



# 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 8<sup>th</sup>, 2019

## SAFETY DATA SHEET

Identity: Vanadium Sulfide

Formula: V<sub>2</sub>S<sub>3</sub>

### 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: 198.06

CAS #	OSHA PEL	ACGIH TLV	%
1315-03-3	NE	NE	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: 600.00°C (1112.0 F)

Density: 4.72 g/cm<sup>3</sup> at 21.0°C

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

*Appearance and odor:* Greenish-black powder and 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, vanadium sulfide may emit toxic fumes of vanadium and sulfur oxides.

–May react with water, steam or acids to produce toxic and flammable vapors of hydrogen sulfide which may form explosive mixtures with air. May ignite violently and explosively on contact with powerful oxidizers.



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–May ignite violently and explosively on contact with powerful oxidizers.

## SECTION V - REACTIVITY DATA

*Stability:* Stable

*Conditions to Avoid (instability):* None

*Incompatibility:* Water, steam, moisture, powerful oxidizing agents and acids

*Hazardous Decomposition or Byproducts:* Oxides of vanadium and 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 vanadium sulfide have not been thoroughly investigated and recorded.

Vanadium compounds are considered to have variable toxicity. Vanadium compounds act chiefly as an irritant to the conjunctivae and respiratory tract. Acute and chronic exposure can give rise to conjunctivitis, rhinitis, reversible irritation of the respiratory tract, and to bronchitis, bronchospasms, and asthma-like diseases in more severe cases. Industrial exposures are mostly acute, seldom chronic. Human vanadium poisoning symptoms are for the most part restricted to the conjunctivae and respiratory system, no evidence being found of disturbances of the gastrointestinal tract, kidneys, blood or central nervous system. Acute poisoning in animals by ingestion of vanadium compounds causes nervous disturbances, paralysis of legs, respiratory failure, convulsions, bloody diarrhea and death. Poisoning by inhalation causes bleeding of the nose and acute bronchitis.

Sulfides of the heavy metals are generally insoluble and hence have little toxic action except through the liberation of hydrogen sulfide. Hydrogen sulfide is a human poison by inhalation. A severe irritant to the eyes and mucous membranes. An asphyxiant. 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 irritation 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 redness, burning, coughing and dry throat. Vanadium toxicity may cause salivation, diarrhea, conjunctivitis, rhinitis, and lowered body temperature, soreness of the pharynx, bronchitis and respiratory and cardiac failure.

*Ingestion:* May cause nausea and vomiting.

*Skin:* May cause redness, itching, inflammation and chemical burns.

*Eye:* May cause redness, itching, inflammation, watering and chemical burns.

### Health Hazards (Acute and Chronic):

*Inhalation:*

Acute: SEVERE IRRITANT. May cause irritation of the respiratory tract. Vanadium compounds may cause nasal bleeding and acute bronchitis. May cause vanadium toxicity.



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Chronic: Vanadium compounds may cause pneumonia and other pathologic symptoms (chronic symptoms of vanadium toxicity). Prolonged or repeated exposure may cause pneumoconiosis, coma and pulmonary edema.

### *Ingestion:*

Acute: SEVERE IRRITANT. May cause gastrointestinal irritation.

Chronic: No health effects recorded.

### *Skin:*

Acute: SEVERE IRRITANT. May cause irritation to moist skin due to the liberation of hydrogen sulfide.

Chronic: May cause dermatitis.

### *Eye:*

Acute: SEVERE IRRITANT.

Chronic: May cause conjunctivitis.

*Target Organs:* May affect the kidneys, respiratory system, skin and eyes.

*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.

*Precautions:* Vanadium sulfide may react in moist air. Handle and store in a controlled environment and inert gas such as argon.



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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

Special: Handle in a controlled, enclosed environment

Mechanical (General): Not recommended

Other: Handle in an inert gas such as argon

*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