



Super Conductor Materials, Inc.

391 Spook Rock Industrial Park, Suffern, NY 10901 · 845.368.0240 · www.scm-inc.com

Chemtrec: (800) 424-9300

Poison Center: (800) 562-8236

Revision Date: January 8th, 2019

SAFETY DATA SHEET

Identity: Holmium Oxide

Formula: Ho₂O₃

SECTION I - GENERAL INFORMATION

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular weight: 377.86

| CAS # | OSHA PEL | ACGIH TLV | % |
|------------|----------|-----------|------------|
| 12055-62-8 | NE | NE | 0.0-100.0% |

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: NA

Vapor Pressure (vs. air or mmHg): N/A

Melting Point: 2360°C

Specific Gravity: 8.40 gm/cc

Evaporation Rate: NA

Flash Point: N/A

Solubility in water: Insoluble

Appearance and odor: Tan to light yellow powder or pieces with no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Method Used: Unknown

Explosive Limits: LEL: N/A

UEL: N/A

Extinguishing Media: Use suitable extinguishing agent for surrounding material and type of fire

Special Fire Fighting Procedures:

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire and Explosion Hazards:

When heated to decomposition, holmium oxide may emit toxic fumes.

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (instability): None



Incompatibility: Strong Acids

Hazardous Decomposition or Byproducts: None recorded

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

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| SECTION VI - HEALTH HAZARD DATA |
|---------------------------------|

Routes of entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes Other? No

To the best of our knowledge the chemical, physical and toxicological properties of Holmium oxide have not been thoroughly investigated and recorded.

Holmium is considered a rare earth metal. These metals are moderately to highly toxic. The symptoms of toxicity of the rare earth elements include writhing, ataxia, labored respiration, walking on the toes with arched back and sedation. Oral or intraperitoneal doses of 5 to 10 g/kg of dysprosium oxide had no pathological effects in mice and daily doses of 2 g/kg were harmless. Rare earth oxides are much less toxic than chlorides or citrates. The rare earth elements exhibit low toxicity by ingestion exposure. However, the intraperitoneal route is highly toxic while the subcutaneous route is poison to moderately toxic. The production of skin and lung granulomas after exposure to them requires extensive protection to prevent such exposure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: May cause a red, dry throat, congesting and coughing

Ingestion: May effect the coagulation time of the blood

Skin: May cause redness, burning and itching

Eye: May cause redness, burning, itching and watering

Health Hazards (Acute and Chronic):

Inhalation:

Acute: May cause irritation to the upper respiratory system and mucus membranes.

Chronic: May cause writhing, ataxia, labored respiration, ewalking on toes with arched back, sedation, pneumonconiosis, hemoglobinemia and lung granuloma.

Ingestion:

Acute: Considered to have low toxicity by ingestion.

Chronic: May act as a blood anticoagulant.

Skin:

Acute: May cause irritation

Chronic: No chronic health effects recorded

Eye:

Acute: May cause irritation

Chronic: No chronic health effects recorded

Target Organs: May effect the blood and lungs

Carcinogenicity: NTP? No IARC Monographs? No OSHA Regulated? No

Medical Conditions Aggravated by Exposure: Pre-existing lung disorders.



Emergency and First Aid Procedures:

- Inhalation:* Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; seek medical attention
- Ingestion:* Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person
- Skin:* Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist
- Eye:* Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

Waste disposal method:

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

Hazard Label Information:

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

Ventilation:

Local Exhaust: To maintain concentration at low exposure levels.
Mechanical (General): Recommended.

Work/Hygienic/Maintenance Practices:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established