

SAFETY DATA SHEET

Copper Bottom Alloy

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

1.1 Product identifier

Product name : Copper Bottom Alloy**EC number** : 273-836-9**REACH Registration number**

Registration number	Legal entity
01-2119480181-45-0000	-

CAS number : 69029-97-6**Product code** : Not available.**Product description** : Not available.**Product type** : Solid.**Other means of identification** : Speiss

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

Identified uses
For use only as intermediate

1.3 Details of the supplier of the safety data sheet

Boliden Commercial
Box 750
SE-101 35 Stockholm
Sweden
Tel +46 8 610 15 00

e-mail address of person responsible for this SDS : info.market@boliden.com

1.4 Emergency telephone number

National advisory body/Poison Center**Telephone number** : 112

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : UVCB**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Acute Tox. 4, H302

Acute Tox. 4, H332

Skin Sens. 1A, H317

Carc. 1A, H350

Repr. 1A, H360FD

Lact., H362

STOT RE 1, H372

Aquatic Acute 1, H400 (M=1)

Aquatic Chronic 1, H410

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Copper Bottom Alloy

SECTION 2: Hazards identification

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Danger

Hazard statements :

- Harmful if swallowed or if inhaled.
- May cause an allergic skin reaction.
- May cause cancer.
- May damage fertility. May damage the unborn child.
- May cause harm to breast-fed children.
- Causes damage to organs through prolonged or repeated exposure.
- Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :

- Obtain special instructions before use. Wear protective gloves, protective clothing and eye or face protection. Avoid release to the environment. Do not breathe dust. Avoid contact during pregnancy and while nursing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Response :

- Collect spillage. IF exposed or concerned: Get medical advice or attention. IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients : Speiss, copper

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

	PBT	P	B	T	vPvB	vP	vB
Not applicable. (Inorganic)		N/A	N/A	Yes	Not applicable. (Inorganic)	N/A	N/A

Other hazards which do not result in classification : None known.

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SECTION 3: Composition/information on ingredients

3.1 Substances : UVCB

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Speiss, copper	REACH #: 01-2119480181-45 EC: 273-836-9 CAS: 69029-97-6	100	Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Sens. 1A, H317 Carc. 1A, H350 Repr. 1A, H360FD Lact., H362 STOT RE 1, H372 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410	[*]
copper	EC: 231-159-6 CAS: 7440-50-8	49 - 64	Aquatic Acute 1, H400 (M=10000) Aquatic Chronic 1, H410 (M=100)	[A]
iron	EC: 231-096-4 CAS: 7439-89-6	2.1 - 13	Not classified.	[A]
nickel	EC: 231-111-4 CAS: 7440-02-0 Index: 028-002-00-7	1.4 - 12	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372	[A]
arsenic	EC: 231-148-6 CAS: 7440-38-2 Index: 033-001-00-X	1.2 - 12	Acute Tox. 3, H301 Acute Tox. 3, H331 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[A]
antimony compounds	EC: 231-146-5 CAS: 7440-36-0 Index: 051-003-00-9	1.2 - 12	Acute Tox. 3, H301 Acute Tox. 4, H332 Aquatic Chronic 2, H411	[A]
tin	EC: 231-141-8 CAS: 7440-31-5	0.37 - 5.1	Not classified.	[A]
zinc	EC: 231-175-3 CAS: 7440-66-6	0.16 - 0.7	Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=10)	[A]
lead massive [particle diameter > 1 mm]	EC: 231-100-4 CAS: 7439-92-1 Index: 082-014-00-7	0.1 - 0.27	Repr. 1A, H360FD Lact., H362 STOT RE 1, H372 (blood, central nervous system (CNS), kidneys) (oral, inhalation) See Section 16 for the full text of the H statements declared above.	[A]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

[*] Substance

[A] Constituent

[B] Impurity

[C] Stabilizing additive

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. Get medical attention. If necessary, call a poison center or physician. 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.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. 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. Get medical attention. If necessary, call a poison center or physician. 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Hazardous combustion products** : Decomposition products may include the following materials:
metal oxide/oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

- Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections

- : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

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SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid contact during pregnancy or while nursing. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
E1	100 tonne	200 tonne

7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
lead massive [particle diameter > 1 mm]	EU OEL (Europe, 10/2019). Notes: list of binding occupational exposure limit values TWA: 0.15 mg/m ³ 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance

SECTION 8: Exposure controls/personal protection

documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Speiss, copper	DNEL	Long term Inhalation	20 ng/m ³	General population	Local
	DNEL	Long term Inhalation	20 ng/m ³	General population	Systemic
	DNEL	Long term Dermal	0.00044 mg/cm ²	Workers	Local
	DNEL	Long term Oral	1 µg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	4 µg/m ³	Workers	Systemic
	DNEL	Short term Oral	12 µg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	40 µg/m ³	Workers	Local
	DNEL	Long term Dermal	0.07 mg/cm ²	General population	Local
	DNEL	Long term Dermal	112 µg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	112 µg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	0.28 mg/m ³	General population	Local
	DNEL	Short term Inhalation	0.47 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	9.6 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	16 mg/m ³	Workers	Systemic
	DNEL	Short term Dermal	273 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	273 mg/kg bw/day	Workers	Systemic
	copper	DNEL	Short term Inhalation	1 mg/m ³	General population
DNEL		Long term Inhalation	1 mg/m ³	General population	Local
DNEL		Short term Inhalation	20 mg/m ³	General population	Systemic
DNEL		Short term Inhalation	20 mg/m ³	Workers	Systemic
DNEL		Long term Dermal	137 mg/kg bw/day	General population	Systemic
DNEL		Long term Dermal	137 mg/kg bw/day	Workers	Systemic
DNEL		Short term Dermal	273 mg/kg bw/day	General population	Systemic
iron	DNEL	Short term Dermal	273 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Oral	0.71 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	1.5 mg/m ³	General population	Local
nickel	DNEL	Long term Inhalation	3 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	20 ng/m ³	General population	Local
	DNEL	Long term Inhalation	20 ng/m ³	General population	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Short term Oral	12 µg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.02 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	0.05 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	0.05 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	2.4 mg/m ³	General population	Local
	DNEL	Short term Inhalation	4 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	408 mg/m ³	General population	Systemic
	DNEL	Long term Dermal	0.035 mg/cm ²	General population	Local
	DNEL	Long term Dermal	0.035 mg/cm ²	Workers	Local
antimony compounds	DNEL	Long term Inhalation	0.1 mg/m ³	General population	Local
	DNEL	Long term Inhalation	0.5 mg/m ³	Workers	Local
	DNEL	Long term Oral	140.8 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	140.8 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	234.7 mg/kg bw/day	Workers	Systemic
tin	DNEL	Short term Inhalation	3.476 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	3.476 mg/m ³	General population	Systemic
	DNEL	Short term Inhalation	11.75 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	11.75 mg/m ³	Workers	Systemic
	DNEL	Short term Oral	80 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	80 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	80 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	80 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	133.3 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	133.3 mg/kg bw/day	Workers	Systemic
zinc	DNEL	Long term Oral	0.83 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	2.5 mg/m ³	General population	Systemic
	DNEL	Long term Inhalation	5 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	83 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	83 mg/kg bw/day	Workers	Systemic
lead massive [particle diameter > 1 mm]	DNEL	Long term Oral	10 µg/dL blood	Workers	Systemic
	DNEL	Long term Inhalation	40 µg/dL blood	Workers	Systemic

PNECs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Compartment Detail	Value	Method Detail
copper	Fresh water	7.8 µg/l	-
	Marine water	5.2 µg/l	-
	Fresh water sediment	87 mg/kg dwt	-
	Marine water sediment	676 mg/kg dwt	-
	Soil	65 mg/kg dwt	-
	Sewage Treatment Plant	230 µg/l	-
	Soil	88 mg/kg dwt	-
nickel	Fresh water	7.1 µg/l	-
	Marine water	8.6 µg/l	-
	Fresh water sediment	109 mg/kg dwt	-
	Marine water	109 mg/kg dwt	-
	Soil	29.9 mg/kg dwt	-
	Sewage Treatment Plant	330 µg/l	-
	Soil	88 mg/kg dwt	-
arsenic	Fresh water	6.5 µg/l	-
	Marine water	0.5 µg/l	-
	Fresh water sediment	64.8 mg/kg dwt	-
	Marine water sediment	4.5 mg/kg dwt	-
	Soil	0.3 mg/kg dwt	-
	Sewage Treatment Plant	30.4 µg/l	-
	Soil	88 mg/kg dwt	-
antimony compounds	Fresh water	113 µg/l	-
	Marine water	11.3 µg/l	-
	Fresh water sediment	11.2 mg/kg dwt	-
	Marine water sediment	2.24 mg/kg dwt	-
	Soil	37 mg/kg dwt	-
	Sewage Treatment Plant	2550 µg/l	-
	Soil	88 mg/kg dwt	-
zinc	Fresh water	20.6 µg/l	-
	Marine water	6.1 µg/l	-
	Fresh water sediment	117.8 mg/kg dwt	-
	Marine water sediment	56.5 mg/kg dwt	-
	Soil	35.6 mg/kg dwt	-
	Sewage Treatment Plant	100 µg/l	-
	Soil	88 mg/kg dwt	-
lead massive [particle diameter > 1 mm]	Fresh water	3.1 µg/l	-
	Marine water	3.5 µg/l	-
	Fresh water sediment	174 mg/kg dwt	-
	Fresh water sediment	41 mg/kg dwt	-
	Marine water sediment	164 mg/kg dwt	-
	Soil	212 mg/kg dwt	-
	Soil	0.1 mg/l	-
	Fresh water	2.4 µg/l	-
	Marine water	3.3 µg/l	-
	Fresh water sediment	186 mg/kg dwt	-
	Marine water sediment	168 mg/kg dwt	-
	Sewage Treatment Plant	100 µg/l	-
	Soil	88 mg/kg dwt	-
	Soil	88 mg/kg dwt	-

8.2 Exposure controls

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

SECTION 8: Exposure controls/personal protection

- 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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : 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.
- Other skin protection** : Appropriate footwear and any additional skin protection measures 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 protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Type P3 filter
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Solid. [compact, crushed]
- Color** : Not available.
- Odor** : Odorless.
- Odor threshold** : Not available.
- Melting point/freezing point** : 403°C
- Initial boiling point and boiling range** : Not available.
- Flammability (solid, gas)** : Not available.
- Upper/lower flammability or explosive limits** : Not applicable.
- Flash point** : Not applicable.
- Auto-ignition temperature** : 617 to 655°C (1142.6 to 1211°F)
- Decomposition temperature** : Not available.
- pH** : Not applicable.
- Viscosity** : Not applicable.
- Solubility(ies)** : Very slightly soluble in the following materials: cold water and hot water.
- Solubility in water** : 0.00013 g/l

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SECTION 9: Physical and chemical properties

Miscible with water	: Yes.
Partition coefficient: n-octanol/ water	: Not applicable.
Vapor pressure	: Not available.
Evaporation rate	: Not available.
Relative density	: 7.9 g/cm ³
Density	: 7.9 g/cm ³ [20°C (68°F)]
Vapor density	: Not applicable.
Explosive properties	: Not available.
Oxidizing properties	: Not applicable.
<u>Particle characteristics</u>	
Median particle size	: Not available.

SECTION 10: Stability and reactivity

10.1 Reactivity	: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Extremely reactive or incompatible with air. May ignite spontaneously if exposed to air. May form explosible dust-air mixture if dispersed.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: No specific data.
10.5 Incompatible materials	: Reactive or incompatible with the following materials: strong acids Oxidizing agent. Amine. nitric acid
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
arsenic	LD50 Oral	Rat	763 mg/kg	-
antimony compounds	LD50 Oral	Rat	100 mg/kg	-
tin	LC50 Inhalation Dusts and mists	Rat	>4.8 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	>2000 mg/kg	-
zinc	LC50 Inhalation Dusts and mists	Rat	>5.4 mg/l	4 hours
	LD50 Oral	Rat	>2000 mg/kg	-

Conclusion/Summary : Harmful if swallowed or if inhaled.

Acute toxicity estimates

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SECTION 11: Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Speiss, copper	500	N/A	N/A	13.3	6.6
arsenic	100	N/A	N/A	3	N/A
antimony compounds	100	N/A	N/A	N/A	1.5

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
zinc	Skin - Mild irritant	Human	-	72 hours 300 ug l	-

Conclusion/Summary

- Skin** : Non-corrosive to skin. Non-irritant to skin.
- Eyes** : Non-corrosive to the eyes. Non-irritating to the eyes.
- Respiratory** : Non-irritating to the respiratory system.

Sensitization

Conclusion/Summary

- Skin** : May cause an allergic skin reaction.
- Respiratory** : Not classified for respiratory sensitization.

Mutagenicity

- Conclusion/Summary** : Not classified as dangerous

Carcinogenicity

- Conclusion/Summary** : May cause cancer.

Reproductive toxicity

- Conclusion/Summary** : May damage fertility or the unborn child. May cause harm to breast-fed children.

Teratogenicity

- Conclusion/Summary** : Not classified as dangerous

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Speiss, copper	Category 1	-	-
nickel	Category 1	-	-
lead massive [particle diameter > 1 mm]	Category 1	oral, inhalation	blood, central nervous system (CNS), kidneys

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Harmful if inhaled.
- Skin contact** : May cause an allergic skin reaction.
- Ingestion** : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : No specific data.

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SECTION 11: Toxicological information

- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- Conclusion/Summary** : Not available.
- General** : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : May damage the unborn child.
- Developmental effects** : May cause harm to breast-fed children.
- Fertility effects** : May damage fertility.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Speiss, copper	Acute EC50 ≤1 mg/l	Algae	72 hours
	Acute EC50 ≤1 mg/l	Daphnia	48 hours
copper	Acute EC50 1100 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute EC50 0.0065 mg/l	Daphnia - Flea	48 hours
	Acute EC50 2.1 µg/l Fresh water	Daphnia - Daphnia longispina - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute IC50 0.392 mg/l	Algae	72 hours
	Acute IC50 16 µg/l Fresh water	Algae - Chlorella pyrenoidosa - Exponential growth phase	72 hours
	Acute IC50 5.4 mg/l Marine water	Aquatic plants - Plantae - Exponential growth phase	72 hours
	Acute LC50 0.072 µg/l Marine water	Crustaceans - Amphipoda - Adult	48 hours
	Acute LC50 0.017 mg/l	Fish - Oncorhynchus mykiss	96 hours

Copper Bottom Alloy

SECTION 12: Ecological information

	Acute LC50 7.56 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Chronic NOEC 2.5 µg/l Marine water	Algae - Nitzschia closterium - Exponential growth phase	72 hours
	Chronic NOEC 7 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 0.02 mg/l Fresh water	Crustaceans - Cambarus bartonii - Mature	21 days
	Chronic NOEC 2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 0.8 µg/l Fresh water	Fish - Oreochromis niloticus - Juvenile (Fledgling, Hatchling, Weanling)	6 weeks
iron	Acute EC50 3700 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
nickel	Chronic NOEC 100 mg/l Marine water	Algae - Glenodinium halli	72 hours
	Acute EC50 2 ppm Marine water	Algae - Macrocystis pyrifera - Young	4 days
arsenic	Chronic NOEC 100 mg/l Marine water	Algae - Glenodinium halli	72 hours
	Acute EC50 0.172 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 1700 µg/l Fresh water	Crustaceans - Simocephalus vetulus	48 hours
	Acute LC50 1900 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 9900 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 0.0625 mg/l Marine water	Algae - Ulva pertusa	96 hours
antimony compounds	Acute LC50 18000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
zinc	Acute LC50 22 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 10000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute EC50 70 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute EC50 0.068 mg/l	Daphnia - D. magna	48 hours
	Acute EC50 356 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute EC50 354 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute EC50 175 µg/l Fresh water	Fish - Pimephales promelas - Larvae	96 hours
	Acute IC50 65 µg/l Marine water	Algae - Nitzschia closterium - Exponential growth phase	4 days
	Acute LC50 65 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 70 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 76 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata	48 hours
	Acute LC50 96 µg/l Fresh water	Crustaceans - Ceriodaphnia reticulata	48 hours
	Acute LC50 100 ppb Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 68 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 107 µg/l Fresh water	Daphnia - Daphnia pulex	48 hours
	Acute LC50 0.116 mg/l	Fish	96 hours
	Acute LC50 182 µg/l Fresh water	Fish - Oncorhynchus tshawytscha	96 hours
	Acute LC50 238 µg/l Fresh water	Fish - Pimephales promelas - Newly or recently hatched	96 hours
	Acute LC50 12.21 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Acute LC50 0.24 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic EC10 59.2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic EC10 92.7 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic LC10 185 µg/l Fresh water	Fish - Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling)	30 days
	Chronic NOEC 0.25 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days

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SECTION 12: Ecological information

lead massive [particle diameter > 1 mm]	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum demersum	3 days
	Chronic NOEC 178 µg/l Marine water	Crustaceans - Palaemon elegans	21 days
	Chronic NOEC 62.6 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 94.5 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 72.7 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 172 µg/l Fresh water	Fish - Cottus bairdi	30 days
	Chronic NOEC 199 µg/l Fresh water	Fish - Oncorhynchus mykiss - Juvenile (Fledgling, Hatchling, Weanling)	30 days
	Chronic NOEC 2.6 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks
	Chronic NOEC 8.3 µg/l Fresh water	Fish - Cyprinus carpio	4 weeks
	Acute EC50 1340 ppb Marine water	Algae - Isochrysis galbana - Exponential growth phase	72 hours
Acute EC50 8000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days	
Acute EC50 0.1 mg/l	Daphnia - Flea	48 hours	
Acute IC50 0.14 mg/l	Algae	72 hours	
Acute LC50 0.14 mg/l	Fish - Oncorhynchus mykiss	96 hours	
Chronic NOEC 1.09 mg/l Fresh water	Algae - Scenedesmus acutus var. acutus	4 days	

Conclusion/Summary : Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
nickel	-	16	low
zinc	-	92	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
Speiss, copper	Not applicable. (Inorganic)	N/A	N/A	Yes	Not applicable. (Inorganic)	N/A	N/A

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Copper Bottom Alloy

SECTION 13: Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

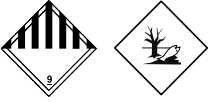
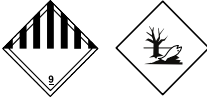
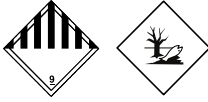

Waste code	Waste designation
06 04 05*	wastes containing other heavy metals

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3077	UN3077	UN3077	UN3077
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Bottom Alloy)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Bottom Alloy)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper Bottom Alloy)	Environmentally hazardous substance, solid, n.o.s. (Copper Bottom Alloy)
14.3 Transport hazard class(es)	9 	9 	9 	9 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.

Additional information

ADR/RID : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Hazard identification number 90

Limited quantity 5 kg

Special provisions 274, 335, 601, 375

ADN : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Special provisions 274, 335, 375, 601

IMDG : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.

Emergency schedules F-A, S-F

Special provisions 274, 335, 966, 967, 969

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SECTION 14: Transport information

IATA : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.
Quantity limitation Passenger and Cargo Aircraft: 400 kg. Packaging instructions: 956. Cargo Aircraft Only: 400 kg. Packaging instructions: 956. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y956.
Special provisions A97, A158, A179, A197

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
IBC Code: 9

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Toxic to reproduction	lead	Candidate	ED/61/2018	6/27/2018

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Restricted to professional users.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

E1

Copper Bottom Alloy

SECTION 15: Regulatory information

National regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

List name	Ingredient name	Status
Heavy metals - Annex 1	Lead (Pb)	Listed

Inventory list

Inventory list

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are active or exempted.
Viet Nam	: All components are listed or exempted.

15.2 Chemical Safety Assessment : Complete.

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 N/A = Not available
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 SGG = Segregation Group
 vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Copper Bottom Alloy

SECTION 16: Other information

Classification	Justification
Acute Tox. 4, H302	Expert judgment
Acute Tox. 4, H332	Calculation method
Skin Sens. 1A, H317	Expert judgment
Carc. 1A, H350	Expert judgment
Repr. 1A, H360FD	Calculation method
Lact., H362	Expert judgment
STOT RE 1, H372	Expert judgment
Aquatic Acute 1, H400 (M=1)	On basis of test data
Aquatic Chronic 1, H410	Calculation method

Full text of abbreviated H statements

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H350	May cause cancer.
H351	Suspected of causing cancer.
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.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 1	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
Carc. 1A	CARCINOGENICITY - Category 1A
Carc. 2	CARCINOGENICITY - Category 2
Lact.	TOXIC TO REPRODUCTION - Effects on or via lactation
Repr. 1A	TOXIC TO REPRODUCTION - Category 1A
Skin Sens. 1	SKIN SENSITIZATION - Category 1
Skin Sens. 1A	SKIN SENSITIZATION - Category 1A
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1

Date of printing : 11/23/2021

Date of issue/ Date of revision : 11/22/2021

Date of previous issue : 10/1/2021

Version : 2

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.