

MATERIAL SAFETY DATA SHEET



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Emergency Number:
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Section 1 - Product:

Product Name: STANDARD FERROMANGANESE & MEDIUM CARBON FERROMANGANESE
Formula: FeMn CAS No. 12604-53-4

Product Name: SILICO MANGANESE
Formula: SiMn CAS No. 12743-28-1

Section 2 - Physical Data:

Form: Product is in lump form and may contain less than 10% under bottom specified size.
Solubility: Insoluble in water.
Reactivity: FeMn or SiMn may react slightly with water to form small amounts of phosphine, arsine and hydrogen.

Section 3 - Composition:

Typical Analysis (wt %)	Standard Ferromanganese	Medium Carbon Ferromanganese	Silicomanganese
%Mn	74-82	80-85	65-68
Si	0-1.2	0-1.5	12.5-21.0
C	0-7.5	0-1.5	0-3.0
S	0-0.050	0-0.020	0-0.04
P	0-0.35	0-0.30	0-0.20
Fe	Balance	Balance	Balance

Section 4 - Hazards:

Part A - Air Contaminants

No permissible exposure limits or threshold limit values are known for ferromanganese or silicomanganese. Values for ingredients in the product may be appropriate.

Ingredient	PEL*	TLV**	STEL****	TWA*****
Manganese (Fume MnO)			3	1
Manganese (Dust)	C5***	5		
Iron (as Oxide Fume)	10(total)	5(total)		
Carbon	3.5			
Silicon	10(total)	10(total)		
	5(respirable)			

*Permissible Exposure Limit (mg/m³). OSHA 29CFR 1910.

**Threshold Limit Value (mg/m³). American Conference of Governmental Hygienists.

***Indicates ceiling value, at no time should exposure exceed this level.

****Short Term Exposure Limit (15 minutes) (mg/m³)

*****Time Weighted Average (mg/m³).

Part B - Short Term Exposure

Irritation of the eyes and throat may result from short time exposure to high concentrations of dust. Cold-like symptoms are indicative of manganese fever, however, no residual injury is anticipated from short time exposure. Smoking will increase the potential for injury from both short and long term exposures to both dust and fume.

Part C - Long term Exposure

Long term exposure to fumes emitted from melting these alloys will produce manganese poisoning with symptoms ranging from sleepiness and weakness in the legs to difficulty in walking and pneumonia.

The American Conference of Governmental Industrial Hygienists Inc. reports that chronic manganese poisoning may occur when TLV levels of oxides are in excess of 5 mg/m³ as manganese. Chronic manganese poisoning affects the central nervous system.

Part D - Fire Hazard

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 CO₂ to smother the fire. Nitrogen blanket will not extinguish a manganese fire.

Part E - Emergency and First Aid Procedures

For dust in eyes, flush with plenty of water for 15 minutes. If inhaled, remove to well-ventilated area.

Section 5 - Precautions:

- A. Atmosphere
Avoid generation of dust and collect fumes emitted by melting of manganese alloys in compliance with OSHA regulations.
- B. Spill and Leak Information
Fine material should be swept or vacuumed. Spill or leak of lump material presents no hazard. Disposal should be in accordance with regulations that apply.
- C. Employee
Respirators that are NIOSH approved in accordance with 29CFR 1910.134, are necessary when exposure limits must be extended due to inadequate ventilation. Industrial hygiene monitoring is required to establish exposure levels.

Manganese alloys may have sharp edges, therefore, protective gloves are recommended for handling.

Eye protection should conform with local safety regulations.

REFERENCES:

1. OSHA (29CFR 1910) Department of Labor.
2. Documentation of the Threshold Limit Values, Fourth Edition 1980...
American Conference of Governmental Industrial Hygienists Inc.

IMPORTANT NOTICE:

This information relates only to the specific product or material designated and may not be valid for such product or material used in combination with any other materials or products or any process. The information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of the material for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information, nor do we offer any warranty against patent infringement.