

# MATERIAL SAFETY DATA SHEET

## Chemical Product

Product Name: MANGANESE METAL POWDER 99% Extra Pure  
CAS#: 7439-96-5  
Chemical Name: MANGANESE METAL POWDER 99% Extra Pure  
Chemical Formula: Mn

## Composition and Information on Ingredients

Name	S.K.U	% by Weight
MANGANESE METAL	GCS-8437	100

## Hazards Identification

### Potential Acute Health Effects:

Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion.

### Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available.  
TERATOGENIC

EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, lungs, brain, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

## First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

## Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Moderate fire potential, in the form of dust or powder, when exposed to flame. When manganese is heated in the vapor of phosphorus at a very dull red heat, union occurs with incandescence. Concentrated nitric acid reacts with powdered manganese with incandescence and explosion. Powdered manganese ignites in chlorine.

Special Remarks on Explosion Hazards: Moderate explosion potential, in the form of dust or powder, when exposed to flame.

## Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Handling and Storage

Precautions:

Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles

such as oxidizing agents, reducing agents.

**Storage:**

Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above.

## Exposure Controls/Personal Protection

**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**Personal Protection:**

Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 0.1 (mg/m<sup>3</sup>) from ACGIH (TLV) [United States] TWA: 5 (mg/m<sup>3</sup>) [Canada] TWA: 1 STEL: 3 (mg/m<sup>3</sup>) from NIOSH [United States] TWA: 5 (mg/m<sup>3</sup>) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

## Physical and Chemical Properties

Physical state and appearance	: Solid.
Odor	: Odorless.
Taste	: Not available.
Molecular Weight	: 54.94 g/mole
Color	: Grayish white..
pH (1% soln/water)	: Not available.
Boiling Point	: 2095°C (3803°F)
Melting Point	: 1244°C (2271.2°F)
Critical Temperature	: Not available.
Specific Gravity	: 7.44 (Water = 1).
Vapor Pressure	: Not applicable.
Vapor Density	: Not available.
Volatility	: Not available.
Odor Threshold	: Not available.
Water/Oil Dist. Coeff.	: Not available.
Ionicity (in Water)	: Not available.
Dispersion Properties	: Not available.
Solubility	: Insoluble in cold water, hot water.

## Stability and Reactivity Data

Stability	: The product is stable.
Instability Temperature	: Not available.
Conditions of Instability	: Incompatible materials.
Incompatibility with various substances	: Reactive with oxidizing agents, reducing agents.
Corrosivity	: Non-corrosive in presence of glass.
Special Remarks on Reactivity	: Superficially oxidized on exposure to air. Reacts with aqueous solutions of sodium or potassium bicarbonate. Reacts with dilute mineral acids with evolution of hydrogen and formation of divalent manganous salts. Reacts with fluorine and chlorine to produce di or tri fluoride, and di and tri chloride, respectively. In the form of powder, it reduces most metallic oxides on heating. On heating, it reacts directly with carbon, phosphorus, antimony, or arsenic. Also incompatible with hydroxides, cyanides, carbonates.
Special Remarks on Corrosivity	: Not available.
Polymerization	: Will not occur.

## Toxicological Information

### Routes of Entry:

Inhalation. Ingestion.

### Toxicity to Animals :

Acute oral toxicity (LD50): 9000 mg/kg [Rat].

### Chronic Effects on Humans:

May cause damage to the following organs: blood, lungs, brain, central nervous system (CNS).

### Other Toxic Effects on Humans:

Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of ingestion.

### Special Remarks on Toxicity to Animals:

Not available.

### Special Remarks on Chronic Effects on Humans:

Manganese can cross the placenta. May cause cancer (tumorigenic) based on animal data.

### Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: Dust may cause mechanical irritation. Inhalation: Dust may cause respiratory tract irritation. May cause "Metal Fume Fever" which may include flu-like symptoms (fever, chills, upset stomach, vomiting, weakness, headache, body aches, muscle pains, dry mouth and throat, coughing, tightness of the chest). May affect behaviour/Central Nervous system (change in motor activity, torpor, nervousness, tremor, yawning, mood swings, irritability, restlessness, fatigue, headache, apathy, languor, insomnia than somnolence, hallucinations, delusions, uncontrollable laughter followed by crying, compulsions, aggressiveness, weakness in legs, memory loss, decreased libido, impotence, salivation, hearing loss, slow gait, ), and respiration (dyspnea, shallow respiration,

cyanosis, alveolar inflammation). Ingestion: Repeated or prolonged exposure from ingestion may affect brain (degenerative changes), blood and metabolism. Ingestion: May cause digestive tract irritation. There is a low gastro- intestinal absorption of manganese.

Chronic Potential Health Effects: Inhalation: Repeated or prolonged exposure from inhalation may affect brain (degenerative changes), behaviour/Central Nervous system with symptoms to acute exposure. May also affect liver (chronic liver disease, jaundice)  
Ingestion: Repeated or prolonged exposure from ingestion may affect brain, blood and metabolism

Toxicological Data on Ingredients: Manganese: ORAL (LD50): Acute: 9000 mg/kg [Rat].

## Ecological Information

### Ecotoxicity:

Not available.

### BOD5 and COD:

Not available.

### Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

### Toxicity of the Products of Biodegradation:

The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available

## Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Transformation Information

Land transport (ADR-RID)

General information: Not regulated.

Sea transport (IMDG) [English only]

General information: Not regulated.

Air transport (ICAO-IATA) [English only]

General information: Not regulated.

## Other Regulatory Information

Federal and State Regulations: Illinois toxic substances disclosure to employee act:

Manganese Rhode Island RTK hazardous substances: Manganese Pennsylvania RTK:

Manganese Minnesota: Manganese Massachusetts RTK: Manganese New Jersey:

Manganese New Jersey spill list: Manganese Louisiana spill reporting: Manganese California Director's List of Hazardous Substances: Manganese TSCA 8(b) inventory: Manganese SARA 313 toxic chemical notification and release reporting: Manganese.

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): Not applicable.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

**Additional Information**



References: Not available.

Other Special Considerations: Not available.

***Disclaimer:***

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