

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND CONTACT INFORMATION

Product Name: Manganese Dioxide

AR060, AR062

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2. COMPOSITION/INFORMATION ON INGREDIENTS

| CAS NO. | %W | CHEMICAL NAMES | OSHA PEL (mg/m3) | ACGIH TLV (mg/m3) | NIOSH TWA (mg/m3) |
|-----------|-----|-------------------|---------------------|------------------------|----------------------|
| 1313-13-6 | >90 | Manganese Dioxide | 5 (as Mn) | 0.2 (as Mn) | N/A |
| 1332-58-7 | <10 | Kaolin | N/A | 10 (total) 5 (resp) | |

3. HAZARD IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES: Abrasive, irritating.

SKIN: Abrasive, may cause skin irritation. .

INHALATION: Irritation of the nose, throat and lungs. Breathing large quantities of dust can cause "metal fume fever".

INGESTION: Irritation of the throat.

CHRONIC OVEREXPOSURE: Repeated inhalation of dust or fumes may cause delayed injury to the central nervous system and kidneys. Continued long term overexposure to kaolin may affect respiratory function in some individuals.

ACUTE OVEREXPOSURE: Not available.

MEDICAL CONDITIONS AGGRAVATED: Eye, skin, respiratory, kidney or liver diseases or disorders would be aggravated by repeated or prolonged exposure to the dust or fume from this chemical. Persons with a history of alcoholism, psychiatric or neurologic disease would be at increased risk from exposure to Manganese.

CARCINOGENICITY: None.

4. FIRST AID MEASURES

EYES: Flush with large amounts of water for at least 15 minutes. Get medical attention

INHALATION: Removed from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention

SKIN: Wash skin with plenty of mild detergent and water.

INGESTION: Give 3-4 glasses of water, but DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Non-flammable

Flash Point: Not available

Flammable Limits: (% by Volume in Air): Lower: None Upper: None

AUTO-IGNITION TEMPERATURE: N/A

HAZARDOUS COMBUSTION PRODUCTS: Intense heat (above 995 F) releases Oxygen, which can increase the intensity of a fire.

EXTINGUISHING MEDIA: Use extinguishing agent appropriate for surrounding fire.

FIREFIGHTING INSTRUCTIONS: Material is not flammable, but may increase the intensity of a fire involving other materials. Wear positive pressure self-contained breathing apparatus with full face mask and full protective clothing. Evacuate all unnecessary people upwind from the fire and smoke.

6. ACCIDENTAL RELEASE MEASURES

SOIL RELEASE: Shovel up or vacuum up using a vacuum cleaner with an efficient filter. Dispose of waste at an industrial waste site in accordance with any applicable federal, state and local regulation.

WATER SPILL: Dredge up and dispose of waste at an industrial waste site.

AIR RELEASE: When material has settled, handle as for Solid Release or Water Spill.

OCCUPATIONAL SPILL: Handle as outlined above for Soil Release or Water Spill. Do not flush into drains, sewers or other water runoff.

7. HANDLING AND STORAGE

HANDLING: Avoid breathing dust. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep dry. Material is corrosive when wet.

STORAGE: Keep container closed. Store in a cool dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use local exhaust ventilation techniques to meet exposure limits.

RESPIRATORY PROTECTION: NIOSH/MSHA respirator if exposure above the PEL or TLV.

SKIN AND HAND PROTECTION: Wear gloves that will not allow the product to penetrate.

EYE AND FACE PROTECTION: Face shield, safety glasses or vented safety goggles. Ensure that an eye wash fountain is in the immediate work area.

OTHER PROTECTIVE EQUIPMENT: Wear washable clothing. Wash clothing before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: black powder, solid

BOILING POINT: Decomposes

FREEZE-MELT POINT: 995 F (535 C)

VAPOR PRESSURE: N/A

VAPOR DENSITY: N/A

SOLUBILITY IN WATER: Insoluble.

SPECIFIC GRAVITY: 5 @ 68 F

pH: N/A

ODOR: None

PERCENT VOLATILES: N/A

EVAPORATION RATE: N/A

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable.

INCOMPATIBILITY: Organic materials combustible materials, Chlorates, Aluminum powder, Sulfur and other oxidizable materials. Avoid intense heat.

HAZARDOUS DECOMPOSITION PRODUCTS: None. When subjected to intense heat (greater than 995 F), it will release oxygen, which can increase the intensity of a fire. .

HAZARDOUS POLYMERIZATION: None.

11. TOXICOLOGICAL INFORMATION

Oral LD₅₀ (rat) >3,478 mg/kg. Inhalation TC_{Lo} (mouse) 49 mg/m³/7H(75D pre/1-18D preg)

Rabbit intravenous LD_{Lo}: 45 mg/kg. Inhalation TC_{Lo} (rat) 1800µ/m³/24 H/235D-C.

Prolonged administration of manganese in the drinking water of rats resulted in fetotoxicity and mutagenic effects. The threshold dose was 0/00f mg/kg. Long term exposure to high concentrations of Manganese dust may lead to manganism, a disease of the central nervous system.

12. ECOLOGICAL INFORMATION

None available.

13. DISPOSAL CONSIDERATION

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

14. TRANSPORTATION INFORMATION

USA DOT: Not regulated

15. REGULATORY INFORMATION

US FEDERAL REGULATIONS

TSCA STATUS: On toxic Substance Control Inventory

CERCLA Reportable Quantity: None

RCRA Status: Not regulated

SARA TITLE III:

Section 302 Extremely Hazardous Substances: None

Section 311/312 Hazardous Categories: Acute, Chronic, fire

Section 313 Toxic Chemicals: Manganese Compounds (Category Code N458)

CANADAIN REGULATIONS

WHMIS: C, D2A, D2B

16. OTHER INFORMATION

HAZARD INDEX: (0 – 4, 4=Extreme)

HEALTH: 1 FIRE: 0 REACTIVITY: 1

SUPPLEMENTAL INFORMATION

The data and information as stated was furnished by the manufacturer/vendor &/or supplier of this product. Alpha Resources, Inc. cannot warrant the accuracy of this information and shall not be responsible or liable for any damage that may result, should any of the information be erroneous.

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