

SAFETY DATA SHEET

Section 1: Product and Company Identification

Product Name: Bismuth Selenide (Bi_2Se_3)

Product ID: BS

Manufacturer/Supplier:
BihurCrystal S.L
Pº Mikeletegi 83, 3º local 7
20009 Donostia, Spain
+34 943041816

Recommended use: Scientific research & development

Section 2: Hazard(s) Identification

Signal Word: Danger



Hazard statements:

H301 + H331 Toxic if swallowed or if inhaled
H373 May cause damage to organs through prolonged or repeated exposure
H410 Very toxic to aquatic life with long lasting effects

Precautionary statements:

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
P304 + P340 + P311 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P314 Get medical advice/ attention if you feel unwell.
P391 Collect spillage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

HMIS Ratings: Health: 2 Flammability: 0 Reactivity: 0

Section 3: Composition/Information on Ingredients

Chemical Name: Bismuth (III) selenide

Molecular Formula: Bi_2Se_3

Content: 100%

CAS Number: 12068-69-8

EINECS: 235-104-7

Section 4: First-Aid Measures

General Treatment: Seek medical attention if symptoms persist.

Special Treatment: None

Important Symptoms: None

Inhalation: Remove victim to fresh air and provide artificial respiration if necessary. Keep patient warm. Seek immediate medical advice.

Ingestion: Never induce vomiting or give anything by mouth to an unconscious person. Seek immediate medical attention.

Skin: Wash skin thoroughly with mild soap and water. Rinse thoroughly. Seek immediate medical advice.

Eyes: Flush eyes with water. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical advice.

Section 5: Fire-Fighting Measures

Flammability: Non-flammable

Extinguishing Media: No special restrictions – use suitable extinguishing agent for surrounding material and type of fire

Spec. Fire Fighting Procedure: Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

Section 6: Accidental Release Measures

If Material Is Released/Spilled: Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.

Environmental Precautions: Isolate runoff to prevent environmental pollution.

Section 7: Handling and Storage

Handling Conditions: Wash thoroughly after handling.

Storage Conditions: Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.

Work/Hygienic Maintenance: Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air

Ventilation: Provide sufficient ventilation to maintain concentration at or below threshold limit.

Section 8: Exposure Controls/Personal Protection

Permissible Exposure Limits: 0.2 mg/m³ as Bi₂Se₃, time weighted average

Threshold Limit Value: 0.2 mg/m³ as Bi₂Se₃, long-term value

Special Equipment: None

Respiratory Protection: Dust Respirator

Protective Gloves: Rubber gloves

Eye Protection: Safety glasses or goggles

Body Protection: Protective work clothing. Wear close-toed shoes and long sleeves/pants.

Section 9: Physical and Chemical Properties

Color: Gray, metallic luster

Form: Pieces

Odor: Odorless

Water solubility: Insoluble

Boiling Point: N/A

Melting Point: 710 °C

Flash Point: N/A

Autoignition Temperature: N/A

Density: 6.82 g/cc

Molecular weight: 654.84 g/mol

Section 10: Stability and Reactivity

Stability: Stable under recommended storage conditions

Reacts With: Oxidizing agents

Incompatible Conditions: Avoid moisture

Hazardous Decomposition Products: Metal oxide fume

Section 11: Toxicological Information

Potential Health Effects:

Eyes: Causes irritation

Skin: Causes irritation

Ingestion: Toxic Inhalation: Toxic

May cause damage to the central nervous system, the liver and the digestive system through prolonged or repeated exposure.

Route of exposure: Oral, Inhalative.

Signs & Symptoms: N/A

Aggravated Medical Conditions: N/A

Median Lethal Dose: N/A

Carcinogen: N/A

Section 12: Ecological Information

Aquatic Toxicity: High Persistent Bioaccumulation

Toxicity: No

Very Persistent, Very Bioaccumulative: No

Notes: Keep away from any water sources. Dangerous to drinking water even in extremely small quantities. Poisonous for fish and plankton. May cause long lasting harmful effects on aquatic life.

Section 13: Disposal Considerations

Dispose of in accordance with local, state, national, and international regulations

Section 14: Transportation Data

Hazardous: Hazardous for transportation as powder.

Hazard Class: 6.1 Toxic substances

Packing Group: III

UN Number: UN3283

Proper Shipping Name: Selenium compound, solid, n.o.s. (Bismuth selenide)

Section 15: Regulatory Information

Sec 302 Extremely Hazardous:

No Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: Yes

Section 16: Other Information

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. BihurCrystal shall not be held liable for any damage resulting from handling or from contact with the above product.