According to EC-Regulation 1907/2006 (REACH)

# SAFETY DATA SHEET

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

### 1.1. Product identifier

**Trade name**
Cathode copper (massive)
**Product no.**
-
**REACH registration number**
01-2119480154-42-XXXX
**Other means of identification**
EC# 231-159-6, CAS# 7440-50-8

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

**Relevant identified uses of the substance or mixture**
Wire, electronics, plumbing tubings and construction material
**Uses advised against**
-

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

**Company and address**
Boliden Commercial
Box 750
SE-101 35 Stockholm
Sweden

Tel +46 8 610 15 00
Fax +46 8 31 55 45
**Contact person**

**E-mail**
info.market@boliden.com
**SDS date**
01-06-2015
**SDS Version**
1.0

### 1.4. Emergency telephone number

999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service). See section 16.

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

This product is not classified as hazardous.

### 2.2. Label elements

**Hazard pictogram(s)**
-
**Signal word**
-
**Hazard statement(s)**
-

| | | |
|---|---|---|
| **Safety statement(s)** | General | - |
| | Prevention | - |

| | |
|---|---|
| Response | - |
| Storage | - |
| Disposal | - |

### Identity of the substances primarily responsible for the major health hazards

### 2.3. Other hazards

#### Additional labelling
-
#### Additional warnings
-
#### VOC
-

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

| | |
|---|---|
| NAME: | Copper |
| IDENTIFICATION NOS.: | CAS-no: 7440-50-8 EC-no: 231-159-6 REACH-no: 01-2119480154-42-XXXX |
| CONTENT: | >99,99% |
| CLP CLASSIFICATION: | Not classified |

### 3.2. Mixtures

-

(*) See full text of H-phrases in chapter 16. Occupational exposure limits are listed in section 8, if these are available.

### Other informations

-

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Copper in massive form is not hazardous.
During production and some uses, the following hazardous derivates may occur/be formed: respirable copper-bearing particles and soluble copper compounds. This selection considers also potential hazards of copper-bearing materials and copper compounds (referred to as “copper”), relevant to the production and uses of copper massive materials.

#### General information
Get medical attention if any discomfort develops.

#### Inhalation
In case of exposure to fumes, fine particulates, powders, move to fresh air, lay patient down, get medical attention if discomfort persists.

#### Skin contact
Use general hygiene measure for contact with the material: wash with soap and warm water.
In case of contact with molten product, cool rapidly with water and seek immediate medical attention.
Do not attempt to remove molten product from skin because skin will tear easily. Cuts or abrasions should be treated promptly with thorough cleansing of the affected area.

#### Eye contact
Use general measures if eye irritations occur. Do nut rub eyes. Remove any contact lenses.
Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for at least 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

#### Ingestion
Not a normal route of entry. Copper is an essential nutrient and does not accumulate in the body or in the food chain.
In case of significant oral intake (several mg Cu), rinse mouth and give 200-300 ml water to drink. Do not induce vomiting. Get medical attention if any discomfort continues.

#### Burns
Rinse with water until the pain stops and continue for 30 minutes.

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

Gastro-intestinal symptoms are the first symptoms for high oral intakes of soluble copper compounds.
Vomiting may occur.
The most critical organ for delayed effects from “copper” excess is the liver.
Nose-lung irritation may be symptoms occurring after inhalation of copper containing fumes/dusts/mists.

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

Treat symptomatically

#### Information to medics

Bring this safety data sheet.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Material is non-flammable. Use fire-fighting measures appropriate to surrounding materials.
For safety reasons do not use water since water expands explosively on contact with molten/liquid metal.

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

Respirable dust.

### 5.3. Advice for firefighters

Wear a self-contained breathing apparatus and a fully protective suit and gloves. Dispose of fire debris and contaminated fire fighting media in accordance with official regulations.

## SECTION 6: Accidental release measures

Copper in massive form is not hazardous.
During production and some uses, hazardous “copper” may be formed and there for accidental releases of respirable copper-bearing particles and soluble compounds are considered.

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

Avoid formation of dust. Ensure adequate ventilation. Avoid inhalation of dust and fumes. Wear personal protective equipment.

### 6.2. Environmental precautions

Avoid release to environment, soil, groundwater and sewage system.

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

Collect the spilled substance, avoid dust formation. Recover the product and place it in suitable container for reuse.

### 6.4. Reference to other sections

See section 13 on “Disposal considerations ” with regard to the handling of waste. See section 8 on 'Exposure controls/personal protection' for protective measures.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Copper is not classified in massive forms and no protective measures are needed for safe handling.

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

Store massive material in a cool, dry place, avoiding contact with heat and acids.

#### Storage temperature

No data available.

### 7.3. Specific end use(s)

This product should only be used for applications described in Section 1.2

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### OEL

Copper
Long-term exposure limit (8-hour TWA reference period): - ppm | 0.2/1 mg/m3
Short-term exposure limit (15-minute reference period): - ppm | -/2 mg/m3
Comments: Fume/dust

#### DNEL / PNEC

DNEL: 0.041mg Cu/kg B wt/d Route: Oral, dermal and inhalation – Exposure pattern: Human - Long term – Systemic effects, Descriptor: Internal dose DNEL (Derived No Effect Level)
Using absorption factors of 25% for oral, 100% for inhalation (respirable) and 0.03% for dermal exposure routes

DNEL: 0.082mg Cu/kg B wt/d Route: Oral, dermal and inhalation – Exposure pattern: Human - Short term – Systemic effects, Descriptor: Internal dose DNEL (Derived No Effect Level)
Using absorption factors of 25% for oral, 100% for inhalation (respirable) and 0.03% for dermal exposure routes

DNEL: 1 mg/$m^3$ Route: Inhalation – Exposure pattern: Human - Long term - Local effects, Descriptor: Absence of adverse effects up to 2 mg/m3 from 28 days rat inhalation study (1-2 µm Cu2O) (from Kirkpatrick, 2010)

LOAEL: 20 mg/$m^3$ Route: Inhalation – Exposure pattern: Human - Short term - Systemic effects, Descriptor: The LOAEL of 1.24 mg/L for coated copper flake (Leuschner, 2011) and assessment factor of 65.5

NOAEL: 4 mg/l Route: Oral – Exposure pattern: Human – Short and long term – Local effects, Descriptor: A NOAEL for drinking water

PNEC: 7.8 µg dissolved Cu/L Route: Freshwater – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration) Includes a default bio-availability correction

PNEC: 5.2 µg dissolved Cu/L Route: Marine water – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration) Includes a default bio-availability correction

PNEC: 87 mg Cu/kg dry wt Route: Sediment freshwater – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration) Includes a default bio-availability correction

PNEC: 288 mg Cu/kg dry wt Route: Sediment estuarine – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration)

PNEC: 676 mg Cu/kg dry wt Route: Sediment marine – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration)

PNEC: 65.5 mg Cu/kg dry wt Route: Soil – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration) Includes a default bio-availability correction

PNEC: 230 g dissolved Cu/L Route: STP – Exposure pattern: Environmental, Descriptor: PNEC (Predicted No Effect Concentration)

### 8.2. Exposure controls

Compliance with the stated exposure limits values should be checked on a regular basis.

#### General recommendations

Observe general occupational hygiene.

#### Exposure scenarios

If there is an appendix to this safety data sheet, the indicated exposure scenarios must be complied.

#### Exposure limits

Trade users are covered by the rules of the working environment legislation on maximum concentrations for exposure. See work hygiene threshold values below.

#### Appropriate technical measures

Airborne gas and dust concentrations must be kept as low as possible and below the current threshold values. Use for example an exhaust system if the normal air flow in the work room is not sufficient.

#### Hygiene measures

Whenever you take a break in using this product and when you have finished using it, all exposed areas of the body must be washed. Always wash hands, forearms and face.

#### Measures to avoid environmental exposure

No specific requirements.

#### Individual protection measures, such as personal protective equipment

-

#### Generally

Only CE-marked personal protection equipment should be used.

#### Respiratory Equipment

Use European standard EN 149 approved respirator if airborne exposure limits are exceeded (or health effects are discerned) e.g. particle filters P2 or P3.

#### Skin protection

Use protective clothing.

#### Hand protection

Use suitable protective gloves when generating particles or dust.

#### Eye protection

Wear safety glasses, when generating particles or dust.

## SECTION 9: Physical and chemical properties

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

| Form | Colour | Odour | pH | Viscosity | Density (g/cm3) |
|---|---|---|---|---|---|
| Solid | Copper colour | Odourless | - | - | 8,78 (20°C) |

**Phase changes**

| Melting point (°C) | Boiling point (°C) | Vapour pressure (mm Hg) |
|---|---|---|
| 1059 - 1069 | Not applicable to a solid that melts >300°C | Not applicable to a solid that melts >300°C |

**Data on fire and explosion hazards**

| Flashpoint (°C) | Ignition (°C) | Self ignition (°C) |
|---|---|---|
| Not applicable to an inorganic substance. | - | No |

| Explosion limits (Vol %) | Oxidizing properties |
|---|---|
| Not applicable | Non oxidising substance |

**Solubility**

| Solubility in water | n-octanol/water coefficient |
|---|---|
| Insoluble (copper needs to be transformed into a copper compound to become soluble. A solubility test (OECD 105) demonstrated a solubility of <1mg/L for a copper powder) | - |

### 9.2. Other information

| Solubility in fat | Additional information |
|---|---|
| - | Decomposition temperature Decomposition and/or melting starts at 1059°C Explosive properties Non explosive. The substance does not contain chemical groups associated with explosive properties. |

## SECTION 10: Stability and reactivity

### 10.1. Reactivity
Not applicable. See section 9.

### 10.2. Chemical stability
The product is stable under the conditions, noted in the section on “Handling and storage”.

### 10.3. Possibility of hazardous reactions
May react with peroxides, azide compounds, chlorates, iodates, acetylene, ammonium nitrate, bromates, and phosphorus.

### 10.4. Conditions to avoid
High temperature operations such as oxy-fuel cutting or arc welding may generate copper oxide containing fumes.

### 10.5. Incompatible materials
Strong acids, strong bases, strong oxidizing agents, and strong reductants agents.

### 10.6. Hazardous decomposition products
The element Cu° does not decompose but may be transformed into other metal forms (eg Cu2+)

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

**Acute toxicity**

| Substance | Species | Test | Route of exposure | Result |
|---|---|---|---|---|
| The classification criteria, for copper in massive form and copper powder, according to the regulations EC 1272/2008 and 67/548/EEC on acute toxicity, are not met. | | | | |

**Skin corrosion/irritation**

Copper is not irritating to the skin. Exposure to copper fumes has been associated with discoloration of skin and hair.

**Serious eye damage/irritation**

Copper is not irritating to the eyes. But particles may cause irritation and smarting.

**Respiratory or skin sensitisation**

The classification criteria, for copper in massive form and copper powder, according to the regulations EC 1272/2008 and 67/548/EEC on sensitization are not met.

**Germ cell mutagenicity**

No data available.

**Carcinogenicity**

The classification criteria for copper in massive form and copper powder, according to the regulations EC 1272/2008 and 67/548/EEC on carcinogenicity are thus not met.

**Reproductive toxicity**

The classification criteria for copper in massive form and copper powder, according to the regulations EC 1272/2008 and 67/548/EEC on reproductive toxicity are not met.

**STOT-single exposure**

No data available.

**STOT-repeated exposure**

The classification criteria, for copper in massive form and copper powder, according to the regulations EC 1272/2008 on Specific Target Organ Toxicity are not met.

**Aspiration hazard**

No data available.

**Long term effects**

No special

**Inhalation**

Copper massive has a particle size >10 µm and down-stream uses do not lead to particles with d50 <10µm. Therefore, according to the regulations EC 1272 and 67/548/EEC, these do not meet the criteria for classification as harmful by inhalation.

**Ingestion**

If powdered material is ingested, it may be slightly toxic. Symptoms may include metallic taste, thirst, abdominal pain, vomiting and diarrhea.

## SECTION 12: Ecological information

### 12.1. Toxicity

| Substance | Species | Test | Test duration | Result |
|---|---|---|---|---|
| Based on the assessments copper massive does not meet the classification for acute environmental hazards or chronic aquatic toxicity. | | | | |

### 12.2. Persistence and degradability

| Substance | Biodegradability | Test | Result |
|---|---|---|---|
| Copper | Copper is a natural element and is therefore, by definition, not degradable. | | |

### 12.3. Bioaccumulative potential

| Substance | Potential bioaccumulation | LogPow | BFC |
|---|---|---|---|
| Copper | As an essential nutrient, copper is homeostatically regulated by aquatic organisms and does not pose a concern for bioaccumulation or for secondary poisoning in aquatic food chains. | | |

### 12.4. Mobility in soil

The product is insoluble in water.

The copper-ion binds strongly to the soil matrix.

### 12.5. Results of PBT and vPvB assessment

The substance does not meet the criteria for a PBT or vPvB substance.

### 12.6. Other adverse effects

Copper is not expected to contribute to ozone depletion, ozone formation, global warming or acidification.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

This product is not covered by the regulations on dangerous waste.

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility.

### Waste
EWC code
-

### Specific labelling
-

### Contaminated packing
No specific requirements.

## SECTION 14: Transport information

Not listed as dangerous goods under ADR and IMDG regulations.

### 14.1 – 14.4

**ADR/RID**

**14.1. UN number**

**14.2. UN proper shipping name**

**14.3. Transport hazard class(es)**

**14.4. Packing group**

**Notes**

**Tunnel restriction code**

**IMDG**

**UN-no.**

**Proper Shipping Name**

**Class**

**PG***

**EmS**

**MP****

**Hazardous constituent**

**IATA/ICAO**

**UN-no.**

**Proper Shipping Name**

**Class**

**PG***

### 14.5. Environmental hazards
N/A

### 14.6. Special precautions for user
N/A

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
No data available

(*) Packing group

(**) Marine pollutant

## SECTION 15: Regulatory information

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

### Restrictions for application
-

### Demands for specific education
-

### Additional information
Copper is not a SEVESO substance, not an ozone depleting substance and not a persistent organic pollutant.

### Sources

EC regulation 1907/2006 (REACH)
Directive 2000/532/EC
EC Regulation 1272/2008 (CLP)
EH40/2005

### 15.2. Chemical safety assessment

Yes

## SECTION 16: Other information

### Full text of H-phrases as mentioned in section 3

-

### The full text of identified uses as mentioned in section 1

-

### Other symbols mentioned in section 2

-

### Other

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
A change (in proportion to the last essential change (first cipher in SDS version)) is marked with a blue triangle.

### Emergency numbers

Austria: Poison Control Centre Emergency helpline +43 1 406 43 43, 112
Belgium: 070 - 245 245
Bulgaria: +359 2 9154 409
Czech Republic: Toxikologické informační středisko Telefon: +420 224 919 293, +420 224 915 402
Denmark: Kontakt Giftlinien på tlf.nr.: 82 12 12 12 (åbent 24 timer i døgnet).
Estonia: 112, 16662, ((+372) 626 93 90)
Finland: 09-4711/Myrkytystietokeskus tai suora numero 09-471977 Myrkytystietokeskus/HUS, Tukholmankatu 17, 00029 HUS (Helsinki) 112
France: ORFILA (INRS) : + 33 (0)1 45 42 59 59. 24 heures sur 24 et 7 jours sur 7
Germany: Giftnotruf Berlin, Emergency telephone: +49 30 19240 (Tag und Nacht)
Greece: +30 10 779 3777
Hungary: Telefon: 06-80-20-11-99
Iceland: Neyðarlínan: Sími 112. Eitrunarmiðstöð Landsspítalans. Sími: 543 2222.
Ireland: +353 1 8379964
Italy: Centro antiveleni di Roma - Policlinico Umberto I tel. 06-49978000
Latvia: +371 704 2468
Lithuania: Visuomenės sveikatos centrams +370 5 236 20 52 arba +370 687 53378
Malta: 2425 0000
Netherlands: 30-2748888
Norway: Giftinformasjonssentralen på tlf.nr.: 22 59 13 00, 113
Poland: +48 58301 65 16 / +48 58 349 2831
Portugal: Em caso de intoxicacao, ligue 808 250 143
Romania: +40 21 3183606
Slovakia: +421 2 54 77 4166
Slovenia: + 386 41 650500
Spain: Servicio de Información Toxicológica Teléfono: + 34 91 562 04 20 (solo emergencias toxicológicas) Información en español (24h/365 días)
Sweden: 112, 08-331231 (vardagar kl 9-17)
United Kingdom: 999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service)

### Date of last essential change (First cipher in SDS version)

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### Date of last minor change (Last cipher in SDS version)

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