIH TLV (mg/m3)		OSHA PEL (mg/m3)	
Manganese(Mn)	7439-96-5	65 - 74	.2	Elemental Mn	5	Fume (Ceiling)
Silicon (Si)	7440-21-3	12.5 - 21.0	10	Dust/Fume	15	Dust / Fume
Carbon (C)	7440-44-0	0 - 3	-	Not Established	-	Not Established
Phosphorus (P)	7723-14-0	0.01 - .4	.1	Phosphorus	.1	Phosphorus
Balance Iron (Fe)	7440-89-6	Balance	5	Oxide/Dust/Fume	10	Oxide/Dust/Fume

4. FIRST AID MEASURES—Fumes and Dusts

Eye Contact- In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

Skin Contact - In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

Inhalation - In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in this SDS develop.

Ingestion - Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

Notes to Physician - Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable leukocytosis. Treatment is symptomatic, and condition is self-limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

5. FIRE FIGHTING MEASURES

Flash Point (Method) - Not applicable

Flammable Limits (% volume in air) - Not applicable

Auto ignition Temperature - Not applicable

When suspended in air, these alloys in fine size can ignite, propagate flame or cause a mild explosion. This is a Class D fire which requires dry chemicals, dry sand or powder to smother the fire. Nitrogen blanket will not extinguish a manganese fire.

Extinguishing Media - For molten metal, use dry powder or sand. For Silico Manganese dust use or dry sand, water, foam, argon or nitrogen.

Special Fire Fighting Procedures - Do not use water on molten metal. Do not use Carbon Dioxide (CO₂). Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

Unusual Fire or Explosion Hazards - Silico Manganese products do not present fire or explosion hazards under normal conditions. Any non-oxidized fine metal particles/ dust generated by grinding, sawing, abrasive blasting, or individual customer processes may produce materials that the customer should test for combustibility and other hazards in accordance with applicable regulations. High concentrations of combustible metallic fines in the air may present an explosion hazard.

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6. ACCIDENTAL RELEASE MEASURES

Precautions if Material is Spilled or Released - Emergency response is unlikely unless SiMn is present in the form of extremely fine combustible dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this SDS (see section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, sewers, or waterways.

Fire and Explosion Hazards - Some customer processes may generate combustible dust that may require specific precautions when cleaning spills or releases of dust.

Environmental Precautions - Some grades of Silico Manganese may contain reportable quantities of alloying elements. See Section 15 for additional information.

Waste Disposal Methods - Dispose used or unused product in accordance with applicable Federal, State, and Local regulations. Please recycle.

7. HANDLING AND STORAGE

Storage Temperatures - Stable under normal temperatures and pressures.

Precautions to be Taken in Handling and Storing - Store away from strong oxidizers. Dusts and/or powders, alone, or combined with process specific fluids, may form explosive mixtures with air. Applicable Federal, state and local laws and regulations may require testing dust generated from processing of Silico Manganese products to determine if it represents a fire or explosion hazard and to determine appropriate protection methods. Avoid breathing dusts or fumes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.

Eye Protection - Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shield should be used when welding or cutting.

Skin - Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water, and laundering or dry cleaning soiled work clothing.

Respiratory Protection - NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 3 for component material information exposure limits. If such concentrations are sufficiently high that this respirator is inadequate, or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting, and training standards and regulations.

Ventilation - Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure limits.

Exposure Guidelines - No permissible exposure limits (PEL) or threshold limit values (TLV) exist for Silico Manganese. See Section 3 for component materials. Various grades of Silico Manganese will contain different combinations of these elements. Trace elements may also be present in minute amounts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor – Silver grey to grey black with metallic luster.

Boiling Point - Not applicable

Melting Point - Approximately 2800 °F

pH - Not applicable

Specific Gravity (at 15.6°C) - Not applicable

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Density (at 15.6 °C) - Not applicable

Vapor Pressure - Not applicable

Vapor Density (air = 1) - Not applicable

% Volatile, by Volume - Not applicable

Solubility in Water - Insoluble.

Evaporation Rate (Butyl Acetate = 1) - Not applicable

Other Physical and Chemical Data - Product is in lump form and may contain less than 10% under bottom specified size.

10. STABILITY AND REACTIVITY

Stability - Stable

Reactivity: May react slightly with water to form small amounts of phosphine, arsine and hydrogen.

Conditions to Avoid - Silico Manganese at temperatures above the melting point may liberate fumes containing oxides of iron, silicon and manganese and other elements in smaller quantities. Avoid generation of airborne fume.

Hazardous Polymerization - Will not occur.

Incompatibility (Materials to Avoid) - Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.

Hazardous Decomposition Products - Metallic fumes may be produced during welding, burning, grinding, and possibly machining or any situation with the potential for thermal decomposition. Refer to ANSI Z49.1

11. TOXICOLOGICAL INFORMATION

Silico Manganese is an alloy containing elemental Manganese, Silicon and Iron as the major components. At ambient temperatures Silico Manganese is stable and non-toxic. Users should identify the effect of their processes to identify any hazards associated with the use of this product.

12. ECOLOGICAL INFORMATION

Aquatic Eco toxicological Data - No specific information available on this product. The Silico Manganese Alloy is not water soluble.

Environmental Fate Data - No specific information available on this product.

13. DISPOSAL CONSIDERATIONS

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. Dispose in accordance with federal, state, and local health and environmental regulations. Prevent materials from entering drains, sewers, or waterways.

14. TRANSPORT INFORMATION

DOT Proper Shipping Name - Not regulated

DOT Hazard Classification - Not regulated

UN/NA Number - Not applicable

DOT Packing Group - Not applicable

Labeling Requirements - Not applicable

Placards - Not applicable

DOT Hazardous Substance - Not applicable

DOT Marine Pollutant - Not applicable

15. REGULATORY INFORMATION

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and

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require protection to comply with applicable Federal, state and local laws and regulations.

California Proposition 65: None

Massachusetts Substance List: Manganese, Phosphorus, Silicon

Pennsylvania Hazardous Substance List: Manganese, Phosphorus, Silicon

New Jersey Hazardous Substance List: Manganese, Phosphorus, Silicon

Toxic Substances Control Act (TSCA)

Components of this product are listed on the TSCA Inventory.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

Silico Manganese is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches

<u>Chemical Name</u>	<u>Reportable Quantity (in lb)</u>
None	

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III

SECTION 311/312 HAZARD CATEGORIES: Immediate Health Effect, Delayed Health Effect

This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right – To – Know Act of 1986 (40 CFR 372):

SECTION 313 REPORTABLE INGREDIENTS:

<u>Chemical Name</u>	<u>CAS Number</u>	<u>Concentration (% by weight)</u>	<u>Reportable</u>
Manganese	7439-96-5	20-70	Yes – Greater than 1%
Phosphorus	7723-14-0	<0.9	No – Less than 1%

Concentrations based on analytical data and process knowledge of typical products distributed by the facility.

16. OTHER INFORMATION

The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable; however, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of this product.