

# Bismuth Lead Tin Cadmium ingot (Wood's metal): sc-278791



The Power to Question

## MATERIAL SAFETY DATA SHEET

### 1 Identification of substance:

**Product Name:** Bismuth Lead Tin Cadmium ingot (Wood's metal)

**Catalog Number:** sc-278791

**Supplier:** Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

**Emergency:** ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### 2 Hazards identification

#### Classification of the substance or mixture



GHS08 Health hazard

H350 May cause cancer.

H360 May damage fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.



GHS09 Environment

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.



GHS07

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H332 Harmful if inhaled.

#### Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R45-61: May cause cancer. May cause harm to the unborn child.



Xn; Harmful

R62-20/21/22: Possible risk of impaired fertility. Harmful by inhalation, in contact with skin and if swallowed.



N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R33: Danger of cumulative effects.

#### Label elements

#### Labelling according to EU guidelines:

#### Code letter and hazard designation of product:

T Toxic

N Dangerous for the environment

#### Risk phrases:

45 May cause cancer.

61 May cause harm to the unborn child

62 Possible risk of impaired fertility  
20/21/22 Also harmful by inhalation, in contact with skin and if swallowed.  
33 Danger of cumulative effects.  
50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Safety phrases:**

53 Avoid exposure - obtain special instructions before use.  
45 In case of accident or if you feel unwell, seek medical advice immediately.  
60 This material and its container must be disposed of as hazardous waste.  
61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**Special labelling of certain preparations:**

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

**Hazard description:**

**WHMIS classification**



**Classification system**

**HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2	Health (acute effects) = 2
FIRE	0	Flammability = 0
REACTIVITY	0	Reactivity = 0

**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

### 3 Composition/information on ingredients

**Chemical characterization: Substances**

**(CAS#) Description:**

Bismuth (CAS# 7440-69-9): 50%  
Lead (CAS# 7439-92-1): 25%  
Tin (CAS# 7440-31-5): 12.5%  
Cadmium (CAS# 7440-43-9): 12.5%

### 4 First aid measures

**Description of first aid measures**

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek immediate medical advice.

### 5 Firefighting measures

**Extinguishing media**

**Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

**Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Toxic metal oxide fume

Lead oxide fume

Metal oxide fume

**Advice for firefighters**

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.

**Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Reference to other sections**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

## 7 Handling and storage

**Handling**

**Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

**Information about protection against explosions and fires:** The product is not flammable

**Conditions for safe storage, including any incompatibilities**

**Storage**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Do not store together with acids.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

## 8 Exposure controls/personal protection

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

Lead, elemental, and inorganic compounds (as Pb)

	mg(Pb)/m <sup>3</sup>
ACGIH TLV	0.05; Confirmed animal carcinogen
Austria MAK	0.1
Belgium TWA	0.15
Denmark TWA	0.1
Germany MAK	0.1
Japan OEL	0.1
Korea TLV	0.05; Confirmed animal carcinogen
Netherlands TWA	0.15
Norway TWA	0.05
Poland TWA	0.05
Sweden TWA	0.05 (resp. dust) 0.1 (total dust)
Switzerland MAK-W	0.1
United Kingdom TWA	0.1
USA PEL	0.05

Cadmium and compounds, as Cd

	mg/m <sup>3</sup>
ACGIH TLV	0.002 (Cd); Suspected human carcinogen
Austria	Carcinogen
Belgium TWA	0.05
Denmark TWA	0.01
Finland TWA	0.02; Carcinogen
France VME	0.05
Germany	Carcinogen
Ireland TWA	0.025; carcinogen
Japan OEL	0.05; Group 1 Carcinogen
Korea TLV	0.01; Suspected human carcinogen
Netherlands MAC-TGG	0.02; 0.1-MAC-K
Norway TWA	0.05
Poland TWA	0.02; 0.05-STEL (fume) 0.04; 0.2-STEL (dust)
Russia	0.01; 0.05-STEL
Sweden NGV	0.05 (total dust)
TWA	0.01 (resp. dust)
Switzerland MAK-W	0.05; Carcinogen
United Kingdom TWA	0.025 (Cd)
USA PEL (respirable)	0.2 (Cd)

Tin metal, tin oxide and inorganic tin compounds,  
except tin hydride, as Sn

	mg/m3
ACGIH TLV	2
Austria MAK	2
Belgium TWA	2
Denmark TWA	2
Finland TWA	2
Germany MAK	2
Hungary TWA	1; 2-STEL (skin)
Netherlands MAC-TGG	2
Norway TWA	1
Poland TWA	2
Switzerland MAK-W	2; 4-KZG-W
United Kingdom TWA	2; 4-STEL
USA PEL	2

**Additional information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

**Breathing equipment:**

Use suitable respirator when high concentrations are present.

Refer to 29CFR1910.1027 for regulations on respiratory protection required during exposure to cadmium and cadmium compounds.

Refer to 29CFR1910.1025 for regulations on respiratory protection required during exposure to lead and lead compounds.

**Protection of hands:** Impervious gloves

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

## 9 Physical and chemical properties

<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
Form:	Ingot
Formula:	Bi50Cd12Pb25Sn1
Weight:	18402.47
pH-value:	Not applicable.
<b>Change in condition</b>	
Melting point/Melting range:	71°C (160 °F)
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Flash point:	Not applicable
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not applicable.
Density at 20°C (68 °F):	9.7 g/cm <sup>3</sup> (80.947 lbs/gal)
Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
<b>Solubility in / Miscibility with</b>	
Water:	Insoluble
<b>Segregation coefficient (n-octanol/water):</b> Not determined.	
<b>Viscosity:</b>	
dynamic:	Not applicable.
kinematic:	Not applicable.
<b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

### Reactivity

#### Chemical stability

#### Thermal decomposition / conditions to be avoided:

Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions** No dangerous reactions known

#### Incompatible materials:

Acids

Halogens

#### Hazardous decomposition products:

Toxic metal oxide fume

Lead oxide fume

Metal oxide fume

## 11 Toxicological information

### Information on toxicological effects

#### Acute toxicity:

#### Primary irritant effect:

**on the skin:** Irritant to skin and mucous membranes.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

#### Subacute to chronic toxicity:

Lead and lead compounds may cause abdominal pain, diarrhea, loss of appetite, metallic taste, nausea, vomiting, lassitude, insomnia, muscle weakness, joint and muscle pain, irritability, headache and dizziness. Red blood cells may be damaged resulting in anemia. Gastritis and injury to the kidneys, liver, male gonads, and central nervous system may also occur.

Cadmium compounds are highly toxic and experimental carcinogens. Exposure affects the respiratory tract, kidneys, and liver. Ingestion may cause nausea, salivation, vomiting and diarrhea. Ingestion or inhalation of cadmium compounds may be fatal.

Bismuth compounds are often poorly absorbed. However exposure may cause loss of appetite, headache, skin rash, exodermatitis, kidney injury and jaundice. Repeated or prolonged exposure may cause a bismuth line or black spots on the gums, foul breath and salivation.

Exposure to bismuth may cause injury to the mouth, esophagus and stomach. Symptoms may include loss of appetite, headache, skin rash, kidney damage and jaundice.

Metallic tin and inorganic tin compounds may cause nausea, vomiting, diarrhea, irritation and pneumoconiosis.

#### Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Danger through skin absorption.

May cause harm to the unborn child.

Possible risk of impaired fertility.

EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.

IARC-1: Carcinogenic to humans; sufficient evidence of carcinogenicity.

NTP-1: Known to be carcinogenic; sufficient evidence from human studies.

Carcinogen as defined by OSHA.

ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

## 12 Ecological information

### Toxicity

**Aquatic toxicity:** No further relevant information available.

**Persistence and degradability** No further relevant information available.

#### Behavior in environmental systems:

**Bioaccumulative potential** No further relevant information available.

**Mobility in soil** No further relevant information available.

#### Ecotoxicological effects:

**Remark:** Very toxic for aquatic organisms

#### Additional ecological information:

#### General notes:

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

#### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

### 13 Disposal considerations

**Waste treatment methods**

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

### 14 Transport information

Not a hazardous material for transportation.

<b>DOT regulations:</b> <b>Hazard class:</b> None
<b>Land transport ADR/RID (cross-border)</b> <b>ADR/RID class:</b> None
<b>Maritime transport IMDG:</b> <b>IMDG Class:</b> None <b>Marine pollutant:</b> No
<b>Air transport ICAO-TI and IATA-DGR:</b> <b>ICAO/IATA Class:</b> None

**Environmental hazards:** Environmentally hazardous substance, solid; Marine Pollutant  
**Special precautions for user** Not applicable.

**Transport/Additional information:** Not dangerous according to the above specifications.  
**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

### 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**Product related hazard informations:**

**Hazard symbols:**

T Toxic

N Dangerous for the environment

**Risk phrases:**

45 May cause cancer.

61 May cause harm to the unborn child

62 Possible risk of impaired fertility

20/21/22 Also harmful by inhalation, in contact with skin and if swallowed.

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**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

**Information about limitation of use:**

For use only by technically qualified individuals.

This product contains lead and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

This product contains cadmium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**Other regulations, limitations and prohibitive regulations**

Refer to 29CFR1910.1027 for regulations concerning cadmium and cadmium compounds.

Refer to 29CFR1910.1025 for regulations concerning lead and lead compounds.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information:

The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.