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Material Safety Data Sheet

Identity: Manganese selenide

Formula: MnSe

SECTION I - GENERAL INFORMATION

Manufacturer: Advanced Engineering Materials Limited (AEM)

The information below is believed to be accurate and represents the best information available to AEM. However, AEM 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

CAS #	OSHA PEL	ACGIH TLV	%
1313-22-0	5mg/m ³	5mg/m ³	0.0-100.0%

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: N/A

Vapor Pressure (vs. air or mmHg): NE

Melting Point: N/A

Specific Gravity(H₂O=1): 5.45 gm/cc at 15 Celsius

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

Vapor Density: N/A

Appearance and odor: Gray powder pieces, no odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Non-Flammable

Explosive Limits: LEL: N/A

UEL: N/A

Extinguishing Media: Use suitable extinguishing media for surrounding materials and type of fire.

Special Fire Fighting Procedures:

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

Unusual Fire and Explosion Hazards:

When heated to decomposition, manganese selenide may emit toxic fumes of selenium.



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Ingestion: Chronic selenium poisoning may cause: alkali disease, loss of vitality, lameness, atrophy, cirrhosis of the liver, degeneration and necrosis of the myocardium.

Skin: May cause redness, itching and inflammation.

Eye: May cause redness, itching, burning and watering.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: DANGER-POISON. May cause irritation of the respiratory tract and mucous membranes and acute selenium poisoning. Inhalation of manganese compounds' fine dusts and fumes may cause metal fume fever.

Chronic: Chronic inhalation of manganese compounds' dust particles, approximately 3 um in size, for a period of a few months may cause pulmonary pneumonitis. However, dust particles approximately 5 um in size, inhaled for about 4 hours daily for three months did not produce pneumonitis, but may cause fibrotic changes in the lungs, decrease in hemoglobin and a change in erythrocyte levels. May cause manganism, psychic and neurological disorders effecting the central nervous system, to develop (manganism is not fatal but, can cause permanent disability). May cause chronic selenium poisoning. Continued intoxication may cause loss of nails and hair, hemolytic anemia, And kidney, liver and spleen damage.

Ingestion:

Acute: DANGER-POISON. May cause gastrointestinal disturbances.

Chronic: May cause chronic selenium toxicity.

Skin:

Acute: May cause irritation.

Chronic: May cause dermatitis.

Eye:

Acute: May cause irritation.

Chronic: Irritant dusts may cause conjunctivitis damage.

Target Organs: Upper respiratory system, eyes, skin, liver, kidneys and blood.

Carcinogenicity: NTP? Yes OSHA Regulated? No

Medical Conditions Aggravated by Exposure: Pre-existing respiratory disorder.

Emergency and First Aid Procedures:

Inhalation: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

Ingestion: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce



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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:

DANGER: CONTAINS CADMIUM. Avoid creating dust.

Precautions to be taken in storing:

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

Precautions: Avoid breathing dust.

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 or below PEL, TLV

Special: Handle in a controlled environment.

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