



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: Germanium Selenide

Formula: GeSe₂ / GeSe

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: 230.51

CAS #	OSHA PEL	ACGIH TLV	%
12065-11-1	.2 mg (Se)/m ³	.2 mg (Se)/m ³	0.0-100.0%

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: N/A

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

Melting Point: 707.00°C

Specific Gravity: 4.56 gm/cc at 25.0°C

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

Appearance and odor: Orange pieces, 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, germanium selenide may emit toxic fumes of selenium

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (instability): None



Incompatibility: None recorded

Hazardous Decomposition or Byproducts: Fumes of selenium

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

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 germanium selenide have been thoroughly investigated and recorded.

Germanium compounds are considered to be of a low order of toxicity, but rare instances of poisoning have been reported in the literature. Experimental LD50 values are typically about 100-1000 mg/kg for parenteral route and 500-5000 mg/kg for ingestion. The animals suffer from hypothermia, diarrhea, and respiratory, and cardiac failure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Selenium compounds are poison by inhalation and intravenous routes. Some selenium compounds are experimental carcinogens. Long-term exposure may be a cause of amyotrophic lateral sclerosis in humans, just as it may cause "blind staggers" in cattle. Elemental selenium has low acute systemic toxicity, but dust or fumes can cause serious irritation of the respiratory tract. Inorganic selenium compounds can cause dermatitis. Garlic odor of breath is a common symptom. Pallor, nervousness, depression, digestive disturbances and death have been reported in cases if chronic exposure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: Acute chronic toxicity may cause: hypothermia, listlessness, diarrhea, cyanosis, edema and hemorrhage of lungs, petachial hemorrhage in the walls of the small intestines and a peritoneal effusion which is rich in protein. Edematous changes are also seen in the heart muscle and in the parenchymal cells of the liver and kidney. Chronic germanium toxicity may cause: growth and fatty degeneration of the liver. Acute selenium poisoning may cause: nervousness, fever, vomiting, somnolence, drop in blood pressure, labored breathing and toxic action on the nervous system may lead to respiratory failure. Chronic selenium poisoning may cause: depression, marked pallor, coated tongue, gastrointestinal disorders, garlic odor of the breath.

Ingestion: Chronic selenium toxicity may cause: alkali disease, loss of vitality, lameness, atrophy, cirrhosis of the liver, degeneration and necrosis of the myocardium.

Skin: May cause redness, itching, inflammation and burning.

Eye: May cause redness, itching, burning and watering.

Health Hazards (Acute and Chronic):

Inhalation:

Acute: DANGER-POISON. May cause irritation to the respiratory tract, acute germanium toxicity and acute selenium poisoning.

Chronic: May cause chronic germanium toxicity and chronic selenium poisoning. Continued intoxication may cause loss of nails and hair, hemolytic anemia, and kidney, liver and spleen damage.



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Ingestion:

Acute: DANGER-POISON. May cause gastrointestinal disturbances

Chronic: May cause chronic selenium toxicity

Skin:

Acute: May cause irritation

Chronic: May cause dermatitis

Eye:

Acute: May cause irritation

Chronic: May cause visual disturbance and blurred vision

Target Organs: Upper respiratory system, eyes, skin, liver, kidneys, and blood

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

Medical Conditions Aggravated by Exposure: Pre-existing respiratory and skin disorder

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.



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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
