



Super Conductor Materials, Inc.

391 Spook Rock Industrial Park, Suffern, NY 10901 · 845.368.0240 · Fax 845.368.0250 · www.scm-inc.com

Chemtrec: (800) 424-9300
Poison Center: (800) 562-8236
Revision Date: January 8th, 2019

SAFETY DATA SHEET

Identity: Germanium Sulfide

Formula: GeS / GeS₂

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: 104.65

CAS #	OSHA PEL	ACGIH TLV	%
12025-32-0	N/A	N/A	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: 530.00 °C (986.0 F)

Amorph Density: 3.31 gm/cc

Rhomb Density: 4.01 gm/cc

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

Appearance and odor: Yellow-red powder and pieces may have a hydrogen sulfide odor in moist air.

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 sulfide may emit toxic fumes of SO_x. Explosive reaction when heated with potassium nitrate.



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SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (instability): None

Incompatibility: Potassium nitride

Hazardous Decomposition or Byproducts: Oxides of sulfur

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 sulfide have not 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)

Sulfides of the heavy metals are generally insoluble and hence have little toxic action except through the liberation of hydrogen sulfide. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Hydrogen sulfide is a human poison by inhalation. A severe irritant to the eyes and mucous membranes. An asphyxiate. The irritant action has been explained on the basis that hydrogen sulfide combines with the alkali present in moist surface tissues to form sodium sulfide, a caustic. Hydrogen sulfide does not combine with the hemoglobin of the blood; its asphyxiation is due to paralysis of the respiratory center. It is an insidious poison since sense of smell may be fatigued. The odor and irritating effects do not offer a dependable warning to workers who may be exposed to gradually increasing amounts and therefore become used to it. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

Signs and Symptoms of Overexposure:

Inhalation: May cause throat dryness, coughing and sneezing. Acute germanium toxicity may cause: hypothermia, listlessness, diarrhea, cyanosis, edema and hemorrhage of lungs, petechial hemorrhage in the walls of the small intestines and a peritoneal effusion with is rich in protein. Edematous changes are also seen in the heart muscle and in the parenchymal cells of the liver and kidneys. Chronic germanium toxicity may cause: growth and fatty degeneration of the liver.

Ingestion: May cause nausea and vomiting.

Skin: May cause redness, itching and inflammation.

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

Health Hazards (Acute and Chronic):

Inhalation:

Acute: May cause irritation to the nose, throat and mucous membranes and acute germanium toxicity.

Chronic: Prolonged or repeated exposure may cause pneumoconiosis, pulmonary edema and chronic germanium toxicity.



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Ingestion:

Acute: May cause gastrointestinal irritation.
Chronic: No chronic health effects recorded.

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 affect the respiratory system.

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

Medical Conditions Aggravated by Exposure: Pre-existing respiratory 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.



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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
