SAFETY DATA SHEET
FOR
THORN SMITH LABORATORIES

SECTION 1 - IDENTIFICATION

Trade Name:	**Manganese Ore** for Mn and O
Catalog Number:	80-1370 (Vials) / 80-1371 (100g)
Product Description:	Analyzed Quantitative Unknowns
Manufacturer:	Auric Enterprises, Inc. d/b/a Thorn Smith Laboratories
Address:	7755 Narrow Gauge Road Beulah, MI 49617
Phone Number:	231-882-4672
SDS Number:	TSL-014

SECTION 2 – HAZARDS IDENTIFICATION

Classification of Substance or Mixture: Not a hazardous substance or mixture as packaged in 10g student vials or 100g containers.

GHS Label Elements, including precautionary statements: Not a hazardous substance or mixture as packaged in 10g student vials or 100g containers.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

Potential Acute Health Effects: May be hazardous in case of skin and eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects: CARCENOGENIC EFFECTS: N/A
MUTAGENIC EFFECTS: N/A
TERATOGENIC EFFECTS: N/A
DEVELOPMENTAL TOXICITY: N/A

General: The substance is toxic to blood, nervous system, liver, central nervous system (CNS) in high doses. Repeated or prolonged exposure to the substance can produce target organs damage.

SECTION 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

Manganese Dioxide

Formula:	Mn-O2
CAS No.:	1313-13-9
Common Synonyms:	Manganese oxide; manganese superoxide; manganese black; black manganese oxide; bog manganese; cement black; manganese binoxide; manganese peroxide; pyrolusite brown.
OSHA PEL:	5 mg/m^3 OSHA ceiling (dust); 1 mg/m^3 OSHA TWA (fume); 3 mg/m^3 OSHA STEL (fume)
ACGIH TLV:	5 mg/m^3 ACGIH TWA (dust); 1 mg/m^3 ACGIH TWA (fume); 3 mg/m^3 ACGIH STEL (fume)

Soluble Sulfate:

Formula:	Na_2SO_4
CAS No.:	7757-82-6
OSHA PEL:	N/E
ACGIH TLV:	N/E
OTHER LIMITS:	N/A

SECTION 4 – FIRST AID MEASURES

Eye Contact: Check for and remove contact lenses. Flush with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Seek medical attention.

Skin Contact: Remove any contaminated clothing. Wipe off excess from skin. Flush skin with water. Get medical attention if irritation develops or persists.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: If swallowed, DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

SECTION 5 – FIRE FIGHTING MEASURES

Flammability: Non-Flammable
Flash Points: Not Applicable
Auto-Ignition: Not Applicable
Flammable Limits: N/A

Extinguishing Media: Use extinguishing media appropriate to the surrounding fire.

Fire Fighting Procedure: Firefighters should wear self-contained breathing apparatus and protective clothing to prevent inhalation or contact with skin and eyes.

Special Hazards arising from substance or mixture: Contact with combustible or organic materials may cause fire.

Fire/Explosion Hazards: No information available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Utilize recommended protective clothing and equipment. Sweep up or shovel into an appropriate disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of in accordance to all applicable federal, state and local regulations.

SECTION 7 – HANDLING AND STORAGE

Storage Temperatures: Store at ambient temperatures.

Shelf Life: Unlimited in tightly closed container in a dry and well-ventilated place.

Special Sensitivity: Keep away from incompatible materials such as combustible and organic materials, acids.
Precautions to be taken in handling and storage: Do not breathe dust. Avoid contact with skin and eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment .

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection (Specify Type): For nuisance exposures use N95 type repirator. If airborne Concentration is high, use an appropriate NIOSH approved cartridge respirator.
Protective Gloves: Wear protective gloves.
Eye Protection: Wear chemical safety glasses.
Ventilation To Be Used: Use adequate general or local exhaust ventilation to keep fume or dust levels as low as possible.
__X__ Local Exhaust __X__ Mechanical (General) _____ Special
_____ Other (Specify)
Other Protective Clothing and Equipment: Wear clean body-covering clothing. Emergency showers and eye was stations should be available.
Hygienic Work Practices: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. Do not let product enter drains.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Powder
Color: Brownish-Black to Black
Odor: Odorless
Boiling Point: N/A
Melting Point: 535ºC (995ºF) Mn-O2 decomposes; 884ºC (1623ºF) Na_2SO_4
Solubility in Water: Insoluble Mn-O2; Appreciable (More than 10%) Na_2SO_4
Specific Gravity (water=1): 5.026 Mn-O2; 2.68 Na_2SO_4

SECTION 10 – STABILITY AND REACTIVITY

STABILITY: __X__ Stable _____ Unstable
Conditions to Avoid: Moisture (Na_2SO_4). Stable under ordinary conditions of storage and use.
Incompatibility (Materials to avoid): Aluminum, anilinium perchlorate, barium chlorate, calcium chlorate, calcium hydride, chlorates, chlorine trifluoride, diboron tetrafluoride, hydrochloric acid, hydrogen peroxide, hydrogen sulfide, hydroxylaminium chloride, hypophosphites, organic matter, permonosulfuric acid, phosphides, potassium azide, rubidium carbide, sodium peroxide, sulfides, sulfur (Mn-O2); Aluminum, magnesium, mineral acids, strong acids, strong bases (Na_2SO_4).
Hazardous Decomposition Products: Manganese sesquioxide and oxygen (Mn-O2). Oxides of sulfur (Na_2SO_4) may form when heated to decomposition.

HAZARDOUS POLYMERIZATION: _____ May Occur __X__ Will Not Occur

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SECTION 11 – TOXICOLOGICAL INFORMATION

TOXICITY:

Manganese Dioxide:
45 mg/kg intravenous-rabbit LDLO; 422 mg/kg subcutaneous-mouse LD50; reproductive effects Data (RTEC).

Sodium Sulfate:
LD50 (oral-mouse) 5989 mg/kg.

Chronic Effects on Humans: May cause damage to the following organs: Blood, nervous system, liver, central nervous system (CNS).

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), ingestion or inhalation.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects. Decrease in sperm count in human.

Carcinogenicity ($MnO2$; Na_2SO_4)
No components of this product are listed by IARC, ACGIH, NTP, OSHA, or CA Prop 65.

SECTION 12 – ECOLOGICAL INFORMATION

Products of Biodegradation: Long term degradation may arise.

Other Adverse Effects: Very toxic to aquatic life with long lasting effects. (CuO)

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable local, state and federal environmental regulations.

SECTION 14 – TRANSPORTATION INFORMATION

Domestic (D.O.T.)
Proper Shipping Name: Chemicals, n.o.s.

International (T.M.O.)
Proper Shipping Name: Chemicals, n.o.s.

Air (I.C.A.O.)
Proper Shipping Name: Chemicals, n.o.s.

SECTION 15 – REGULATORY INFORMATION

SARA TITLE III HAZARD CATEGORIES AND LISTS

Acute: Yes Chronic: Yes Flammability: Yes Pressure: No Reactivity: Yes

Extremely Hazardous Substance: No
CERCLA Hazardous Substance: No
SARA 313 Toxic Chemicals: Yes (Na_2SO_4) Contains Sodium Sulfate.
TSCA Inventory: Yes

SECTION 16 – OTHER INFORMATION

HMIS Rating

Health Hazard:	2
Fire Hazard:	0
Reactivity:	0
Personal Protection:	E

NFPA Rating

Health Hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

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