



MSDS - Manganese Oxy Sulfate

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Section 1. Product Information

Product Name: Ultra Yield Manganese Oxy Sulfate

Chemical Name: Not applicable. A complex mixture of essential plant micronutrients

Chemical Family: An inorganic metal salt

Material Uses: Agricultural, fertilizer ingredients

Distributed by Pestell Minerals & Ingredients, New Hamburg, ON Canada

24 Hour Emergency Telephone (Canutec): 613-996-6666

Section 2. Hazardous Ingredients

Manganese Sulfate (10-30% by weight as Mn) CAS No. 7785-87-7 TLV-TWA mg/m³: 0.2 as Mn

Manganese Oxide (10-30% by weight as Mn) CAS No. 1375-35-7 TLV-TWA mg/m³: 0.2 as Mn

Hazards Identification

Potential Acute Health Effects: Acute systemic intoxication rarely occurs as it is poorly absorbed from the lungs or the gut. Systemic poisoning may result from chronic inhalation or chronic ingestion; chronic exposure to low concentrations may lead to the accumulation of toxic concentrations in critical organs. May cause eye and skin irritation.

Potential Chronic Health Effects: The usual form of chronic manganese poisoning primarily involves the CNS. The brain appears to sustain permanent cellular damage at exposure levels which do not otherwise affect a person. The characteristic pathological lesion in man is destruction of the ganglion cells of the basal ganglia, although symptoms appear before damage becomes discernible. Onset of chronic poisoning is insidious. Early symptoms include languor, sleepiness, tremors, and weakness in legs. A stolid mask like appearance of face, slurred speech, emotional disturbances such as anorexia, apathy, and inability to concentrate, uncontrollable laughter, and loss of balance with a spastic gait and a tendency to fall while waling are findings in more advanced cases.

While high levels of manganese may increase anemia by interfering with iron absorption, iron deficiency may increase an individual's susceptibility to manganese. Experimental studies suggest that populations at greatest risk of adverse effects due to manganese exposure are the very young and those with iron deficiency. Effects have been reported in the scientific literature at or below the US OSHA PEL of .5mg/m³ as a ceiling value.

Although permanently disabled unless treated, chronic manganese poisoning is not a fatal disease. Disorders are reversible if recognized and overexposure is eliminated. Not classifiable as a human or animal carcinogen, teratogen or mutagen.

Section 3. Physical and Chemical Properties

Physical State and Appearance: Granular solid

Color/Odor: Dark brown or grey, odorless

pH (10% soln/water): 6.0 - 7.0

Boiling Point: Decomposes

Melting Point: -700°C (1292°F)

Specific Gravity g/cc: 1.44 particle density (Water=1)

Bulk Density: 1600 kg/m³; 100lbs/ft³

Volatility: Not available

Vapor Pressure/Density: Not available

Solubility: Soluble in hot or cold water

Section 4. Fire and Explosion Data

The product is non flammable

Auto Ignition Temperature: Not applicable

Flash Point: Not applicable

Flammability Limit: Not applicable

Products of Combustion: Not applicable

Fire Hazard in the Presence of Various Substances: Not applicable

Explosion Hazard in the Presence of Various Substances: This substance is non explosive

Fire Fighting Media and Instructions: Non flammable

Section 5. Stability and Reactivity Data

The product is stable

Corrosivity: No specific information is available in our database regarding corrosivity of this product in presence of various materials. Slightly corrosive to copper, iron and steel.

Special Remarks on Reactivity: Avoid strong oxidizing agents

Special Remarks on Corrosivity: Contact you sales representative or metallurgical specialist to ensure compatibility with system equipment.

Incompatibility with Various Substances: Highly reactive with oxidizing agents.

Section 6. Toxicological Information

Significant Routes of Exposure: Ingestion

Toxicity to Animals: Acute oral toxicity (LD50): 2330mg/kg (mouse)

Special Remarks on Toxicity to Animals: Low toxicity for humans or animals under normal conditions of use. May be harmful to livestock and wildlife if ingested. Clean up spilled material, especially where bulk fertilizer loading of equipment occurs to prevent animal exposure.

Aquatic/Marine Toxicity: Avoid spills or releases to watercourses. Will disperse with current. Release to watercourses may cause effects down stream from point of release. U.S. DOT: This material is not listed as a marine pollutant.

Other Effects on Humans: No additional information is available in our database regarding other toxic effects of this material.

Section 7. Exposure Controls/Personal Protection

Engineering Controls: Local exhaust ventilation may be necessary to control any contaminants to within their TLV's during the use of this product. If user operation generates dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: The selection of personal protective equipment varies, depending upon conditions of use. Under well controlled conditions where no direct contact with the substances exists and exposures are below the occupational exposure limit, normal work clothing may suffice. However,

protective clothing and appropriate respiratory protection must be available in the area in the event of emergency.

Personal Protection in Case of Large Release: Wear a NIOSH approved dust respirator if engineering, work practice or other control measures are not adequate to prevent overexposure. Where skin and eye contact may occur as a result of prolonged or repeated exposures, wear long sleeved clothing, coveralls, leather gloves and safety glasses with side shields.

Exposure Limits: Manganese and Inorganic Compounds: ACGIH TLV-TWA 0.2 mg/m³ US OSHA PEL: 5 mg/m³ ceiling. Federal, State and Provincial exposure limits may vary. Consult local officials for acceptable exposure limits in your jurisdiction.

Accidental Release Measures

Small Spills: Use appropriate tools to put spilled solid in a suitable container for intended use or disposal. Clean up spills immediately, observing precautions in the Protective Equipment section

Large Spill: No additional information

Handling and Storage

Precautions: Do not breathe dust or ingest product. After handling, always wash hands thoroughly with soap and water. Keep container tightly closed and dry. Keep out of reach of children. Use only in well ventilated area.

Storage: Keep container tightly closed. Contains moisture sensitive material; store in a dry place. Product will absorb moisture and will cake when dried. Keep away from food, drink and animal feed.

Ecological Information

Ecotoxicity: No additional information

Products of Degradation: Some metallic oxides. Sulfur oxides (SO₂, SO_#...)

Toxicity of Products of Degradation: The products of degradation are as toxic as original product

Disposal Considerations

Waste Disposal or Recycling: Recover spilled material and use for intended purposes. Consult your environmental advisor for information on recycling or disposal alternative.

Section 8. First Aid Measures

Eye Contact: May cause eye irritation due to mechanical action. Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Obtain medical attention if irritation persists.

Minor Skin Contact: May cause skin irritation. Wash contaminated skin with soap and water. Cover irritated skin with an emollient. If irritation persists, obtain medical attention. Wash contaminated clothing before reusing.

Extensive Skin Contact: No additional information

Minor Inhalation: Allow to rest in a well ventilated area. Seek medical attention, if not feeling well

Severe Inhalation: Over exposure by inhalation may cause respiratory irritation. Rescuers should put on appropriate protective gear. Remove from area of exposure. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Keep warm. Get immediate medical attention.

Slight Ingestion: If conscious, have person drink several glasses of water or milk and induce vomiting. Never give anything by mouth to an unconscious person. Lower the head so that the vomit will not re enter the mouth and throat. Obtain medical attention.

Section 9. Transport Information

DOT/TDG Classification: Not controlled under TDG (Canada) or DOT (USA)

HCS (USA): Target organ effects. May be toxic for the nervous system

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