

Material Safety Data Sheet

1 . Product and company identification*

Common name : **Blocking Alloy**
Code : 5915
Product type : Metal alloy: Different shapes and sizes
Synonym : Bi../Pb../In../Sn../Cd..
Validation date : **06/21/2022**
Contacts : In the United States:
OptiSource
40 Sawgrass Dr., Suite 1
Bellport, NY 11713
(800) 678-4768

2 . Hazards identification

Physical state : Solid.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : Warning!
Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.
Routes of entry : Inhalation. Ingestion.
Potential acute health effects
Eyes : This product may irritate eyes upon contact.
Skin : This product may irritate eyes and skin upon contact. Skin inflammation is characterized by itching, scaling, reddening or, occasionally, blistering.
Inhalation : Fumes and/or dusts produced by this product may be hazardous in case of inhalation. This product may be hazardous in case of inhalation
Ingestion : This product may be hazardous in case of ingestion. Fumes and/or dusts produced by this product may be hazardous in case of ingestion.
Medical conditions aggravated by over-exposure : Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

3 . Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Bismuth	7440-69-9	40 - 70
LEAD	7439-92-1	13 - 30
Indium	7440-74-6	13 - 30
TIN	7440-31-5	7 - 10
CADMIUM	7440-43-9	5 - 7

4 . First aid measures

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses.
- Skin contact** : Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

5 . Fire-fighting measures

Flammability of the product : Non-flammable.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : No specific hazard.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Massive metal is nonflammable.

Special remarks on explosion hazards : No additional remark.

6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

7 . Handling and storage

- Handling** : Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing dust. Wash thoroughly after handling. Wear suitable protective clothing. When using do not eat, drink or smoke.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

8 . Exposure controls/personal protection

Product name

LEAD

Exposure limits

ACGIH (United States, 0/1995).

TWA: 0.05 mg/m³

OSHA PEL (United States, 8/1997).

TWA: 50 µg/m³ 8 hour/hours. Form: All forms

ACGIH TLV (United States, 1/2005). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. 1995-1996 Adoption. Substances for which there is a Biological Exposure Index or Indices Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. See Notice of Intended changes.

TWA: 0.05 mg/m³ 8 hour/hours. Form: All forms

NIOSH REL (United States, 12/2001). Notes: See Appendix C - Supplemental Exposure Limits Note: The REL and PEL also apply to other lead compounds (as Pb).

TWA: 0.05 mg/m³ 10 hour/hours. Form: All forms

OSHA (United States, 0/1997). Notes: Respirable

TWA: 2 mg/m³

ACGIH (United States, 0/1994). Notes: Respirable

TWA: 2 mg/m³

OSHA (United States, 0/1997). Notes: Respirable

TWA: 2 mg/m³

NIOSH (United States, 0/1994). Notes: Respirable

TWA: 2 mg/m³

STEL: 4 mg/m³

ACGIH TLV (United States, 1/2005).

TWA: 2 mg/m³ 8 hour/hours. Form: All forms

NIOSH REL (United States, 12/2001). Notes: Note: The REL and PEL also apply to other inorganic tin compounds (as Sn) except tin oxides.

TWA: 2 mg/m³ 10 hour/hours. Form: All forms

OSHA (United States, 0/1994).

TWA: 0.01 mg/m³

TWA: 0.002 mg/m³

CEIL: 0.3 mg/m³

ACGIH (United States).

TWA: 0.01 mg/m³

OSHA (United States, 0/1989).

TWA: 0.1 mg/m³

CEIL: 0.3 mg/m³

TWA: 5 µg/m³

TIN

CADMIUM

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

Physical state : Solid.

Color : silver-grey

Taste : Not applicable

Melting/freezing point : 47°C (116.6°F)

Relative density : 9.39 (Water = 1)

Ionicity (in water) : Non-ionic.

Dispersibility properties : Not dispersible in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Solubility : Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

10 . Stability and reactivity

Stability and reactivity : The product is stable.

Conditions of instability : Over melting point, toxic metallic oxides may be evolved.

Incompatibility with various substances : Molten metal reacts violently with water.

Hazardous polymerization : Will not occur.

Conditions of reactivity : Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.

Massive metal is nonflammable.

Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts.

11 . Toxicological information

Toxicity data

<u>Product/ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
LEAD	LDLo	160 mg/kg	Oral	pigeon
CADMIUM	LD50	2330 mg/kg	Oral	rat
	LD50	890 mg/kg	Oral	mouse
	LDLo	70 m g/kg	Oral	rabbit

Chronic effects on humans : **CARCINOGENIC EFFECTS** Classified None. by NIOSH [Bismuth]. Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC [LEAD]. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP [LEAD]. Classified None. by NIOSH [LEAD]. Classified None. by NIOSH [Indium]. Classified None. by NIOSH [TIN]. Classified 1 (Proven for humans.) by IARC, + (Proven.) by OSHA, + (Proven.) by NIOSH [CADMIUM]. Classified A2 (Suspected for humans.) by ACGIH [CADMIUM]. Contains material which causes damage to the following organs: blood, kidneys, lungs, the nervous system, the reproductive system, liver, heart, spleen, brain, digestive system, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Other toxic effects on humans : Very hazardous in case of ingestion, of inhalation.
Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant).
Non-corrosive to skin. Non-permeator through skin.

Special remarks on toxicity to animals : No additional remark. (TIN)

Special remarks on chronic effects on humans : Human: LEAD crosses the placental barrier.
CHRONIC OVEREXPOSURE EFFECTS; Increase of LEAD LEVEL in blood, muscle soreness, metallic taste, abdominal cramps, headaches.
Animal: CADMIUM: embryotoxic, passes through the placental barrier. Overexposure to fumes may cause irritation to the respiratory tract, digestive system and to the eyes. Repeated and prolonged contact with bare skin may cause irritation, dermatitis and/or an allergic reaction (sensitization) in susceptible individuals.

Special remarks on other toxic effects on humans : MOLTEN METAL can cause severe BURNS! Prolonged and repeated contact with bare skin may cause irritation or dermatitis.

Specific effects

Carcinogenic effects : Contains material which can cause cancer.. Risk of cancer depends on duration and level of exposure.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitization

Ingestion : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Eyes : This product may irritate eyes upon contact.

Skin : No known significant effects or critical hazards.

12 . Ecological information

Ecotoxicity data

<u>Product/ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
LEAD	Oncorhynchus mykiss (LC50)	96 hour/hours	1.17 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	471 mg/l
	Oncorhynchus m ykiss (LC50)	96 hour/hours	542 m g/l

Environmental precautions : No known significant effects or critical hazards.

Octanol/water partition coefficient : The product is insoluble in water and octanol.

Bioconcentration factor : Not available.

12 . Ecological information

Products of degradation : Some metallic oxides.

Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not regulated.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Toxic material
Carcinogen
Target organ effects

U.S. Federal regulations : TSCA 6 proposed risk management: LEAD
TSCA 8(b) inventory: Bismuth; LEAD; Indium; TIN; CADMIUM
TSCA 12(b) annual export notification: LEAD
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Bismuth; LEAD; Indium; TIN; CADMIUM
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Bismuth:
Fire hazard; LEAD: Delayed (chronic) health hazard; Indium: Delayed (chronic) health hazard; TIN: Immediate (acute) health hazard; CADMIUM: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: LEAD; CADMIUM

15 . Regulatory information

Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	: LEAD	7439-92-1	13 - 30
Supplier notification	: LEAD	7439-92-1	13 - 30

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Rhode Island RTK hazardous substances: LEAD; TIN
Pennsylvania RTK: LEAD: (environmental hazard, generic environmental hazard);
Indium: (generic environmental hazard); TIN: (generic environmental hazard);
CADMIUM: (environmental hazard, generic environmental hazard)
Florida: LEAD; Indium; TIN; CADMIUM
Minnesota: LEAD; Indium; TIN; CADMIUM
Michigan critical material: LEAD; CADMIUM
Massachusetts RTK: LEAD; Indium; TIN; CADMIUM
New Jersey: LEAD; Indium; TIN; CADMIUM
New Jersey spill list: TIN

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
LEAD	Yes.	Yes.	15 µg/day (ingestion) 0.0005 µg/day (inhalation)	Yes.
CADMIUM	Yes.	Yes.	0.05 µg/day (inhalation)	No.

Canada

WHMIS (Canada) : Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
CEPA DSL: Bismuth; LEAD; Indium; TIN; CADMIUM

Canadian NPRI: LEAD; CADMIUM

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Hazard symbol/symbols :



Risk phrases : R43- May cause sensitization by skin contact.
Safety phrases : S24- Avoid contact with skin.
S37- Wear suitable gloves.

International regulations

15 . Regulatory information

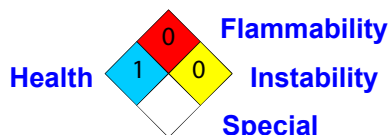
- International lists** : Australia (NICNAS): Bismuth; LEAD; Indium; TIN; CADMIUM
- China: LEAD; TIN
- Germany water class: LEAD; TIN
- Korea (TCCL): Bismuth; LEAD; Indium; TIN; CADMIUM
- Philippines (RA6969): Bismuth; LEAD; Indium; TIN; CADMIUM

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	*	1
Fire hazard		0
Reactivity		0
Personal protection		E

National Fire Protection Association (U.S.A.) :



References

- : -ACGIH, Threshold Limit Values, 1994-1995. -Canada Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List". -CFR29, OSHA's Permissible Exposure Limits, revision July, 1993. -CFR29, part 1910.1200, Hazard Communication. -CHEMTOX database -Components' manufacturer's Material Safety Data Sheet. -CRC Handbook of chemistry and physics, 67 th edition, CRC Press inc., Boca Raton, Florida. -CSST (Comission de Santé et Sécurité au Travail), document #RT-12: Classification of Certain Chemical Substances. -ATA, Dangerous Goods Regulations, 37th edition (January 1, 1996) -NFPA, Fire Protection Guide to Chemical Hazards, 11th edition. -NIOSH, Pocket Guide to Chemical Hazards, revision June 1994. Sigma-Alrich handbook of fine chemicals, 1998 -TSCA (Toxic Substance Contral Act), Chemical Substance Inventory List, 1985.

Other special considerations

- : -ALL INGREDIENTS WITH SUSCEPTIBLE HAZARDS THAT ARE PRESENT IN A CONCENTRATION GREATER THAN 1 % (GREATER THAN 0.1 % FOR CARCINOGENS) HAVE BEEN DISCLOSED IN THIS SAFETY DOCUMENT.

Date of printing : 1/14/2012

Date of issue : 1/14/2012

Version : 2.01

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.