



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

**SAFETY DATA SHEET**

Identity: Bismuth

Formula: Bi

**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: 208.98

CAS #	OSHA PEL	ACGIH TLV	%
7440-69-9	N/A	N/A	0.0 -100.0 %

**SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS**

Physical States: Solid

Boiling Point: 1564.00°C

Vapor Pressure (vs. air or mmHg): 1mm at 1020.0 °C

Melting Point: 271.4°C

Specific Gravity: 9.79 gm/cc

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Insoluble

*Appearance and odor:* Gray, soft, brittle metallic luster powder and pieces, no odor.

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA:**

*Method Used:* Flammable solid *Explosive Limits:* LEL: N/A UEL: N/A *Auto Ignition:* 760.0°C

*Extinguishing Media:* Use class D or other extinguishing agent for metal fires.

*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:* Flammable when exposed to fire. May react with acid or acid fumes to emit toxic fumes. May react with [Bi (OH) 3 + Al (OH3)], co precipitated and hydrogen produces spontaneously flammable product. Superficially oxidized by air.

SECTION V - REACTIVITY DATA

*Stability:* Stable

*Conditions to Avoid (stability):* None

*Incompatibility:* Aluminum, acids, chlorine, BrF3, NOF, NH4NO3, HClO3, IF5, HNO3 and HClO4

*Hazardous Decomposition or Byproducts:* Bismuth, oxides of bismuth and hydrogen.

*Hazardous Polymerization:* Will not occur

*Conditions to avoid (hazardous polymerization):* None

SECTION VI - HEALTH HAZARD DATA

*Route of entry:* Inhalation? Yes    Ingestion? Yes    Eyes? Yes    Skin? Yes    Other? No

Bismuth and its salts can cause kidney damage, although the degree of such damage is usually mild. Large doses can be fatal. Industrially it is considered one of the less toxic of the heavy metals. Serious and sometimes fatal poisoning may occur from the injection of large doses into closed cavities and from extensive application to burns. It is stated that the administration of bismuth should be stopped when gingivitis appears, for otherwise serious ulceration stomatitis is likely to result. Other toxic results may develop, such as a vague feeling of bodily discomfort, presence of albumin or other protein substance in the urine, diarrhea, skin reactions and sometimes serious exodermatitis. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

*Signs and Symptoms of Overexposure:*

*Inhalation:* May cause redness, coughing, foul breath, metallic taste and a dry throat.

*Ingestion:* May cause diarrhea, bodily discomfort, albumin or other protein substances in the urine and skin disorders.

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

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

*Health Hazards (Acute and Chronic):*

*Inhalation:*

Acute: POISON. May be a nuisance dust causing respiratory irritation. May cause foul breath, metallic taste and gingivitis.

Chronic: May affect the function of the liver and the kidneys.

*Ingestion:*

Acute: POISON. May cause malaise, albuminuria, diarrhea, skin reactions, stomatitis, diarrhea, headache, fever, rheumatic pain and a black line may form on gums in the mouth.

Chronic: May affect the function of the liver and kidneys. May cause anemia, black line may form on gums and ulcerative stomatitis.

*Skin:*

Acute: May cause irritation.



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Chronic: May cause dermatitis.

*Eye:*

Acute: May cause irritation.

Chronic: No chronic health effects recorded.

*Target Organs:* May affect the kidneys and liver.

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

*Medical Conditions Aggravated by Exposure:* Pre-existing skin and 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 skin contact.

*Ventilation:*

Local Exhaust: Use process enclosures, local exhaust ventilation, or other engineering controls airborne levels below recommended exposure limits.

Mechanical (General): Not 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