Safety data sheet

Revision: 07-05-2018
Replaces: 29-11-2016
Version: 02.00/GBR

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name: Solder tin with lead (Hafnia, Starli, Starli HQ/X/Refresher, 90Sn, Sn60Pb38Cu2, Sn60Pb38Cu2P, Sn62Pb36Ag2, Sn39Pb60Bi1, Bera Super Tin Solder, Fluks, HK, Bera re-galvanizing)

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

Recommended uses: Soldering.

1.3. Details of the supplier of the safety data sheet

Supplier: Boliden Bergsøe A/S
Hvissingevej 116
2600 Glostrup
Tel: +45 43268300
Fax: +45 43268301
Email: metal.glostrup@boliden.com

1.4. Emergency telephone number

Members of the public: 111 (NHS 111 (Scotland: NHS 24))

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

CLP-classification (Regulation (EC) No 1272/2008): Repr. 1A;H360FD STOT RE 1; H372 Lact.; H362

Please see section 16 for the full text of H-phrases.

Most serious harmful effects: May damage fertility. May damage the unborn child. Causes damage to organs through prolonged or repeated exposure. May cause harm to breast-fed children.
Prolonged exposure to welding smoke and particles constitutes a risk of developing asthmatic diseases, various respiratory disorders and cancer of the respiratory system. Harmful if vapours from molten metal are inhaled or if the skin comes in contact with molten metal. Prolonged or repeated exposure by skin contact or inhalation of vapours may cause damage to the central nervous system.

2.2. Label elements

Signal word: Danger

Contains: Lead

H-phrases: May damage fertility. May damage the unborn child.(H360FD)
Causes damage to organs through prolonged or repeated exposure.(H372)
May cause harm to breast-fed children.(H362)

P-phrases: Do not breathe dust/fume/gas/mist/vapours/spray.(P260)
Avoid release to the environment.(P273)
Obtain special instructions before use.(P201)
IF exposed or concerned: Get medical advice/attention.(P308/313)
Collect spillage.(P391)
Store locked up.(P405)
Dispose of contents/container in accordance with local regulation.(P501-A)

Supplemental information: Restricted to professional users.

2.3. Other hazards

(PBT/vPvB) No assessment required, as the product contains inorganic matter only.

Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex, if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the criteria of this Annex. (CLP 1272/2008: 1.3.4.1)

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Registration number	CAS/ EC Number	Substance	CLP-classification (Regulation (EC) No 1272/2008)	w/w%	Note
01-211948647	7440-31-5-B	Tin	-	20-95	.
4-28-	231-141-8	.	.	.	.
01-211951322	7439-92-1-E	Lead	Repr. 1A;H360FD Lact.;H362 STOT RE 1;H372	9-80	.
1-59-	231-100-4	.	.	.	.
01-211947560	7440-36-0-B	Antimony	-	0-3	13
9-24-	231-146-5	.	-	.	.
.	7440-50-8-F	Copper	-	0-2,5	13
.	231-159-6	.	-	.	.
.	7440-69-9-B	Bismuth	-	0-1,5	.
.	231-177-4	.	-	.	.
.	7440-66-6-D	Zinc	-	0-25	.
.	231-175-3	.	.	.	.
.	7440-22-4-B	silver	-	0-2,5	13
.	231-131-3	.	-	.	.

13) The substance has a national exposure limit.

Please see section 16 for the full text of H-phrases.

Other information: Any letters after the CAS number refer to individual data sets.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation: Seek fresh air. Seek medical advice in case of persistent discomfort.

Ingestion: Wash out mouth thoroughly and drink 1-2 glasses of water in small sips. Seek medical advice in case of persistent discomfort.

Skin: Remove contaminated clothing. Wash skin with soap and water. Seek medical advice in case of persistent discomfort.

Eyes: Flush with water (preferably using eye wash equipment) until irritation subsides. Seek medical advice if symptoms persist.

Other information: When obtaining medical advice, show the safety data sheet or label. Not relevant as the product is an article.

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

May cause harm to breast-fed children. May damage fertility. May damage the unborn child. Causes damage to organs through prolonged or repeated exposure. Prolonged exposure to welding smoke and particles constitutes a risk of developing asthmatic diseases, various respiratory disorders and cancer of the respiratory system. Harmful if vapours from molten metal are inhaled or if the skin comes in contact with molten metal. Prolonged or repeated exposure by skin contact or inhalation of vapours may cause damage to the central nervous system.

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

Treat symptoms. No special immediate treatment required.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: The product is not directly flammable. Choose extinguishing agents based on the surrounding fire.

Unsuitable extinguishing media: Do not use water stream, as it may spread the fire.

5.2. Special hazards arising from the substance or mixture

The product is not directly flammable. Avoid inhalation of vapour and fumes – seek fresh air.

5.3. Advice for firefighters

Move containers from danger area if it can be done without risk. Avoid inhalation of vapour and flue gases – seek fresh air. Wear Self-Contained Breathing Apparatus (SCBA) with a chemical protection suit only where personal (close) contact is likely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Wear safety goggles if there is a risk of eye splash. In case of insufficient ventilation, wear respiratory protective equipment. Wear gloves. Stay upwind/keep distance from source.

For emergency responders: In addition to the above: Protective suit equivalent to EN 368, type 3, is recommended.

6.2. Environmental precautions

Prevent spillage from entering drains and/or surface water.

6.3. Methods and material for containment and cleaning up

Sweep up/collect spills for possible reuse or transfer to suitable waste containers.

6.4. Reference to other sections

See section 8 for type of protective equipment. See section 13 for instructions on disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Work under effective process ventilation (e.g. local exhaust ventilation). Running water and eye wash equipment must be available. Wash hands before breaks, before using restroom facilities, and at the end of work. A workplace assessment must be conducted to ensure that employees are not exposed to effects that may involve a risk during pregnancy. A workplace assessment must be conducted to ensure that employees are not exposed to effects that may involve a risk when breastfeeding.

7.2. Conditions for safe storage, including any incompatibilities

Store safely, out of reach of children and away from food, animal feeding stuffs, medicines, etc. Store in a cool, dry place.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

Ingredient:	Exposure limit	Comments
lead	- ppm 0,15 mg/m3	-
Tin	- (8h), - (15m) ppm 2 (8h), 4 (15m) mg/m3	-
Antimony	- (8h), - (15m) ppm 0.5 (8h), - (15m) mg/m3	-
copper	1 (8h), 2 (15 min) mg/m3	-
silver	- (8h), - (15m) ppm 0.1 (8h), - (15m) mg/m3	-

Legal basis: EH40/2005 Workplace exposure limits. Last amended December 2011.

Measuring methods: Compliance with the stated occupational exposure limits may be checked by occupational hygiene measurements.

DNEL values: 7440-36-0-B:
Workers: Dermal DNEL (long-term exposure - systemic effects), 281 mg/kg bw/day
Inhalation DNEL (long-term exposure - local effects), 0,5 mg/m³,

7440-50-8-F: Workers: Dermal DNEL (long-term exposure - systemic effects), 0,041 mg/kg bw/day, Dose descriptor: Absorption factor 0,03%
Inhalation DNEL (long-term exposure - systemic effects), 0,041 mg/kg bw/day, Dose descriptor: Absorption factor 100%
Oral DNEL (long-term exposure - systemic effects), 0,041 mg/kg bw/day, Dose descriptor: Absorption factor 25%
Dermal DMEL (acute/short-term exposure - systemic effects), 0,082 mg/kg bw/day, Dose descriptor: Absorption factor 0,03%
Inhalation DNEL (acute/short-term exposure - systemic effects), 0,082 mg/kg bw/day, Dose descriptor: Absorption factor 100%,
Oral DMEL (acute/short-term exposure - systemic effects), 0,082 mg/kg bw/day, Dose descriptor: Absorption factor 25%

7440-69-9-B:
Workers:
Inhalation DNEL (long-term exposure - systemic effects), 13,1 mg/m³

General population:
Oral DNEL (long-term exposure - systemic effects), 13,3 mg/kg bw/day

7440-66-6-D:
Workers:
Oral DNEL (long-term exposure - systemic effects), 50 mg/kg bw/day
Dermal DNEL (long-term exposure - systemic effects), 5000 mg/kg bw/day
Inhalation DNEL (long-term exposure - systemic effects), 5 mg/kg bw/day

General population:
Oral DNEL (long-term exposure - systemic effects), 50 mg/kg bw/day
Dermal DNEL (long-term exposure - systemic effects), 5000 mg/kg bw/day
Inhalation DNEL (long-term exposure - systemic effects), 2,5 mg/kg bw/day

7440-22-4-B:
Workers:
Inhalation DNEL (long-term exposure - systemic effects), 0,1 mg/kg bw/day
Oral DNEL (long-term exposure - systemic effects), 0,12 mg/kg bw/day

General population:
Inhalation DNEL (long-term exposure - systemic effects), 0,04 mg/kg bw/day
Oral DNEL (long-term exposure - systemic effects), 0,12 mg/kg bw/day

PNEC values:

7439-92-1-E:
PNEC aqua (freshwater) 3,1 µg/l,
PNEC aqua (marine water) 3,5 µg/l
PNEC sediment (freshwater) 174 mg/kg dw,
PNEC sediment (marine water) 164 mg/kg dw
PNEC soil 212 mg/kg dw
PNEC STP (wastewater-treatment facilities) 0,1 mg/l

7440-36-0-B: PNEC aqua (freshwater) 0,113 mg Sb/L,
PNEC aqua (marine water) 0,0113 mg Sb/L
PNEC sediment (freshwater) 7,8 sb/kg wwt
PNEC sediment (marine water) 1,56 sb/kg wwt
PNEC soil 37 sb/kg dwt
PNEC STP (wastewater-treatment facilities) 2,55 Sb/l

7440-50-8-F: PNEC aqua (freshwater) 7,8 µg/l
PNEC aqua (marine water) 5,2 µg/l
PNEC sediment (freshwater) 87 mg/kg dw
PNEC sediment 288 mg/kg dw
PNEC sediment (marine water) 676 mg/kg dw
PNEC soil 65,5 mg/kg dw
PNEC STP (wastewater-treatment facilities) 230 g/l

7440-69-9-B:
PNEC STP (wastewater-treatment facilities) 17,5 mg/l

7440-66-6-D:
PNEC aqua (freshwater) 20,6 µg/l dissolv Zn, Assessment factor: 1
PNEC aqua (marine water) 6,1 µg/l dissolv Zn, Assessment factor: 3
PNEC sediment (freshwater) 117,8 mg/kg dw, Assessment factor: 1
PNEC sediment (marine water) 56,5 mg/kg dw, Assessment factor: 1
PNEC soil 35,6 mg/kg dw, Assessment factor: 1
PNEC STP (wastewater-treatment facilities) 52 mg/l, Assessment factor: 100

7440-22-4-B:
PNEC aqua (freshwater) 0,04 µg/l
PNEC aqua (marine water) 0,86 µg/l
PNEC sediment (freshwater) 438 mg/kg dw
PNEC sediment (marine water) 438 mg/kg dw
PNEC soil 0,794 mg/kg ww
PNEC STP (wastewater-treatment facilities) 0,025 mg/l

8.2. Exposure controls

Appropriate engineering controls:	Wear the personal protective equipment specified below.
Personal protective equipment, eye/face protection:	Wear safety goggles if there is a risk of eye splash. Eye protection must conform to EN 166.
Personal protective equipment, skin protection:	Wear protective gloves which protect against contact and splashing from molten metal. Gloves must conform to EN 12477.
Personal protective equipment, respiratory protection:	In case of heating/use of the product in an area with inadequate ventilation, wear respiratory protection with filter B/P3. Respiratory protection must conform to one of the following standards: EN 136/140/145.
Environmental exposure controls:	Ensure compliance with local regulations for emissions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State:	Solid substance
Colour:	Grey
Odour:	Characteristic
Odour threshold:	No data
pH (solution for use):	No data
pH (concentrate):	No data
Melting point/freezing point:	179-325°C
Initial boiling point and boiling range:	No data
Flash point:	No data
Evaporation rate:	No data
Flammability (solid, gas):	No data
Upper/lower flammability limits:	No data
Upper/lower explosive limits:	No data
Vapour pressure:	No data
Vapour density:	No data
Relative density:	8,0-11-1
Solubility:	No data
Partition coefficient n-octanol/water:	No data
Auto-ignition temperature:	No data
Decomposition temperature:	No data
Viscosity:	No data
Explosive properties:	No data
Oxidising properties:	No data

9.2. Other information

None.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts with the following: Strong oxidisers/ Acids/ Alkalis.

10.2. Chemical stability

The product is stable when used in accordance with the supplier's directions.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Strong oxidisers/ Acids/ Alkalis.

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral:	Ingestion may cause discomfort. The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. 7440-36-0-B: Rat: LD50 = >20000 mg/kg 7440-69-9-B: Rat: LD50 = >5000 mg/kg (OECD 401) 7440-22-4-B: Rat: LD50 = >10000 mg/kg
Acute toxicity - dermal:	The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. 7440-36-0-B: Rabbit: LD50 = >8300 mg/kg
Acute toxicity - inhalation:	The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. The product does not release hazardous vapours in metallic form. Metallic oxides which are hazardous to inhale are formed during soldering/welding. 7440-36-0-B: Rat, Particle, : LC50 = >5,2 mg/m³
Skin corrosion/irritation:	May cause slight irritation. The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. 7440-31-5-B: Rabbit: Non-irritating (OECD 404)
Serious eye damage/eye irritation:	May cause eye irritation. The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met. 7440-31-5-B: Rabbit: Non-irritating: (OECD 405)
Respiratory sensitisation or skin sensitisation:	The product does not have to be classified. Test data are not available.
Germ cell mutagenicity:	The product does not have to be classified. Test data are not available.
Carcinogenic properties:	The product contains at least one substance that is suspected of being carcinogenic. The product does not have to be classified. Test data are not available.
Reproductive toxicity:	May damage fertility. May damage the unborn child. May cause harm to breast-fed children.
Single STOT exposure:	The product does not have to be classified. Test data are not available. Inhalation of smoke from the soldering / welding process may cause irritation to the upper airways. May cause a burning sensation in the nose, mouth and throat, as well as headaches, coughing and discomfort.
Repeated STOT exposure:	Causes damage to organs through prolonged or repeated exposure. Prolonged exposure to welding smoke and particles constitutes a risk of developing asthmatic diseases, various respiratory disorders and cancer of the respiratory system. Prolonged inhalation may cause water in the lungs. Prolonged or repeated exposure by skin contact or inhalation of vapours may cause damage to the central nervous system. 7440-31-5-B: Rat, >1000mg/kg bw/day, 28: (OECD 407)
Aspiration hazard:	The product does not have to be classified. Test data are not available.
Other toxicological effects:	None known.

SECTION 12: Ecological information

12.1. Toxicity

The product does not have to be classified. Based on existing data, the classification criteria are deemed not to have been met.

Acute toxicity:

7440-31-5-B:
Fish: Pimephales promelas: 96hLC50 = >12,4 µg/l
Algae: Pseudokirchneriella subcapitata: 72hEC50 = >19,2 µg/l

7439-92-1-E:
Fish: Oncorhynchus sp.: 96hLC50 = 40,8-810,0 µg/l
Crustacea: Daphnia magna: 48hEC50 = 73,6-655,6 µg/l
Algae: Pseudokirchneriella subcapitata: 72hEC50 = 72,0-388,0 µg/l

7440-36-0-B:
Fish: Pimephales promelas: 96hLC50 = 14,4 mg/l
Crustacea: Name of species not specified: 96hEC50 = 1,77 mg/l
Algae: Pseudokirchneriella subcapitata: 72hEC50 = >36,6 mg/l

7440-22-4-B:
Fish: Oncorhynchus mykiss: 96hLC50 = 1,48 mg/l
Crustacea: Daphnia magna: 48hEC50 = 0,22 g/l

Chronic toxicity:

7440-31-5-B:
Daphnia magna: 7dEC50 = 1303 µg/l
7440-36-0-B:
Fish: Pimephales promelas: 28dNOEC = 1,13-2,31 mg/l
Crustacea: Daphnia magna: 21dNOEC = 1,74-2,31 mg/l
Algae: Pseudokirchneriella subcapitata: 72hNOEC = 2,11-4,00 mg/l

7440-66-6-D:
Name of species not specified: 14dNOEC = 1,2 g/l

7440-22-4-B:
Fish: Pimephales promelas: 28dNOEC = 0,351 mg/l
Crustacea: Daphnia magna: 7dEC50 = 1 g/l
Name of species not specified: 14dNOEC = 1,2 g/l

12.2. Persistence and degradability

The concept of biodegradability is not relevant, as the product contains inorganic matter only.

12.3. Bioaccumulative potential

Test data are not available.

7440-36-0-B: Partition coefficient n-octanol/water: 0,73

12.4. Mobility in soil

Test data are not available.

12.5. Results of PBT and vPvB assessment

(PBT/vPvB) No assessment required, as the product contains inorganic matter only.

12.6. Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Avoid discharge to drain or surface water.
If this product as supplied becomes a waste, it meets the criteria of a hazardous waste (Dir. 2008/98/EU). Collect spills and waste in closed, leak-proof containers for disposal at the local hazardous waste site.

EWC code: Depends on line of business and use, for instance 06 04 05* wastes containing other heavy metals

Absorbent/cloth contaminated with the product:
EWC code: 15 02 02 absorbents, filter materials (including oil filters not otherwise specified),

wiping cloths, protective clothing contaminated by dangerous substances

SECTION 14: Transport information

The product is not covered by the rules for transport of dangerous goods.

14.1. UN number -

14.2. UN proper shipping name -

14.3. Transport hazard class(es) -

14.4. Packing group -

14.5. Environmental hazards -

14.6. Special precautions for user

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14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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SECTION 15: Regulatory information

Council Directive 94/33/EC of 22 June 1994 on the protection of young people at work. Council Directive 92/85/EEC of 19 October 1992 on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

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

Special provisions: The product is comprised by Regulation 1907/2006/EC, Annex XVII concerning restrictions. The product contains at least one substance comprised by Regulation 1907/2006/EC, Article 59 (SVHC). Special care should be applied for employees under the age of 18. Young people under the age of 18 may not carry out any work causing harmful exposure to this product.

15.2. Chemical safety assessment

Chemical safety assessment has not been performed.

SECTION 16: Other information

Changes have been made in the following sections:	1,2,3,4,7,8,9,11,12,13,15,16
Abbreviation explanations:	STOT: Specific Target Organ Toxicity PBT: Persistent, Bioaccumulative and Toxic vPvB: Very Persistent and Very Bioaccumulative
Classification method:	Calculation based on the hazards of the known components.
H-phrases:	H360FD May damage fertility. May damage the unborn child. H362 May cause harm to breast-fed children. H372 Causes damage to organs through prolonged or repeated exposure.
Training:	A thorough knowledge of this safety data sheet should be a prerequisite condition.
Other information:	This safety data sheet has been prepared for and applies to this product only. It is based on our current knowledge and the information that the supplier was able to provide about the product at the time of preparation. The safety data sheet complies with applicable law on preparation of safety data sheets in accordance with 1907/2006/EC (REACH) as subsequently changed.