



COPPER REDUCTION REAGENTS, WIRES, 0.5 X 4MM, OEA

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 18/05/2020 Revision date: 12/02/2024 Supersedes version of: 07/04/2021 Version: 3.0

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

1.1. Product identifier

| | |
|-------------------------------|---|
| Product form | : Substance |
| Substance name | : COPPER REDUCTION REAGENTS, WIRES, 0.5 X 4MM, OEA |
| Chemical name | : granulated copper; [particle length: from 0,9 mm to 6,0 mm; particle width: from 0,494 to 0,949 mm] |
| EC Index-No. | : 029-024-00-X |
| EC-No. | : 231-159-6 |
| CAS-No. | : 7440-50-8 |
| Product code | : R31050 |
| Product group | : End product |
| Other means of identification | : Copper |

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

1.2.1. Relevant identified uses

| | |
|------------------------------|------------------------|
| Main use category | : Professional use |
| Use of the substance/mixture | : Laboratory chemicals |
| Function or use category | : Laboratory chemicals |

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

OEA Labs Ltd
The Generator Quay House The Gallery
Kings Wharf The Quay
EX2 4AN Exeter – Devon
United Kingdom
T +44(0)1579 384174
technical@oelabs.com - oelabs.com

1.4. Emergency telephone number

No additional information available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazardous to the aquatic environment – Chronic Hazard, Category 2 H411
Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Toxic to aquatic life with long lasting effects.



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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS09

Signal word (CLP) :

-

Hazard statements (CLP) :

H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P264 - Wash hands thoroughly after handling.

P391 - Collect spillage.

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type

: Mono-constituent

Name

: COPPER REDUCTION REAGENTS, WIRES, 0.5 X 4MM, OEA

CAS-No.

: 7440-50-8

EC-No.

: 231-159-6

EC Index-No.

: 029-024-00-X

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|--------|---|-----|---|
| COPPER | CAS-No.: 7440-50-8 EC-No.: 231-159-6 EC Index-No.: 029-024-00-X | 100 | Aquatic Acute 1, H400 (M=10) Aquatic Chronic 2, H411 (M=10) |

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation

: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact

: Wash skin with plenty of water.

First-aid measures after eye contact

: Rinse eyes with water as a precaution.

First-aid measures after ingestion

: Call a poison center or a doctor if you feel unwell.

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

No additional information available

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

Treat symptomatically.



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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.
Methods for cleaning up : Mechanically recover the product.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values



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| COPPER REDUCTION REAGENTS, WIRES, 0.5 X 4MM, OEA (7440-50-8) | |
|---|---|
| EU - Indicative Occupational Exposure Limit (IOEL) | |
| Local name | Copper |
| IOEL TWA | 0.01 mg/m ³ (respirable fraction) |
| Remark | (Year of adoption 2014) |
| Regulatory reference | SCOEL Recommendations |
| Austria - Occupational Exposure Limits | |
| Local name | Kupfer und seine Verbindungen |
| MAK (OEL TWA) | 1 mg/m ³ (als Cu berechnet, E) 0.1 mg/m ³ (als Rauch, als Cu berechnet, A) |
| MAK (OEL STEL) | 4 mg/m ³ (als Cu berechnet, E, 4x 15(Miw) min) 0.4 mg/m ³ (als Rauch, als Cu berechnet, A, 4x 15(Miw) min) |
| Regulatory reference | BGBI. II Nr. 156/2021 |
| Belgium - Occupational Exposure Limits | |
| Local name | Cuivre (en Cu) # Koper (als Cu) |
| OEL TWA | 0.2 mg/m ³ (fumées) # (rook) 1 mg/m ³ (poussières et brouillards de) # (stof en nevel) |
| Regulatory reference | Koninklijk besluit/Arrêté royal 11/05/2021 |
| Bulgaria - Occupational Exposure Limits | |
| Local name | Мед |
| OEL TWA | 0.1 mg/m ³ (метални пари (като мед)) 1 mg/m ³ (оксиди и неорганични съединения (като мед)) |
| Regulatory reference | Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.) |
| Croatia - Occupational Exposure Limits | |
| Local name | Bakar |
| GVI (OEL TWA) [1] | 0.2 mg/m ³ dim (kao Cu) 1 mg/m ³ prašina (kao Cu) |
| KGVI (OEL STEL) | 2 mg/m ³ prašina (kao Cu) |
| Regulatory reference | Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021) |
| Czech Republic - Occupational Exposure Limits | |
| Local name | Měď |
| PEL (OEL TWA) | 1 mg/m ³ (prach) (V) 0.1 mg/m ³ (dýmy) (R) |
| NPK-P (OEL C) | 2 mg/m ³ (prach) (V) 0.2 mg/m ³ (dýmy) (R) |
| Remark | V - vdechovatelná frakce aerosolu, R - respirabilní frakce aerosolu. |
| Regulatory reference | Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.) |



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|---|--|
| Denmark - Occupational Exposure Limits | |
| Local name | Kobber |
| OEL TWA [1] | 1 mg/m ³ pulver og støv 0.1 mg/m ³ røg, beregnet som Cu |
| Regulatory reference | BEK nr 202 af 21/02/2023 |
| Estonia - Occupational Exposure Limits | |
| Local name | Vask ja anorgaanilised ühendid (arvutatud vasele) |
| OEL TWA | 1 mg/m ³ kogu tolm 0.2 mg/m ³ peentolm |
| Regulatory reference | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 21.12.2022, 3) |
| Finland - Occupational Exposure Limits | |
| Local name | Kupari, metalli |
| HTP (OEL TWA) [1] | 0.02 mg/m ³ Cu, alveolijae |
| Regulatory reference | HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö) |
| France - Occupational Exposure Limits | |
| Local name | Cuivre |
| VME (OEL TWA) | 0.2 mg/m ³ (fumées) 1 mg/m ³ (poussières), en Cu |
| VLE (OEL C/STEL) | 2 mg/m ³ (poussières), en Cu |
| Remark | Valeurs recommandées/admises |
| Regulatory reference | Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65) |
| Hungary - Occupational Exposure Limits | |
| Local name | RÉZ és vegyületei (Cu-re számítva) |
| AK (OEL TWA) | 0.1 mg/m ³ 0.01 mg/m ³ füst, respirábilis frakció |
| CK (OEL STEL) | 0.2 mg/m ³ |
| Remark | R (Azok az anyagok, amelyek egészségkárosító hatása RÖVID expozíció hatására jelentkezik) |
| Regulatory reference | 5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről |
| Ireland - Occupational Exposure Limits | |
| Local name | Copper (as Cu) |
| OEL TWA [1] | 0.2 mg/m ³ Fume 1 mg/m ³ Dusts and mists |
| Regulatory reference | Chemical Agents Code of Practice 2021 |
| Latvia - Occupational Exposure Limits | |
| Local name | Varš |
| OEL TWA | 0.5 mg/m ³ |
| OEL STEL | 1 mg/m ³ |



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|---|---|
| Regulatory reference | Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 |
| Netherlands - Occupational Exposure Limits | |
| Local name | Koper |
| TGG-8u (OEL TWA) | 0.1 mg/m ³ en anorganische koperverbindingen (inhaleerbaar) |
| Regulatory reference | Arbeidsomstandighedenregeling 2023 |
| Poland - Occupational Exposure Limits | |
| Local name | Miedź i jej związki nieorganiczne |
| NDS (OEL TWA) | 0.2 mg/m ³ w przeliczeniu na Cu |
| Regulatory reference | Dz. U. 2018 poz. 1286 wraz z późn. zm. |
| Portugal - Occupational Exposure Limits | |
| Local name | Cobre |
| OEL TWA | 0.2 mg/m ³ Fumos, expressos em Cu 1 mg/m ³ Poeiras e névoas, expressos em Cu |
| Regulatory reference | Norma Portuguesa NP 1796:2014 |
| Romania - Occupational Exposure Limits | |
| Local name | Cupru |
| OEL TWA | 0.5 mg/m ³ (Pulberi) |
| OEL STEL | 0.2 mg/m ³ (Fumuri) 1.5 mg/m ³ (Pulberi) |
| Regulatory reference | Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021) |
| Slovakia - Occupational Exposure Limits | |
| Local name | Meď a jej anorganické zlúčeniny (ako Cu) |
| NPHV (OEL TWA) [1] | 1 mg/m ³ inhalovateľná frakcia 0.2 mg/m ³ respirabilná frakcia a dymy |
| Regulatory reference | Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.) |
| Spain - Occupational Exposure Limits | |
| Local name | Cobre |
| VLA-ED (OEL TWA) [1] | 0.01 mg/m ³ Fracción respirable |
| Remark | d (Véase UNE EN 481: Atmósferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles). |
| Regulatory reference | Límites de Exposición Profesional para Agentes Químicos en España 2023. INSHT |
| Sweden - Occupational Exposure Limits | |
| Local name | Koppar, och oorg. Föreningar (som Cu) |
| NGV (OEL TWA) | 0.01 mg/m ³ respirabel fraktion |
| Remark | 3 (Den respirabla fraktionen är de inhalerbara partiklar som når längst ner i luftvägarna, till alveolerna i lungorna) |
| Regulatory reference | Hygieniska gränsvärden (AFS 2018:1) |



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|---|---|
| United Kingdom - Occupational Exposure Limits | |
| Local name | Copper |
| WEL TWA (OEL TWA) [1] | 0.2 mg/m ³ fume (as Cu) 1 mg/m ³ and compounds, dusts and mists (as Cu) |
| WEL STEL (OEL STEL) | 2 mg/m ³ and compounds, dusts and mists (as Cu) |
| Regulatory reference | EH40/2005 (Fourth edition, 2020). HSE |
| Iceland - Occupational Exposure Limits | |
| Local name | Kopar |
| OEL TWA | 1 mg/m ³ duft og ryk, (heildaryrk) 0.1 mg/m ³ reykur, sem Cu, (örfínt ryk) |
| Regulatory reference | Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009) |
| Norway - Occupational Exposure Limits | |
| Local name | Kobber |
| Grenseverdi (OEL TWA) [1] | 0.1 mg/m ³ Røyk 1 mg/m ³ Støv |
| Regulatory reference | FOR-2021-06-28-2248 |
| Switzerland - Occupational Exposure Limits | |
| Local name | Cuivre et ses composés inorganiques / Kupfer und seine anorganischen Verbindungen |
| MAK (OEL TWA) [1] | 0.1 mg/m ³ (i) / (e) |
| KZGW (OEL STEL) | 0.2 mg/m ³ (i) / (e) |
| Critical toxicity | Poumons, Fimétal / Lunge, Metallrauch |
| Notation | SS _c / SS _c |
| Remark | NIOSH |
| Regulatory reference | www.suva.ch, 01.01.2023 |
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Copper, as Cu |
| ACGIH OEL TWA | 0.2 mg/m ³ (Fume) 1 mg/m ³ (Dusts and mists) |
| Remark (ACGIH) | TLV® Basis: Irr; GI; metal fume fever |
| Regulatory reference | ACGIH 2024 |
| COPPER (7440-50-8) | |
| EU - Indicative Occupational Exposure Limit (IOEL) | |
| Local name | Copper |
| IOEL TWA | 0.01 mg/m ³ (respirable fraction) |
| Remark | (Year of adoption 2014) |
| Regulatory reference | SCOEL Recommendations |



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| COPPER (7440-50-8) | |
|--|---|
| Austria - Occupational Exposure Limits | |
| Local name | Kupfer und seine Verbindungen |
| MAK (OEL TWA) | 1 mg/m ³ (als Cu berechnet, E) 0.1 mg/m ³ (als Rauch, als Cu berechnet, A) |
| MAK (OEL STEL) | 4 mg/m ³ (als Cu berechnet, E, 4x 15(Miw) min) 0.4 mg/m ³ (als Rauch, als Cu berechnet, A, 4x 15(Miw) min) |
| Regulatory reference | BGBl. II Nr. 156/2021 |
| Belgium - Occupational Exposure Limits | |
| Local name | Cuivre (en Cu) # Koper (als Cu) |
| OEL TWA | 0.2 mg/m ³ (fumées) # (rook) 1 mg/m ³ (poussières et brouillards de) # (stof en nevel) |
| Regulatory reference | Koninklijk besluit/Arrêté royal 11/05/2021 |
| Bulgaria - Occupational Exposure Limits | |
| Local name | Мед |
| OEL TWA | 0.1 mg/m ³ (метални пари (като мед)) 1 mg/m ³ (оксиди и неорганични съединения (като мед)) |
| Regulatory reference | Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 47 от 2021 г., в сила от 04.06.2021 г.) |
| Croatia - Occupational Exposure Limits | |
| Local name | Bakar |
| GVI (OEL TWA) [1] | 0.2 mg/m ³ dim (kao Cu) 1 mg/m ³ prašina (kao Cu) |
| KGVI (OEL STEL) | 2 mg/m ³ prašina (kao Cu) |
| Regulatory reference | Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021) |
| Czech Republic - Occupational Exposure Limits | |
| Local name | Měď |
| PEL (OEL TWA) | 1 mg/m ³ (prach) (V) 0.1 mg/m ³ (dýmy) (R) |
| NPK-P (OEL C) | 2 mg/m ³ (prach) (V) 0.2 mg/m ³ (dýmy) (R) |
| Remark | V - vdechovatelná frakce aerosolu, R - respirabilní frakce aerosolu. |
| Regulatory reference | Nařízení vlády č. 361/2007 Sb. (Předpis 195/2021 Sb.) |
| Denmark - Occupational Exposure Limits | |
| Local name | Kobber |
| OEL TWA [1] | 1 mg/m ³ pulver og støv 0.1 mg/m ³ røg, beregnet som Cu |
| Regulatory reference | BEK nr 1054 af 28/06/2022 |



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| Estonia - Occupational Exposure Limits | |
| Local name | Vask ja anorgaanilised ühendid (arvutatud vasele) |
| OEL TWA | 1 mg/m ³ kogu tolm 0.2 mg/m ³ peentolm |
| Regulatory reference | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 15.05.2021, 1) |
| Finland - Occupational Exposure Limits | |
| Local name | Kupari, metalli |
| HTP (OEL TWA) [1] | 0.02 mg/m ³ Cu, alveolijae |
| Regulatory reference | HTP-ARVOT 2020 (Sosiaali- ja terveysministeriö) |
| France - Occupational Exposure Limits | |
| Local name | Cuivre |
| VME (OEL TWA) | 0.2 mg/m ³ (fumées) 1 mg/m ³ (poussières), en Cu |
| VLE (OEL C/STEL) | 2 mg/m ³ (poussières), en Cu |
| Remark | Valeurs recommandées/admises |
| Regulatory reference | Circulaire du Ministère du travail (réf.: INRS ED 984, 2016) |
| Hungary - Occupational Exposure Limits | |
| Local name | RÉZ és vegyületei (Cu-re számítva) |
| AK (OEL TWA) | 0.1 mg/m ³ 0.01 mg/m ³ füst, respirábilis frakció |
| CK (OEL STEL) | 0.2 mg/m ³ |
| Remark | R (Azok az anyagok, amelyek egészségkárosító hatása RÖVID expozíció hatására jelentkezik) |
| Regulatory reference | 5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről |
| Ireland - Occupational Exposure Limits | |
| Local name | Copper (as Cu) |
| OEL TWA [1] | 0.2 mg/m ³ Fume 1 mg/m ³ Dusts and mists |
| Regulatory reference | Chemical Agents Code of Practice 2021 |
| Latvia - Occupational Exposure Limits | |
| Local name | Varš |
| OEL TWA | 0.5 mg/m ³ |
| OEL STEL | 1 mg/m ³ |
| Regulatory reference | Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 |
| Netherlands - Occupational Exposure Limits | |
| Local name | Koper |
| TGG-8u (OEL TWA) | 0.1 mg/m ³ en anorganische koperverbindingen (inhaleerbaar) |



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| COPPER (7440-50-8) | |
|--|---|
| Regulatory reference | Arbetsomstandighedenregeling 2023 |
| Poland - Occupational Exposure Limits | |
| Local name | Miedź i jej związki nieorganiczne |
| NDS (OEL TWA) | 0.2 mg/m ³ w przeliczeniu na Cu |
| Regulatory reference | Dz. U. 2018 poz. 1286 |
| Portugal - Occupational Exposure Limits | |
| Local name | Cobre |
| OEL TWA | 0.2 mg/m ³ Fumos, expressos em Cu 1 mg/m ³ Poeiras e névoas, expressos em Cu |
| Regulatory reference | Norma Portuguesa NP 1796:2014 |
| Romania - Occupational Exposure Limits | |
| Local name | Cupru |
| OEL TWA | 0.5 mg/m ³ (Pulberi) |
| OEL STEL | 0.2 mg/m ³ (Fumuri) 1.5 mg/m ³ (Pulberi) |
| Regulatory reference | Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 53/2021) |
| Slovakia - Occupational Exposure Limits | |
| Local name | Meď a jej anorganické zlúčeniny (ako Cu) |
| NPHV (OEL TWA) [1] | 1 mg/m ³ inhalovateľná frakcia 0.2 mg/m ³ respirabilná frakcia a dymy |
| Regulatory reference | Nariadenie vlády č. 355/2006 Z. z. (236/2020 Z. z.) |
| Spain - Occupational Exposure Limits | |
| Local name | Cobre |
| VLA-ED (OEL TWA) [1] | 0.01 mg/m ³ Fracción respirable |
| Remark | d (Véase UNE EN 481: Atmósferas en los puestos de trabajo. Definición de las fracciones por el tamaño de las partículas para la medición de aerosoles). |
| Regulatory reference | Límites de Exposición Profesional para Agentes Químicos en España 2023. INSHT |
| Sweden - Occupational Exposure Limits | |
| Local name | Koppar, och oorg. Föreningar (som Cu) |
| NGV (OEL TWA) | 0.01 mg/m ³ respirabel fraktion |
| Remark | 3 (Den respirabla fraktionen är de inhälerbara partiklar som når längst ner i luftvägarna, till alveolerna i lungorna) |
| Regulatory reference | Hygieniska gränsvärden (AFS 2018:1) |
| United Kingdom - Occupational Exposure Limits | |
| Local name | Copper |
| WEL TWA (OEL TWA) [1] | 0.2 mg/m ³ fume (as Cu) 1 mg/m ³ and compounds, dusts and mists (as Cu) |
| WEL STEL (OEL STEL) | 2 mg/m ³ and compounds, dusts and mists (as Cu) |



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| COPPER (7440-50-8) | |
|---|---|
| Regulatory reference | EH40/2005 (Fourth edition, 2020). HSE |
| Iceland - Occupational Exposure Limits | |
| Local name | Kopar |
| OEL TWA | 1 mg/m ³ duft og ryk, (heildaryrk) 0.1 mg/m ³ reykur, sem Cu, (örfínt ryk) |
| Regulatory reference | Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009) |
| Norway - Occupational Exposure Limits | |
| Local name | Kobber |
| Grenseverdi (OEL TWA) [1] | 0.1 mg/m ³ Røyk 1 mg/m ³ Støv |
| Regulatory reference | FOR-2021-06-28-2248 |
| Switzerland - Occupational Exposure Limits | |
| Local name | Cuivre et ses composés inorganiques / Kupfer und seine anorganischen Verbindungen |
| MAK (OEL TWA) [1] | 0.1 mg/m ³ (i) / (e) |
| KZGW (OEL STEL) | 0.2 mg/m ³ (i) / (e) |
| Critical toxicity | Poumons, Fimétal / Lunge, Metallrauch |
| Notation | SS _c / SS _c |
| Remark | NIOSH |
| Regulatory reference | www.suva.ch, 01.01.2023 |

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

| COPPER REDUCTION REAGENTS, WIRES, 0.5 X 4MM, OEA (7440-50-8) | |
|---|----------------------------|
| DNEL/DMEL (Workers) | |
| Acute - systemic effects, dermal | 273 mg/kg bodyweight/day |
| Acute - local effects, inhalation | 1 mg/m ³ |
| Long-term - systemic effects, dermal | 137 mg/kg bodyweight/day |
| Long-term - local effects, inhalation | 1 mg/m ³ |
| DNEL/DMEL (General population) | |
| Acute - systemic effects, dermal | 273 mg/kg bodyweight/day |
| Acute - local effects, inhalation | 1 mg/m ³ |
| Long-term - systemic effects, oral | 0.041 mg/kg bodyweight/day |
| Long-term - systemic effects, dermal | 137 mg/kg bodyweight/day |
| Long-term - local effects, inhalation | 1 mg/m ³ |



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|--|---------------|
| PNEC (Water) | |
| PNEC aqua (freshwater) | 7.8 µg/l |
| PNEC aqua (marine water) | 5.2 µg/l |
| PNEC (Sediment) | |
| PNEC sediment (freshwater) | 87 mg/kg dwt |
| PNEC sediment (marine water) | 676 mg/kg dwt |
| PNEC (Soil) | |
| PNEC soil | 65 mg/kg dwt |
| PNEC (STP) | |
| PNEC sewage treatment plant | 230 µg/l |

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.



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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|--|
| Physical state | : Solid |
| Colour | : Orange. |
| Molecular mass | : 63.546 g/mol Source: HSDB |
| Odour | : odourless. |
| Odour threshold | : Not available |
| Melting point | : > 600 °C Atm. press.: 1 Bar Decomposition: 'yes' Decomp. temp.: 230 °C |
| Freezing point | : Not applicable |
| Boiling point | : 2595 °C Source: HSDB |
| Flammability | : Non flammable. |
| Explosive limits | : Not applicable |
| Lower explosion limit | : Not applicable |
| Upper explosion limit | : Not applicable |
| Flash point | : Not applicable |
| Auto-ignition temperature | : > 1059 °C Source: ECHA |
| Decomposition temperature | : Not available |
| pH | : Not available |
| pH solution | : Not available |
| Viscosity, kinematic | : Not applicable |
| Solubility | : Water: < 1 mg/l at 30°C Source: ECHA |
| Partition coefficient n-octanol/water (Log Kow) | : Not available |
| Partition coefficient n-octanol/water (Log Pow) | : -0.57 Source: EPISUITE |
| Vapour pressure | : Not available |
| Vapour pressure at 50°C | : Not available |
| Density | : Not available |
| Relative density | : 8.94 Source: HSDB |
| Relative vapour density at 20°C | : Not applicable |
| Particle size | : Not available |

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available



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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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified
 Acute toxicity (dermal) : Not classified
 Acute toxicity (inhalation) : Not classified

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| | |
|-----------------------|--|
| LD50 oral rat | 300 – 500 mg/kg Source: ECHA |
| LD50 dermal rat | > 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OTS 798.1100 (Acute Dermal Toxicity), Guideline: other: |
| LC50 Inhalation - Rat | > 5.11 mg/l air Animal: rat, Guideline: OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class Method) |

Skin corrosion/irritation : Not classified
 Serious eye damage/irritation : Not classified
 Respiratory or skin sensitisation : Not classified
 Germ cell mutagenicity : Not classified
 Carcinogenicity : Not classified
 Reproductive toxicity : Not classified
 STOT-single exposure : Not classified
 STOT-repeated exposure : Not classified
 Aspiration hazard : Not classified

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| | |
|----------------------|----------------|
| Viscosity, kinematic | Not applicable |
|----------------------|----------------|

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.
 Hazardous to the aquatic environment, short-term (acute) : Not classified
 Hazardous to the aquatic environment, long-term (chronic) : Toxic to aquatic life with long lasting effects.
 Not rapidly degradable

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| | |
|------------------------------------|-----------|
| LC50 - Fish [1] | 0.15 mg/l |
| EC50 - Other aquatic organisms [1] | 0.04 mg/l |

12.2. Persistence and degradability

No additional information available



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12.3. Bioaccumulative potential

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| | |
|---|------------------------|
| Partition coefficient n-octanol/water (Log Pow) | -0.57 Source: EPISUITE |
|---|------------------------|

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods






Waste treatment methods

HP Code

- : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- : HP14 - "Ecotoxic:" waste which presents or may present immediate or delayed risks for one or more sectors of the environment

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

| ADR | IMDG | IATA | ADN | RID |
|---|---|---|--|---|
| 14.1. UN number or ID number | | | | |
| UN 3077 | UN 3077 | UN 3077 | UN 3077 | UN 3077 |
| 14.2. UN proper shipping name | | | | |
| ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER) | Environmentally hazardous substance, solid, n.o.s. (COPPER) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER) |
| Transport document description | | | | |
| UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER), 9, III, (-) | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER), 9, III, MARINE POLLUTANT | UN 3077 Environmentally hazardous substance, solid, n.o.s. (COPPER), 9, III | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER), 9, III | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (COPPER), 9, III |
| 14.3. Transport hazard class(es) | | | | |
| 9 | 9 | 9 | 9 | 9 |
|  |  |  |  |  |



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| ADR | IMDG | IATA | ADN | RID |
|--|---|------------------------------------|------------------------------------|------------------------------------|
| 14.4. Packing group | | | | |
| III | III | III | III | III |
| 14.5. Environmental hazards | | | | |
| Dangerous for the environment: Yes | Dangerous for the environment: Yes Marine pollutant: Yes | Dangerous for the environment: Yes | Dangerous for the environment: Yes | Dangerous for the environment: Yes |
| No supplementary information available | | | | |

14.6. Special precautions for user

Overland transport

| | |
|---|---|
| Classification code (ADR) | : M7 |
| Special provisions (ADR) | : 274, 335, 375, 601 |
| Limited quantities (ADR) | : 5kg |
| Excepted quantities (ADR) | : E1 |
| Packing instructions (ADR) | : P002, IBC08, LP02, R001 |
| Special packing provisions (ADR) | : PP12, B3 |
| Mixed packing provisions (ADR) | : MP10 |
| Portable tank and bulk container instructions (ADR) | : T1, BK1, BK2, BK3 |
| Portable tank and bulk container special provisions (ADR) | : TP33 |
| Tank code (ADR) | : SGAV, LGBV |
| Vehicle for tank carriage | : AT |
| Transport category (ADR) | : 3 |
| Special provisions for carriage - Packages (ADR) | : V13 |
| Special provisions for carriage - Bulk (ADR) | : VC1, VC2 |
| Special provisions for carriage - Loading, unloading and handling (ADR) | : CV13 |
| Hazard identification number (Kemler No.) | : 90 |
| Orange plates | :  |

| | |
|-------------------------------|------|
| Tunnel restriction code (ADR) | : - |
| EAC code | : 2Z |

Transport by sea

| | |
|-----------------------------------|---------------------------|
| Special provisions (IMDG) | : 274, 335, 966, 967, 969 |
| Limited quantities (IMDG) | : 5 kg |
| Excepted quantities (IMDG) | : E1 |
| Packing instructions (IMDG) | : LP02, P002 |
| Special packing provisions (IMDG) | : PP12 |
| IBC packing instructions (IMDG) | : IBC08 |
| IBC special provisions (IMDG) | : B3 |
| Tank instructions (IMDG) | : BK1, BK2, BK3, T1 |
| Tank special provisions (IMDG) | : TP33 |
| EmS-No. (Fire) | : F-A |
| EmS-No. (Spillage) | : S-F |
| Stowage category (IMDG) | : A |
| Stowage and handling (IMDG) | : SW23 |

Air transport

| | |
|--------------------------------|--------|
| PCA Excepted quantities (IATA) | : E1 |
| PCA Limited quantities (IATA) | : Y956 |



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| | |
|--|-------------------------------|
| PCA limited quantity max net quantity (IATA) | : 30kgG |
| PCA packing instructions (IATA) | : 956 |
| PCA max net quantity (IATA) | : 400kg |
| CAO packing instructions (IATA) | : 956 |
| CAO max net quantity (IATA) | : 400kg |
| Special provisions (IATA) | : A97, A158, A179, A197, A215 |
| ERG code (IATA) | : 9L |

Inland waterway transport

| | |
|---------------------------------------|--|
| Classification code (ADN) | : M7 |
| Special provisions (ADN) | : 274, 335, 375, 601 |
| Limited quantities (ADN) | : 5 kg |
| Excepted quantities (ADN) | : E1 |
| Carriage permitted (ADN) | : T* B** |
| Equipment required (ADN) | : PP, A*** |
| Number of blue cones/lights (ADN) | : 0 |
| Additional requirements/Remarks (ADN) | : * Only in the molten state. ** For carriage in bulk see also 7.1.4.1. *** Only in the case of transport in bulk. |

Rail transport

| | |
|---|---------------------------|
| Classification code (RID) | : M7 |
| Special provisions (RID) | : 274, 335, 375, 601 |
| Limited quantities (RID) | : 5kg |
| Excepted quantities (RID) | : E1 |
| Packing instructions (RID) | : P002, IBC08, LP02, R001 |
| Special packing provisions (RID) | : PP12, B3 |
| Mixed packing provisions (RID) | : MP10 |
| Portable tank and bulk container instructions (RID) | : T1, BK1, BK2, BK3 |
| Portable tank and bulk container special provisions (RID) | : TP33 |
| Tank codes for RID tanks (RID) | : SGAV, LGBV |
| Transport category (RID) | : 3 |
| Special provisions for carriage – Packages (RID) | : W13 |
| Special provisions for carriage – Bulk (RID) | : VC1, VC2 |
| Special provisions for carriage - Loading, unloading and handling (RID) | : CW13, CW31 |
| Colis express (express parcels) (RID) | : CE11 |
| Hazard identification number (RID) | : 90 |

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)



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POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG).
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).

Water hazard class (WGK) : WGK 2, Significantly hazardous to water (Classification according to AwSV; ID No. 9697).

Storage class (LGK, TRGS 510) : LGK 13 - Non-combustible solids.

Joint storage table :

| | | | | |
|----------|---------|----------|----------|-----------|
| LGK 1 | LGK 2A | LGK 2B | LGK 3 | LGK 4.1A |
| LGK 4.1B | LGK 4.2 | LGK 4.3 | LGK 5.1A | LGK 5.1B |
| LGK 5.1C | LGK 5.2 | LGK 6.1A | LGK 6.1B | LGK 6.1C |
| LGK 6.1D | LGK 6.2 | LGK 7 | LGK 8A | LGK 8B |
| LGK 10 | LGK 11 | LGK 12 | LGK 13 | LGK 10-13 |

Joint storage not permitted for : LGK 1, LGK 6.2, LGK 7.

Joint storage with restrictions permitted for : LGK 4.1A, LGK 5.1C.

Joint storage permitted for : LGK 2A, LGK 2B, LGK 3, LGK 4.1B, LGK 4.2, LGK 4.3, LGK 5.1A, LGK 5.1B, LGK 5.2, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 11, LGK 12, LGK 13, LGK 10-13.

Hazardous Incident Ordinance (12. BImSchV) : Is not subject to the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

ABM category : A(2) - toxic for aquatic organisms, may have longterm hazardous effects in aquatic environment

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed

SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed

SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Switzerland

Storage class (LK) : LK 11/13 - Solids

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

| | |
|-----|---|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |



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| Abbreviations and acronyms: | |
|-----------------------------|--|
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BLV | Biological limit value |
| BOD | Biochemical oxygen demand (BOD) |
| COD | Chemical oxygen demand (COD) |
| DMEL | Derived Minimal Effect level |
| DNEL | Derived-No Effect Level |
| EC-No. | European Community number |
| EC50 | Median effective concentration |
| EN | European Standard |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| LOAEL | Lowest Observed Adverse Effect Level |
| NOAEC | No-Observed Adverse Effect Concentration |
| NOAEL | No-Observed Adverse Effect Level |
| NOEC | No-Observed Effect Concentration |
| OECD | Organisation for Economic Co-operation and Development |
| OEL | Occupational Exposure Limit |
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| STP | Sewage treatment plant |
| ThOD | Theoretical oxygen demand (ThOD) |
| TLM | Median Tolerance Limit |
| VOC | Volatile Organic Compounds |
| CAS-No. | Chemical Abstract Service number |
| N.O.S. | Not Otherwise Specified |
| vPvB | Very Persistent and Very Bioaccumulative |
| ED | Endocrine disrupting properties |

| Full text of H- and EUH-statements: | |
|-------------------------------------|---|
| Aquatic Acute 1 | Hazardous to the aquatic environment – Acute Hazard, Category 1 |



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Full text of H- and EUH-statements:

| | |
|-------------------|---|
| Aquatic Chronic 2 | Hazardous to the aquatic environment – Chronic Hazard, Category 2 |
| H400 | Very toxic to aquatic life. |
| H411 | Toxic to aquatic life with long lasting effects. |

The classification complies with : ATP 12

Safety Data Sheet (SDS)_OEA, EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.