



LTS Research Laboratories, Inc.
Safety Data Sheet
Manganese Oxide

1. Product and Company Identification

Trade Name:	Manganese Oxide
Chemical Formula:	MnO ₂
Recommended Use:	Scientific research and development
Manufacturer/Supplier:	LTS Research Laboratories, Inc.
Street:	2001 Oaks Pkwy
City:	Belmont
State:	North Carolina
Zip Code:	28012
Country:	USA
Tel #:	+1 (704) 899 2840
24-Hour Emergency Contact:	800-424-9300 (US & Canada) +1-703-527-3887 (International)

2. Hazards Identification

Signal Word: Warning



Hazard Statements:

P264: Wash face, hands and any exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P260: Do not breathe dust/fume/gas/mist/vapours/spray.
H302 + H332: Harmful if swallowed or if inhaled.
H373: May cause damage to organs (Brain) through prolonged or repeated exposure if inhaled.

Precautionary Statements:

P260: Do not breathe dust.
P264: Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P314: Get medical advice/ attention if you feel unwell.
P501: Dispose of contents/ container to an approved waste disposal plant.

HMIS Health Ratings (0-4):

Health:	2
Flammability:	1
Physical:	0

3. Composition

Chemical Family: Ceramic
Additional Names: Manganese dioxide

Manganese Oxide (MnO₂):
Percentage: 0-100 wt%
CAS #: 1313-13-9
EC #: 215-202-6

4. First Aid Procedures

General Treatment: Seek medical attention if symptoms persist.
Special Treatment: None
Important Symptoms: Neurological disorders.

Inhalation: Remove victim to fresh air. Supply oxygen if breathing is difficult.
Seek medical attention.

Ingestion: Immediately make victim drink water (two glasses at most). Do NOT induce vomit. Seek medical attention.

Skin: Wash affected area with mild soap and water for at least 15 minutes.
Remove any contaminated clothing. Seek medical attention.

Eyes: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

5. Firefighting Measures

Flammability: Non-flammable

Extinguishing Media: No special restrictions – use suitable extinguishing agent for surrounding material and type of fire.

Spec. Fire Fighting Procedure: Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

6. Accidental Release Measures

If Material Is Released/Spilled: Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.

Environmental Precautions: Isolate runoff to prevent environmental pollution.

7. Handling and Storage

Handling Conditions:	Use only under a chemical fume hood. Wear personal protective equipment/face protection. Avoid dust formation. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. Incompatible materials. Reducing Agent. Finely powdered metals. Store apart from materials and conditions listed in section 10.
Work/Hygienic Maintenance:	Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.
Ventilation:	Provide sufficient ventilation to maintain concentration at or below threshold limit.

8. Exposure Controls and Personal Protection

Permissible Exposure Limits:	5 mg/m ³ as MnO ₂ , long-term value
Threshold Limit Value:	0.02 mg/m ³ as MnO ₂ , long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Nitrile rubber gloves, 0.11 mm thick
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	Dark grey - black
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	535 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	86.94 g/mol

10. Reactivity	
Stability:	Stable under recommended storage conditions
Reacts With:	Reducing agent, strong acids, finely powdered metals, azides, chlorates, oxidisable substances, hydrogen peroxide, combustible substances, phosphides, oxidizing agents, hydrogen sulphide, halogen-halogen compounds.
Incompatible Conditions:	Incompatible products, excess heat, avoid dust formation.
Hazardous Decomposition Products:	Manganese, manganese oxides
11. Toxicological Information	
Potential Health Effects:	
Eyes:	May cause irritation
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds.
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	500.1 mg/kg for rat by mouth
Carcinogen:	N/A
12. Ecological Information	
Aquatic Toxicity:	N/A
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	Do not empty into drains
13. Disposal Considerations	
Dispose of in accordance with local, state, national, and international regulations.	
14. Transportation Data	
Hazardous:	Not hazardous for transportation.
Hazard Class:	N/A
Packing Group:	N/A
UN Number:	N/A
Proper Shipping Name:	N/A
15. Regulatory Information	
Sec 302 Extremely Hazardous:	No
Sec 304 Reportable Quantities:	No
Sec 313 Toxic Chemicals:	Yes

16. Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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