



LTS Research Laboratories, Inc.  
Safety Data Sheet  
Manganese

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1. Product and Company Identification

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Trade Name: Manganese  
Chemical Formula: Mn  
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 #: 855-587-2436 / 855-lts-chem

24-Hour Emergency Contact: 800-424-9300 (US & Canada)  
+1-703-527-3887 (International)

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2. Hazards Identification

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Signal Word: Danger



Hazard Statements: H228: Flammable solid  
H260: In contact with water releases flammable gases which may ignite spontaneously  
H319: Causes serious eye irritation  
H411: Toxic to aquatic life with long lasting effects

Precautionary Statements: P210: Keep away from heat/sparks/open flames/hot surfaces – No Smoking  
P223: Do not allow contact with water  
P231 + P232: Handle under inert gas. Protect from moisture  
P240: Ground/bond container and receiving equipment  
P241: Use explosion-proof electrical/ventilating/light/equipment  
P264: Wash face, hands, and any exposed skin thoroughly after handling  
P273: Avoid release to the environment  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing  
P335 + P334: Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages  
P337+P313: If eye irritation persists get medical advice/attention  
P370+P378: In case of fire: Use CO<sub>2</sub>, dry chemical or foam for extinction  
P391: Collect spillage  
P402 + P404: Store in a dry place. Store in a closed container  
P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	2
Flammability:	2
Physical:	0

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3. Composition

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Chemical Family:	Metal
Additional Names:	None
Manganese (Mn)	
Percentage:	100 wt%
CAS #:	7439-96-5
EC #:	231-105-1

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4. First Aid Procedures

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General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	N/A
Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult. Seek medical attention.
Ingestion:	Rinse mouth with water. Do not induce vomiting. Seek medical attention.
Skin:	Wash affected area with mild soap and water. 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.

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5. Firefighting Measures

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Flammability:	Non-flammable, except as powder
Extinguishing Media:	No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. Do not use water for metal fires – use CO <sub>2</sub> , sand, extinguishing powder.
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.

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6. Accidental Release Measures

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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.

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## 7. Handling and Storage

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Handling Conditions:	Wash thoroughly after handling.
Storage Conditions:	Store in a cool dry place in a tightly sealed container. 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.

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## 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits:	5 mg/m <sup>3</sup> as Mn, ceiling limit value
Threshold Limit Value:	0.02 mg/m <sup>3</sup> as Mn, respirable, long-term value 0.1 mg/m <sup>3</sup> as Mn, inhalable fraction, long-term value
Special Equipment:	None
Respiratory Protection:	Dust Respirator
Protective Gloves:	Rubber gloves Check gloves prior to each use
Eye Protection:	Safety glasses or goggles
Body Protection:	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

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## 9. Physical and Chemical Characteristics

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Color	Metallic Grey
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	N/A
Water Solubility:	Insoluble
Boiling Point:	1900 °C
Melting Point:	1260 °C
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	7.3 g/cm <sup>3</sup>
Molecular weight:	54.94 g/mol

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## 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	Acids, Bases, Halogens, Phosphorus, Sulfur oxides, Peroxides
Incompatible Conditions:	Moisture sensitive
Hazardous Decomposition Products:	Metal oxide fume

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## 11. Toxicological Information

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### Potential Health Effects:

Eyes:	Causes serious irritation
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A

Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A

Median Lethal Dose: LD50 Oral- 2000 mg/kg for rat by mouth

Carcinogen: N/A

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## 12. Ecological Information

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Aquatic Toxicity:	Toxic to aquatic life with long lasting effects
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	N/A

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## 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations.

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## 14. Transportation Data

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Hazardous: Hazardous as powder only



Hazard Class:	4.1 Flammable solids
Packing Group:	III
UN Number:	UN3089
Proper Shipping Name:	Metal powder, flammable, n.o.s. (Manganese)

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## 15. Regulatory Information

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Sec 302 Extremely Hazardous:	No
Sec 304 Reportable Quantities:	N/A
Sec 313 Toxic Chemicals:	Yes

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## 16. Other Information

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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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