

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Description:** Bismuth Lead Tin Cadmium ingot (Wood's metal)  
**Cat No. :** 33218  
**Molecular Formula** Bi:Pb:Sn:Cd; 50:25:12.5:12.5 wt%

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available

### 1.3. Details of the supplier of the safety data sheet

**Company** Avocado Research Chemicals Ltd.  
(Part of Thermo Fisher Scientific)  
Shore Road, Heysham  
Lancashire, LA3 2XY,  
United Kingdom  
Office Tel: +44 (0) 1524 850506  
Office Fax: +44 (0) 1524 850608

**E-mail address** [begel.sdsdesk@thermofisher.com](mailto:begel.sdsdesk@thermofisher.com)

### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

#### Physical hazards

Based on available data, the classification criteria are not met

#### Health hazards

Acute oral toxicity	Category 4 (H302)
Acute Inhalation Toxicity - Dusts and Mists	Category 2 (H330)
Germ Cell Mutagenicity	Category 2 (H341)

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Carcinogenicity  
Reproductive Toxicity  
Specific target organ toxicity - (repeated exposure)

Category 1B (H350)  
Category 1A (H360Df)  
Category 1 (H372)

## Environmental hazards

Acute aquatic toxicity  
Chronic aquatic toxicity

Category 1 (H400)  
Category 1 (H410)

Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Danger

## Hazard Statements

H302 - Harmful if swallowed  
H330 - Fatal if inhaled  
H341 - Suspected of causing genetic defects  
H350 - May cause cancer  
H360Df - May damage the unborn child. Suspected of damaging fertility  
H372 - Causes damage to organs through prolonged or repeated exposure  
H410 - Very toxic to aquatic life with long lasting effects

## Precautionary Statements

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P264 - Wash face, hands and any exposed skin thoroughly after handling  
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing  
P310 - Immediately call a POISON CENTER or doctor/physician  
P280 - Wear protective gloves/protective clothing/eye protection/face protection

## Additional EU labelling

Restricted to professional users

## 2.3. Other hazards

Toxic to terrestrial vertebrates  
This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Bismuth	7440-69-9	EEC No. 231-177-4	50.0	-
Lead	7439-92-1	EEC No. 231-100-4	25.0	Acute Tox. 4 (H332) Acute Tox. 4 (H302) Repr. 1A (H360Df) STOT RE 2 (H373)

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				Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Tin	7440-31-5	EEC No. 231-141-8	12.5	-
Cadmium	7440-43-9	EEC No. 231-152-8	12.5	Acute Tox. 2 (H330) Muta. 2 (H341) Carc. 1B (H350) Repr. 2 (H361fd) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Lead	Repr. 1A : C ≥ 0.03 % STOT RE 1 : C ≥ 0.5 %	1 (acute) 10 (Chronic)	-
Cadmium	-	10	-

Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### 4.2. Most important symptoms and effects, both acute and delayed

None reasonably foreseeable.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

**Suitable Extinguishing Media**  
approved class D extinguishers. Do not use water or foam.

**Extinguishing media which must not be used for safety reasons**  
Water may be ineffective.

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## 5.2. Special hazards arising from the substance or mixture

Do not allow run-off from fire-fighting to enter drains or water courses.

### **Hazardous Combustion Products**

lead oxides, Cadmium oxide, Tin oxides, Bismuth oxide.

## 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. No special precautions required.

### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

### 6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Pick up and transfer to properly labelled containers.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## **SECTION 7: HANDLING AND STORAGE**

### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep in a dry place. Keep away from acids.

**Technical Rules for Hazardous Substances (TRGS) 510**  
**Storage Class (LGK) (Germany)**

Class 6.1B

### 7.3. Specific end use(s)

Use in laboratories

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s): **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC

Component	The United Kingdom	European Union	Ireland
Lead	STEL: 0.45 mg/m <sup>3</sup> 15 min TWA: 0.15 mg/m <sup>3</sup> 8 hr	TWA: 0.15 mg/m <sup>3</sup> (8h)	TWA: 0.15 mg/m <sup>3</sup> 8 hr. STEL: 0.45 mg/m <sup>3</sup> 15 min
Tin	STEL: 4 mg/m <sup>3</sup> 15 min TWA: 2 mg/m <sup>3</sup> 8 hr		TWA: 2 mg/m <sup>3</sup> 8 hr. Sn STEL: 6 mg/m <sup>3</sup> 15 min
Cadmium	STEL: 0.075 mg/m <sup>3</sup> 15 min TWA: 0.025 mg/m <sup>3</sup> 8 hr Carc. metal	TWA: 0.001 mg/m <sup>3</sup> (8h)	TWA: 0.001 mg/m <sup>3</sup> 8 hr. inhalable fraction TWA: 0.004 mg/m <sup>3</sup> 8 hr. limit value 0.004 mg/m <sup>3</sup> until 11 July 2027 inhalable fraction STEL: 0.003 mg/m <sup>3</sup> 15 min STEL: 0.012 mg/m <sup>3</sup> 15 min

#### Biological limit values

List source(s):

#### Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
Tin 7440-31-5 ( 12.5 )				DNEL = 10mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Bismuth 7440-69-9 ( 50.0 )				DNEL = 13.1mg/m <sup>3</sup>
Tin 7440-31-5 ( 12.5 )				DNEL = 71mg/m <sup>3</sup>
Cadmium 7440-43-9 ( 12.5 )			DNEL = 4µg/m <sup>3</sup>	

#### Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Bismuth 7440-69-9 ( 50.0 )				PNEC = 17.5mg/L	
Lead 7439-92-1 ( 25.0 )	PNEC = 2.4µg/L	PNEC = 186mg/kg sediment dw		PNEC = 100µg/L	PNEC = 212mg/kg soil dw
Cadmium 7440-43-9 ( 12.5 )	PNEC = 0.19µg/L	PNEC = 1.8mg/kg sediment dw		PNEC = 20µg/L	PNEC = 0.9mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Lead 7439-92-1 ( 25.0 )	PNEC = 3.3µg/L	PNEC = 168mg/kg sediment dw		PNEC = 10.9mg/kg food	
Cadmium	PNEC = 1.14µg/L	PNEC = 0.64mg/kg		PNEC = 0.16mg/kg	

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7440-43-9 ( 12.5 )		sediment dw		food	
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## 8.2. Exposure controls

### Engineering Measures

None under normal use conditions.

### Personal protective equipment

#### Eye Protection

Wear safety glasses with side shields (or goggles) (European standard - EN 166)

#### Hand Protection

No special protective equipment required

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Disposable gloves	See manufacturers recommendations	-	EN 374	(minimum requirement)

#### Skin and body protection

Long sleeved clothing.

#### Respiratory Protection

No special protective equipment required.

### Large scale/emergency use

In case of insufficient ventilation, wear suitable respiratory equipment

### Small scale/Laboratory use

No personal respiratory protective equipment normally required  
When RPE is used a face piece Fit Test should be conducted

### Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Physical State</b>	Solid Ingot	
<b>Appearance</b>		
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flammability (liquid)</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>pH</b>	No information available	
<b>Viscosity</b>	Not applicable	Solid
<b>Water Solubility</b>	Insoluble in water	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Vapor Pressure</b>	23 hPa @ 20 °C	
<b>Density / Specific Gravity</b>	No data available	
<b>Bulk Density</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Particle characteristics</b>	No data available	

### 9.2. Other information

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**Molecular Formula** Bi:Pb:Sn:Cd; 50:25:12.5:12.5 wt%  
**Evaporation Rate** Not applicable - Solid

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity** None known, based on information available

**10.2. Chemical stability** Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** No information available.  
**Hazardous Reactions** None under normal processing.

**10.4. Conditions to avoid** Incompatible products. Excess heat.

**10.5. Incompatible materials** Acids. Oxidizing agent.

**10.6. Hazardous decomposition products** lead oxides. Cadmium oxide. Tin oxides. Bismuth oxide.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

(a) acute toxicity;  
**Oral** Category 4  
**Dermal** Based on available data, the classification criteria are not met  
**Inhalation** Category 2

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bismuth	LD50 = 5 g/kg ( Rat )	-	-
Tin	> 2000 mg/kg ( Rat )	> 2000 mg/kg (Rat)	LC50 > 4.75 mg/L ( Rat ) 4 h
Cadmium	LD50 = 2330 mg/kg ( Rat )	-	LC50 = 25 mg/m <sup>3</sup> ( Rat ) 30 min

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;  
**Respiratory** No data available  
**Skin** No data available

(e) germ cell mutagenicity; Category 2

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**(f) carcinogenicity;** Category 1B

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Lead				Group 2A
Cadmium	Carc Cat. 1B		Cat. 1	Group 1

**(g) reproductive toxicity;** Category 1A

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** Category 1

**Target Organs** Central nervous system (CNS), Blood, Kidney, Lungs.

**(j) aspiration hazard;** Not applicable  
Solid

**Symptoms / effects, both acute and delayed** No information available.

## 11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecotoxicity effects**

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Lead	LC50: = 1.32 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 1.17 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 0.44 mg/L, 96h semi-static (Cyprinus carpio)	EC50: = 600 µg/L, 48h (water flea)	
Cadmium	LC50: 0.0004 - 0.003 mg/L, 96h (Pimephales promelas) LC50: = 0.016 mg/L, 96h (Oryzias latipes) LC50: = 21.1 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 0.24 mg/L, 96h static (Cyprinus carpio) LC50: = 4.26 mg/L, 96h semi-static (Cyprinus carpio) LC50: = 0.002 mg/L, 96h (Cyprinus carpio) LC50: = 0.006 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 0.003 mg/L, 96h flow-through (Oncorhynchus mykiss)	EC50: = 0.0244 mg/L, 48h Static (Daphnia magna)	



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Component	Microtox	M-Factor
Lead		1 (acute) 10 (Chronic)
Cadmium		10

**12.2. Persistence and degradability** Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

**Persistence** Insoluble in water, May persist.  
**Degradability** Not relevant for inorganic substances.  
**Degradation in sewage treatment plant** Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**12.3. Bioaccumulative potential** May have some potential to bioaccumulate; Product has a high potential to bioconcentrate

**12.4. Mobility in soil** Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility.

**12.5. Results of PBT and vPvB assessment** No data available for assessment.

**12.6. Endocrine disrupting properties**  
**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**12.7. Other adverse effects**  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste from Residues/Unused Products** Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**European Waste Catalogue (EWC)** According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally hazardous substances, solid, n.o.s.  
**Technical Shipping Name** (Lead bar, Cadmium)

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**14.3. Transport hazard class(es)** 9  
**14.4. Packing group** III

**ADR**

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally hazardous substances, solid, n.o.s.  
**Technical Shipping Name** (Lead bar, Cadmium)  
**14.3. Transport hazard class(es)** 9  
**14.4. Packing group** III

**IATA**

**14.1. UN number** UN3077  
**14.2. UN proper shipping name** Environmentally hazardous substances, solid, n.o.s.  
**Technical Shipping Name** (Lead bar, Cadmium)  
**14.3. Transport hazard class(es)** 9  
**14.4. Packing group** III

**14.5. Environmental hazards** Dangerous for the environment  
 Product is a marine pollutant according to the criteria set by IMDG/IMO

**14.6. Special precautions for user** No special precautions required.

**14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories**

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Bismuth	7440-69-9	231-177-4	-	-	X	X	KE-03313	X	-
Lead	7439-92-1	231-100-4	-	-	X	X	KE-21887	X	-
Tin	7440-31-5	231-141-8	-	-	X	X	KE-33838	X	-
Cadmium	7440-43-9	231-152-8	-	-	X	X	KE-04397	X	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Bismuth	7440-69-9	X	ACTIVE	X	-	X	X	X
Lead	7439-92-1	X	ACTIVE	X	-	X	X	X
Tin	7440-31-5	X	ACTIVE	X	-	X	X	X
Cadmium	7440-43-9	X	ACTIVE	X	-	X	X	X

**Legend:** X - Listed '-' - Not Listed

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

**Authorisation/Restrictions according to EU REACH**

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Bismuth	7440-69-9	-	-	-
Lead	7439-92-1	-	Use restricted. See item 72. (see link for restriction)	SVHC Candidate list - 231-100-4 - Toxic for reproduction (Article 57c)

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			details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 63. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	
Tin	7440-31-5	-	Use restricted. See item 75. (see link for restriction details)	-
Cadmium	7440-43-9	-	Use restricted. See item 72. (see link for restriction details) Use restricted. See item 23. (see link for restriction details) Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 231-152-8 - Carcinogenic, Article 57a; Specific target organ toxicity after repeated exposure, Article 57(f) - human health

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

### REACH links

<https://echa.europa.eu/authorisation-list>  
<https://echa.europa.eu/substances-restricted-under-reach>  
<https://echa.europa.eu/candidate-list-table>

### Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Bismuth	7440-69-9	Not applicable	Not applicable
Lead	7439-92-1	Not applicable	Not applicable
Tin	7440-31-5	Not applicable	Not applicable
Cadmium	7440-43-9	Not applicable	Not applicable

### Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Component	ANNEX I - PART 1 List of chemicals subject to export notification procedure (referred to in Article 8)	ANNEX I - PART 2 List of chemicals qualifying for PIC notification (referred to in Article 11)	ANNEX I - PART 3 List of chemicals subject to the PIC procedure (referred to in Articles 13 and 14)
Lead 7439-92-1 ( 25.0 )	sr — severe restriction  i(2) — industrial chemical for public	-	-
Cadmium 7440-43-9 ( 12.5 )	i(1) — industrial chemical for professional use sr — severe restriction  i(2) — industrial chemical for public	i — industrial chemical sr — severe restriction	-

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	sr — severe restriction	
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<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R0649&qid=1604065742303>.

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

**National Regulations**

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

**WGK Classification**

Water endangering class = 3 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Bismuth	nwg	
Lead	nwg	Class II : 0.5 mg/m <sup>3</sup> (Massenkonzentration)
Tin	nwg	Class III : 1 mg/m <sup>3</sup> (Massenkonzentration)
Cadmium	WGK3	Krebserzeugende Stoffe - Class I : 0.05 mg/m <sup>3</sup> (Massenkonzentration)

Component	France - INRS (Tables of occupational diseases)
Lead	Tableaux des maladies professionnelles (TMP) - RG 1
Cadmium	Tableaux des maladies professionnelles (TMP) - RG 61,RG 61bis

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Lead 7439-92-1 ( 25.0 )	Prohibited and Restricted Substances		
Cadmium 7440-43-9 ( 12.5 )	Prohibited and Restricted Substances		Annex I - industrial chemical

**15.2. Chemical safety assessment**

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

**SECTION 16: OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3**

H302 - Harmful if swallowed

H330 - Fatal if inhaled

H341 - Suspected of causing genetic defects

H350 - May cause cancer

H360Df - May damage the unborn child. Suspected of damaging fertility

H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

# SAFETY DATA SHEET

Bismuth Lead Tin Cadmium ingot (Wood's metal)

Revision Date 20-Feb-2024

H332 - Harmful if inhaled

## Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

**Physical hazards** On basis of test data

**Health Hazards** Calculation method

**Environmental hazards** Calculation method

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Chemical incident response training.

**Prepared By** Health, Safety and Environmental Department

**Revision Date** 20-Feb-2024

**Revision Summary** New emergency telephone response service provider.

**This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.**

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**