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SAFETY DATA SHEET

Identity: Manganese Sulfide Formula: MnS / Mn3Sn

SECTION I - GENERAL INFORMATION

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular Weight: N/A

CAS #	OSHA PEL	ACGIH TLV	%
18820-29-6	5 mg (Mn)/m3	5mg (Mn)/m3	0.0-100.0%

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: N/A
Melting Point: N/A
Evaporation Rate: N/A
Solubility in water: Slightly soluble (0.0047 g/l)

Vapor Pressure (vs. air or mmHg): N/A
Density: N/A
Flash Point: N/A (Flammable solid)

Appearance and odor: Pink-green or brown powder; may have rotten egg odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: No Data *Explosive Limits*: LEL: N/A UEL: N/A
Extinguishing Media: Use class D or other suitable extinguishing agent. Do not use water.

Special Fire Fighting Procedures:

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire and Explosive Hazards: Flammable when heated to flame or by spontaneous chemical reaction. When heated to decomposition, manganese sulfide may emit toxic fumes of oxides of sulfur. Decomposes in air to manganese oxide. In moist conditions it readily oxidizes in air to the sulfate. Reacts with water, moisture, or steam to evolve toxic and flammable hydrogen sulfide.

SECTION V – STABILITY AND REACTIVITY

Stability: Stable
Conditions to Avoid (instability): Decomposition will not occur if used and stored according to specifications.
Incompatibility: Water, moisture, steam, air, oxidizing agents and strong acids.

Hazardous Decomposition or Byproducts: Oxides of sulfur and manganese, hydrogen sulfide, metal oxide fumes.
Hazardous Polymerization: Will not occur
Conditions to avoid (hazardous polymerization): None

SECTION VI – TOXICOLOGICAL INFORMATION

Route of Entry: Inhalation? Yes Eyes? Yes Ingestion? Yes Skin? No Other? No

To the best of our knowledge the chemical, physical and toxicological properties of manganese sulfide have not been thoroughly investigated and recorded.

Manganese compounds can cause central nervous system and pulmonary system damage by inhalation of fumes and dust. Very few poisonings have occurred from ingestion. Chronic manganese poisoning is a clearly characterized disease which results from inhalation of fumes or dust of manganese. Exposure to heavy concentrations of dusts or fumes for as little as three months may produce the condition, but usually cases develop after 1-3 years of exposure. The central nervous system is the chief site of damage. Exposure to dusts and fumes can possibly increase the incidence of upper respiratory infections and pneumonia. Chronic manganese poisoning usually begins with complaints of languor and sleepiness. This is followed by weakness in the legs and the development of stolid, mask-like faces. The patient speaks with a slow monotonous voice. Then muscular twitching appears, varying from a fine tremor of the hands to coarse rhythmical movements of the arms, legs, and trunk. Nocturnal cramps of the legs appear about the same time. There is a slight increase in tendon reflexes, ankle and patellar clonus, and typical Parkinson and slapping gait (Sax, Dangerous Properties of Industrial Materials, eighth edition).
Sulfides have variable toxicity. The alkaline sulfides (potassium, calcium, ammonium and sodium) are similar in action to alkalies. They cause softening and irritation of the skin. If ingested they are corrosive and irritating through the liberation of hydrogen sulfide and free alkali (Sax, Dangerous Properties of Industrial Materials, eighth edition).

Signs and Symptoms of Overexposure
Inhalation: No Data
Ingestion: No Data
Skin: Irritant to skin and mucous membranes
Eyes: Irritating effect.

Health Hazards (Acute and Chronic):
Inhalation:
Acute: May cause irritation of the respiratory tract, mucous membranes and metal fume fever.
Chronic: May cause pulmonary pneumonitis, manganism, psychic and neurological disorders affecting the central nervous system.

Ingestion:
Acute: Absorption of manganese compounds from the gastrointestinal tract is poor under normal conditions.
Chronic: No chronic health effects recorded.

Skin:
Acute: May cause irritation.
Chronic: May cause dermatitis.

Eyes:
Acute: Irritant salts may cause conjunctivitis damage.
Chronic: May cause irritation.

Target Organs: No data
Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No
Medical Condition Aggravated By exposure: Upper respiratory infection and pneumonia.

Emergency and First Aid Procedures:

Inhalation:	Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention
Ingestion:	Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person
Skin:	Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist
Eye:	Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:
Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste disposal method:
Dispose of in accordance with state, local, and federal regulations.

Hazard Label Information:
Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

Precautions: Avoid breathing dusts and use adequate ventilation.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):
NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: To maintain concentration at low exposure levels.
Mechanical (General): Not recommended.

Work/Hygienic/Maintenance Practices:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established