

# Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.07.2013

Revision: 29.01.2013

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

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

Stock number:

33218

CAS Number:

8049-22-7

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

Identified use:

No further relevant information available.  
SU24 Scientific research and development**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
 A Johnson Matthey Company  
 Zeppelinstr. 7b  
 76185 Karlsruhe / Germany  
 Tel: +49 (0) 721 84007 280  
 Fax: +49 (0) 721 84007 300  
 Email: tech@alfa.com  
 www.alfa.com  
 Product safety Tel + +049 (0) 7275 988687-0  
 Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)  
 Poison Information Center Mainz  
 www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

Informing department:

**1.4 Emergency telephone number:****SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS06 skull and crossbones

Acute Tox. 2 H330 Fatal if inhaled.



GHS08 health hazard

Muta. 2 H341 Suspected of causing genetic defects.

Carc. 1B H350 May cause cancer.

STOT RE 1 H372 Causes damage to the lung, the kidneys, the reproductive system and the blood tissue system through prolonged or repeated exposure. Route of exposure: Oral.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

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

T+; Very toxic

R26: Very toxic by inhalation.



T; Toxic

R45-61-48/23/25: May cause cancer. May cause harm to the unborn child. Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.



Xn; Harmful

R22-62-68: Harmful if swallowed. Possible risk of impaired fertility. Possible risk of irreversible effects.



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.

**Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

**Other hazards that do not result in classification**

No information known.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008**

Hazard pictograms

Signal word

The product is classified and labelled according to the CLP regulation.  
 GHS06, GHS08, GHS09  
 Danger

Hazard-determining components of labelling:

Lead

Cadmium

**Hazard statements**

H302 Harmful if swallowed.

H330 Fatal if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H372 Causes damage to the lung, the kidneys, the reproductive system and the blood tissue system through prolonged or repeated exposure. Route of exposure: Oral.

H410 Very toxic to aquatic life with long lasting effects.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P284 Wear respiratory protection.

P281 Use personal protective equipment as required.

P320 Specific treatment is urgent (see on this label).

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.

**Precautionary statements****Additional information:****2.3 Other hazards****Results of PBT and vPvB assessment**

PBT:

Not applicable.

vPvB:

Not applicable.

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**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Dangerous components:**

CAS: 7439-92-1 EINECS: 231-100-4	Lead T R61; Xn R62-20/22; N R50/53 R33 Repr. 1A, H360; STOT RE 2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H332	25,0%
CAS: 7440-43-9 EINECS: 231-152-8	Cadmium T+ R26; T Carc. Cat. 2 R45-48/23/25; Xn R62-68-63; N R50/53 Muta. Cat. 3, Repr. Cat. 3 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	12,5%
<b>Additional information</b> None known.		
<b>Non-Hazardous Ingredients</b>		
CAS: 7440-69-9 EINECS: 231-177-4	Bismuth	50,0%
CAS: 7440-31-5 EINECS: 231-141-8	Tin	substance with a Community workplace exposure limit 12,5%

**SECTION 4: First aid measures****4.1 Description of first aid measures****General information**

Instantly remove any clothing soiled by the product.  
Remove breathing apparatus only after soiled clothing has been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.  
No special measures required.  
Seek medical treatment in case of complaints.  
Generally the product does not irritate the skin.  
Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.  
In case of persistent symptoms consult doctor.

After inhalation  
After skin contact  
After eye contact  
After swallowing

**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents**

Special powder for metal fires. Do not use water.

**For safety reasons unsuitable extinguishing agents**

Water.

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

If this product is involved in a fire, the following can be released:  
Toxic metal oxide smoke

**5.3 Advice for firefighters****Protective equipment:**

No special measures required.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Not required.

**6.2 Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach sewage system or water bodies.  
Do not allow to enter the ground/soil.

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

Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.

**Prevention of secondary hazards:**

No special measures required.

**6.4 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 information on disposal.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle container with care.

**Information about protection against explosions and fires:**

No special measures required.

**7.2 Conditions for safe storage, including any incompatibilities****Storage Requirements to be met by storerooms and containers:**

No special requirements.

**Information about storage in one common storage facility:**

Do not store together with acids.  
Store away from oxidizing agents.

**Further information about storage conditions:**

Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Store in a locked cabinet or with access restricted to technical experts or their assistants.  
No further relevant information available.

**7.3 Specific end use(s)****SECTION 8: Exposure controls/personal protection****Additional information about design of technical systems:**

No further data; see item 7.

**8.1 Control parameters****Components with critical values that require monitoring at the workplace:****7439-92-1 Lead (25,0%)**

MAK (Germany) vgl. Abschn. XII  
MAK (TRGS 900) (Germany) 0,1 E mg/m<sup>3</sup>  
25; DFG

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PEL (USA) REL (USA) TLV (USA)	0,05* mg/m <sup>3</sup> *see 29 CFR 1910,1025 0,05 mg/m <sup>3</sup> excluding lead arsenate; See Pocket Guide App. C 0,05* mg/m <sup>3</sup> *and inorganic compounds, as Pb; BEI
<b>7440-31-5 Tin (12,5%)</b>	
MAK (Germany) MAK (TRGS 900) (Germany) PEL (USA) REL (USA) TLV (USA)	vgl.Abschn.IIb 2 E mg/m <sup>3</sup> NL, u.D. 2 mg/m <sup>3</sup> metal 2 mg/m <sup>3</sup> 2 mg/m <sup>3</sup> metal
<b>7440-43-9 Cadmium (12,5%)</b>	
MAK (Germany) MAK (TRGS 900) (Germany) TRK (TRGS 900) (Germany) PEL (USA) REL (USA) TLV (USA)	vgl.Abschn.XII, einatembare Fraktion 0,015 E* mg/m <sup>3</sup> *Stäube und Aerosole; TRK, 25; (TRGS 901-80) 0,015 G mg/m <sup>3</sup> 0,005 mg/m <sup>3</sup> Table Z-2 for exclusions in 29 CFR 1910,1027 See Pocket Guide App. A 0,01 mg/m <sup>3</sup> 0,002 R; as Cd; BEI
<b>Ingredients with biological limit values:</b>	
<b>7439-92-1 Lead (25,0%)</b>	
BGW (Germany) BEI (USA)	300 µg/l B a Blei Frauen < 45 J. 400 µg/l B a Blei 30 µg/100 ml blood not critical Lead 10 µg/100 ml blood not critical Lead (women of child bearing potential)
<b>7440-43-9 Cadmium (12,5%)</b>	
BEI (USA)	5 µg/g creatinine urine not critical Cadmium (background) 5 µg/L blood not critical Cadmium (background)
<b>Additional information:</b> No data <b>8.2 Exposure controls</b> <b>Personal protective equipment</b> <b>General protective and hygienic measures</b> The usual precautionary measures should be adhered to in handling the chemicals. Store protective clothing separately. Maintain an ergonomically appropriate working environment. <b>Breathing equipment:</b> Not required. Use self-contained respiratory protective device in emergency situations. <b>Protection of hands:</b> Not required. <b>Material of gloves</b> Impervious gloves <b>Penetration time of glove material</b> Not determined <b>Eye protection:</b> Safety glasses <b>Body protection:</b> Protective work clothing.	
<b>SECTION 9: Physical and chemical properties</b>	
<b>9.1 Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
Form:	Ingot
Colour:	Grey
Smell:	Odourless
Odour threshold:	Not determined.
pH-value:	Not applicable.
<b>Change in condition</b>	
Melting point/Melting range:	71 °C
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Inflammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Self-inflammability:	Product is not selfigniting.
<b>Critical values for explosion:</b>	
Lower:	Not determined
Upper:	Not determined
Steam pressure:	Not applicable.
Density	Not determined

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Relative density	Not determined.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with Water:	Insoluble
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.

Solvent content:	
Organic solvents:	0,0 %

Solids content:	100,0 %
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9.2 Other information	No further relevant information available.
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**SECTION 10: Stability and reactivity**

10.1 Reactivity	No information known.
10.2 Chemical stability	Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:	No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions	Reacts with strong oxidizing agents
10.5 Incompatible materials:	Acids
	Oxidizing agents
10.6 Hazardous decomposition products:	Toxic metal oxide smoke

**SECTION 11: Toxicological information**

11.1 Information on toxicological effects	
Acute toxicity:	Harmful if swallowed. Fatal if inhaled. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.
LD/LC50 values that are relevant for classification:	No data
Skin irritation or corrosion:	May cause irritation
Eye irritation or corrosion:	May cause irritation
Sensitization:	No sensitizing effect known.
Germ cell mutagenicity:	Suspected of causing genetic defects. The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.
Carcinogenicity:	May cause cancer. IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity. EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic 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. NTP-K: Known to be carcinogenic: sufficient evidence from human studies. The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this product.
Reproductive toxicity:	May damage fertility or the unborn child. The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.
Specific target organ system toxicity - repeated exposure:	May cause damage to organs through prolonged or repeated exposure. Causes damage to the lung, the kidneys, the reproductive system and the blood tissue system through prolonged or repeated exposure. Route of exposure: Oral.
Specific target organ system toxicity - single exposure:	No effects known.
Aspiration hazard:	No effects known.
Experience with humans:	The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for components in this product.
Additional toxicological information:	To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. Harmful Very toxic Carcinogenic May cause harm to the unborn child.

**SECTION 12: Ecological information**

12.1 Toxicity	
Aquatic toxicity:	No further relevant information available.
12.2 Persistence and degradability	No further relevant information available.
12.3 Bioaccumulative potential	No further relevant information available.
12.4 Mobility in soil	No further relevant information available.
Ecotoxicological effects:	
Remark:	Very toxic for fish
Additional ecological information:	
General notes:	Do not allow material to be released to the environment without proper governmental permits. Water danger class 3 (Self-assessment): extremely hazardous for water. Do not allow product to reach ground water, water bodies or sewage system, even in small quantities. Danger to drinking water if even extremely small quantities leak into soil. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms
12.5 Results of PBT and vPvB assessment	
PBT:	Not applicable.
vPvB:	Not applicable.
12.6 Other adverse effects	No further relevant information available.

**SECTION 13: Disposal considerations**

13.1 Waste treatment methods	
Recommendation	Hand over to disposers of hazardous waste. Must be specially treated under adherence to official regulations. Consult state, local or national regulations for proper disposal.

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Trade name **Bismuth Lead Tin Cadmium ingot (Wood's metal)**Uncleaned packagings:  
Recommendation:

Disposal must be made according to official regulations.

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**SECTION 14: Transport information**UN-Number  
ADR, IMDG, IATA

UN3077

14.2 UN proper shipping name  
ADR3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Lead, Cadmium)  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead,  
Cadmium), MARINE POLLUTANT  
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Lead,  
Cadmium)

IMDG

IATA

14.3 Transport hazard class(es)

ADR

Class  
Label  
IMDG, IATA9 (M7) Miscellaneous dangerous substances and articles.  
9Class  
Label9 Miscellaneous dangerous substances and articles.  
9Packing group  
ADR, IMDG, IATA

III

14.5 Environmental hazards:

Marine pollutant:

Special marking (ADR):

Special marking (IATA):

Product contains environmentally hazardous substances: Lead, Cadmium  
Symbol (fish and tree)  
Symbol (fish and tree)  
Symbol (fish and tree)

14.6 Special precautions for user

Kemler Number:

EMS Number:

Warning: Miscellaneous dangerous substances and articles.  
90  
F-A,S-F14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC  
Code

Not applicable.

Transport/Additional information:

ADR

Excepted quantities (EQ):

Limited quantities (LQ)

Transport category

Tunnel restriction code

E1  
5 kg  
3  
E

UN "Model Regulation":

UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.  
(Lead, Cadmium), 9, III**SECTION 15: Regulatory information**

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

Australian Inventory of Chemical Substances

All ingredients are listed.

Standard for the Uniform Scheduling of Drugs and Poisons

7439-92-1 | Lead

S4+APPENDI

National regulations

Information about limitation of use:

Workers should not be exposed to this hazardous material. Exceptions can be made by the authorities in certain exceptional cases.  
Workers should not be exposed to the hazardous materials contained in this preparation. Exceptions can be made by the authorities in certain exceptional cases.  
Employment restrictions concerning young persons must be observed.  
Employment restrictions concerning women of child-bearing age must be observed.  
For use only by technically qualified individuals.  
Not applicable

Classification according to VbF:

Technical instructions (air):

Class	Share in %
I	12,5
III	12,5

Water hazard class:

Water danger class 3 (Self-assessment): extremely hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

None of the ingredients is listed.

Substances of very high concern (SVHC) according to REACH, Article 57

None of the ingredients are listed.

REACH - Pre-registered substances

All ingredients are listed.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Relevant phrases

H302 Harmful if swallowed.  
H330 Fatal if inhaled.  
H332 Harmful if inhaled.  
H341 Suspected of causing genetic defects.  
H350 May cause cancer.  
H360 May damage fertility or the unborn child.

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H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H372	Causes damage to the lung, the kidneys, the reproductive system and the blood tissue system through prolonged or repeated exposure. Route of exposure: Oral.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
R20/22	Harmful by inhalation and if swallowed.
R26	Very toxic by inhalation.
R33	Danger of cumulative effects.
R45	May cause cancer.
R48/23/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R61	May cause harm to the unborn child.
R62	Possible risk of impaired fertility.
R63	Possible risk of harm to the unborn child.
R68	Possible risk of irreversible effects.

Department issuing data specification sheet:  
Abbreviations and acronyms:

Health, Safety and Environmental Department.  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

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