

TC70969 - COPPER (II) SULPHATE 5-hydrate puriss.

Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878 and to Annex II to UK REACH

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

1.1. Product identifier

Code:	TC70969
Product name	COPPER (II) SULPHATE 5-hydrate puriss.
INDEX number	029-023-00-4
EC number	231-847-6
CAS number	7758-99-8
Registration Number	01-2119520566-40-xxxx

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

Identified Uses	Industrial	Professional	Consumer
Laboratory reagent	✓	-	-

1.3. Details of the supplier of the safety data sheet

Name	TITOLCHIMICA SPA
Full address	VIA S.PIETRO MARTIRE 1054
District and Country	45030 PONTECCHIO POLESINE (RO) ITALIA
	Tel. +39425492644

e-mail address of the competent person

responsible for the Safety Data Sheet Supplier:	utecnico@titolchimica.it TITOLCHIMICA SPA
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1.4. Emergency telephone number

For urgent inquiries refer to

Pavia - National Center for Toxicological Information 0382/24444;
 Milan - Hosp. Niguarda Ca' Granda 02/66101029;
 Bergamo - Hosp. "Pope John XXIII" 800/883300;
 Verona - Hosp. Integrated Verona 800/011858
 Florence - Hosp. "Careggi" U.O. Medical Toxicology 055/7947819;
 Rome - "A. Gemelli" Polyclinic 06/3054343;
 Rome - "Umberto I" Polyclinic 06/49978000;
 Rome - "Bambino Gesù Pediatric Hospital" 06/68593726
 Naples - Hosp. "A. Cardarelli" 081/5453333;
 Foggia - Hosp. University of Foggia 800/183459

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Acute toxicity, category 4	H302	Harmful if swallowed.
Serious eye damage, category 1	H318	Causes serious eye damage.
Hazardous to the aquatic environment, acute toxicity, category 1	H400	Very toxic to aquatic life.
Hazardous to the aquatic environment, chronic toxicity, category 1	H410	Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

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Hazard pictograms:



Signal words: Danger

Hazard statements:

H302 Harmful if swallowed.
H318 Causes serious eye damage.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P264 Wash hands thoroughly after use.
P273 Avoid release to the environment.
P280 Wear eye protection / face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER / doctor.
P391 Collect spillage.

Contains: Cupric sulphate

INDEX 029-023-00-4

2.3. Other hazards

The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).

The substance does not have endocrine disrupting properties.

SECTION 3. Composition/information on ingredients
3.1. Substances

Contains:

Identification	Conc. %	Classification (EC) 1272/2008 (CLP)
Cupric sulphate		
INDEX 029-023-00-4	100	Acute Tox. 4 H302, Eye Dam. 1 H318, Aquatic Acute 1 H400 M=10, Aquatic Chronic 1 H410 M=1
EC 231-847-6		LD50 Oral: 482 mg/kg
CAS 7758-99-8		
REACH Reg. 01-2119520566-40-xxxx		

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures
4.1. Description of first aid measures

If in doubt or if you experience symptoms, contact a doctor and show him this safety data sheet. In case of serious symptoms, contact medical help.

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Contact a POISON CENTER to obtain toxicological advice for the clinical management of poisoning.

Inhalation.

If inhaled, reduce exposure by using adequate ventilation. Move the casualty to fresh air and keep him in a position to facilitate breathing. Call a doctor or POISON CENTER.

Ingestion

If ingested, immediately contact a POISON CENTER or doctor. Show him the safety data sheet and the product label immediately. Do not give anything orally to the victim if he is unconscious.

Skin contact.

Remove contaminated clothing and wash with soap and water. In case of irritation, contact a doctor or POISON CENTER immediately.

Eye contact

Wash immediately for at least 30-60 minutes with water. Rinse with plenty of water. Contact a doctor or POISON CENTER immediately.

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

Acute dose-dependent effects.

Skin: irritation, sensitization

Eyes: irritation

Lungs: irritation

Gastrointestinal system: if ingested nausea, vomiting, abdominal colic, melaena

Chronic effects.

Skin: irritation, sensitization

Eyes: irritation

Nose: irritation

Lungs: irritation, asthma, pulmonary granulomatosis

Liver: liver damage

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

Useful antidote: give Methylene blue if methemoglobinemia, BAL, DMPS, EDTA and d-penicillamine Urgent medical intervention Jaundice and hemolysis may appear after 5-6 hours Symptoms of liver failure may appear after 3-4 days .

SECTION 5. Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media

The substance is not classified as flammable according to the criteria of Regulation (EC) n. 1272/2008 (CLP) (and subsequent amendments and adjustments) and non-combustible.

Use the most suitable extinguishing media for the specific situation (CO₂, foam, nebulized water), assessing their compatibility with the possible presence of other substances on the fire site.

Unsuitable extinguishing media

The substance does not present particular risks in relation to the extinguishing media used, however do not use direct jets of water which can give rise to phenomena of product spreading with consequent risk of environmental contamination. Prevent the product and any contaminated water used for extinguishing from reaching rivers or other watercourses, aquifers or sewers.

5.2. Special hazards arising from the substance or mixture

If heated or in case of fire, the product may give off toxic fumes: sulfur oxides SO_x.

5.3. Advice for firefighters

EQUIPMENT

Normal fire fighting clothing such as an open-air compressor (EN 137), full flame retardant (EN469), flame retardant gloves (EN 659) and boots for firefighters (HO A29 or A30). Thermal decomposition can lead to the release of irritating gases and vapors.

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

For those who intervene directly

Remove all personnel not adequately equipped to deal with the emergency from the area.

Adopt adequate personal protective equipment (see Section 8) and refer to internal emergency management procedures, where applicable.

Avoid breathing any dust dispersed in the air by using suitable respiratory protection. Make the accident area accessible to workers only after reclamation

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has been completed. Suitably ventilate the premises.

For those who do not intervene directly

Alert the personnel in charge of managing such emergencies. Move away from the accident area if you do not have the personal protective equipment listed in Section 8.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Stop the leak if it is possible to do it safely, collect the spilled material with suitable mechanical means and dispose of it in compliance with the regulations in force.

Spill Clean Up Methods: Cover the product with inert material (sand or earth) and remove all product from the area. Sweep into closed, clean, dry, clearly identified containers and remove from area. Do not use jets of water to clean the contaminated area in order to prevent product spreading phenomena with consequent risk of environmental contamination.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid the formation of dust dispersed in the air. Do not breathe dust.

Use in a well-ventilated place wearing appropriate respiratory protection devices. Do not eat, drink or smoke when using. After use, close the packaging hermetically. Avoid contact with skin and eyes by wearing gloves, work clothing and protective glasses.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store the containers sealed, in a well ventilated place, away from direct sunlight. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory references:

TLV-ACGIH

ACGIH 2022

Cupric sulphate
Threshold Limit Value

Type	Country	TWA/8h	STEL/15min	Remarks / Observations
		mg/m3	ppm	
		mg/m3	ppm	
TLV-ACGIH		1		come Cu (ACGIH 2014)
Predicted no-effect concentration - PNEC				
Normal value in fresh water			0,008	mg/l
Normal value in marine water			0,0052	mg/l
Normal value for fresh water sediment			87	mg/kg

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Normal value for marine water sediment	676	mg/kg
Normal value of STP microorganisms	0,23	mg/l
Normal value for the terrestrial compartment	65	mg/kg

Health - Derived no-effect level - DNEL / DMEL								
Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral								0,04 mg/kg bw/d
Inhalation								1 mg/Cu/m3
Skin					1 mg/kg bw/d			13,7 mg/kg bw/d

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION

In the case of prolonged contact with the product, protect the hands with penetration-resistant work gloves (see standard EN 374).

Work glove material must be chosen according to the use process and the products that may form. Latex gloves may cause sensitivity reactions.

SKIN PROTECTION

Wear category I professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN 166).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

RESPIRATORY PROTECTION

None required, unless indicated otherwise in the chemical risk assessment.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	crystalline solid	

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Colour	light blue	
Odour	odourless	
Melting point / freezing point	not applicable	the substance decomposes at $T \geq 110^{\circ}\text{C}$
Initial boiling point	not applicable	the substance decomposes at $T \geq 110^{\circ}\text{C}$
Flammability	not flammable	
Lower explosive limit	not applicable	
Upper explosive limit	not applicable	
Flash point	not applicable	
Auto-ignition temperature	not applicable	
Decomposition temperature	$> 110^{\circ}\text{C}$	
pH	3.5 - 4.5	50 g/l, H_2O , 20°C
Kinematic viscosity	not applicable	
Dynamic viscosity	not applicable	
Solubility	in water 220 g/l	
Partition coefficient: n-octanol/water	not applicable	
Vapour pressure	not available	
Density and/or relative density	2,284	
Relative vapour density	not available	
Particle characteristics	not available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

Molecular weight g/mol	249,7	
Explosive properties	Not applicable (absence of chemical groups associated with explosive properties in accordance with the provisions of Annex I, Part 2, Chapter 2.1.4.3 of Reg. (EC) 1272/2008 - CLP).	
Oxidising properties	not oxidising	Remark:(judgment based on experience: high activation energy for oxidation and high stability of the S-O bonds of the sulfate ion)

SECTION 10. Stability and reactivity

In the absence of information on the mixture, the literature information on the components is reported. This information is not characteristic of the solution but of the dangerous components.

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid

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None in particular. However the usual precautions used for chemical products should be respected.

10.5. Incompatible materials

Strong acids.

10.6. Hazardous decomposition products

As a consequence of thermal decomposition, dangerous products can be formed: sulfur oxides. Decomposes with loss of water of hydration.

SECTION 11. Toxicological information
11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008
Metabolism, toxicokinetics, mechanism of action and other information

Comparative bioavailability, solubility and toxicity studies have shown that relatively insoluble copper and poorly soluble copper chloride are less bioavailable than more soluble copper salts, such as copper sulfate.

-Absorption

Copper is an essential element and therefore its concentration in the body is strictly regulated by homeostatic mechanisms.

-Oral absorption

Absorption factor: 25% (Studies in rats)

-Skin absorption and skin penetration. A dermal absorption of 0.3% has been adopted for soluble and insoluble forms of copper in solution or suspension, based on in-vitro percutaneous tests with human skin. For exposure as such (i.e. of the compound neither in solution nor in suspension), a dermal absorption value of 0.03% applies.

- Inhalation

The "respirable" fraction is 100% absorbed.

The absorption of the inhalable fraction depends on the size of the particles, which is quantified by the MPPD (Multiple Path Model of Particle Deposition, Asharian and Freijer, 1999).

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

Cupric sulphate

Acute toxicity, category 4. Harmful if swallowed.

Oral toxicity.

Based on the LD50 values and considering the criteria established by the CLP regulation, Annex I, the Acute Tox classification is assigned to copper sulphate pentahydrate. 4 H302, acute oral toxicant.

Inhalation toxicity.

The available data based on the particle size distribution of Copper Sulphate Pentahydrate demonstrate that there is no possibility of exposure via the inhalation route. Therefore the classification criteria for this hazard class are not met.

Dermal toxicity.

The data on the acute cutaneous toxicity of copper sulphate pentahydrate are not such as to classify the substance toxic for the cutaneous route.

LD50 (Dermal): > 2000 mg/kg ratto (OECD 402)
 LD50 (Oral): 482 mg/kg ratto (OECD 401)

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Does not meet the classification criteria for this hazard class

The copper sulphate skin corrosion/irritation data does not meet the classification criteria for this hazard class.

Method: OECD 404 (Acute Dermal Irritation/Corrosion, Rabbit – 3 animals)

Results: Non-irritating

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

The data presented indicate that Copper Sulphate Pentahydrate is classified as Eye Dam 1 H318.

Method: OECD 405 (Acute Eye Irritation/Corrosion, Rabbit (New Zealand White) 3 animals)

Results: Severely irritating. Irreversible damage during the duration of the test.

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

Respiratory sensitization

Respiratory sensitization data are not sufficient to classify Copper Sulfate Pentahydrate as a respiratory sensitizer.

Skin sensitization

Sensitization data are conclusive but not sufficient to classify Copper Sulphate Pentahydrate as a skin sensitizer.

Method: OECD 406 (Skin Sensitisation, Guinea pig)

Results: Non Sensitizing

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

The mutagenicity data are conclusive but not sufficient to be able to classify Copper Sulphate Pentahydrate according to this hazard class.

Live data:

Method: OECD 486 Unscheduled DNA synthesis (DNA damage and/or repair) Male rats

Test results (genotoxicity): negative.

Method: Mouse (CD-1) male/female

EU Method B.12 (Mutagenicity - In Vivo Mammalian Erythrocyte Micronucleus Test) (Cited as Directive 2000/32/EC, B.12)

Test results (genotoxicity): negative (male/female)

In vitro data:

Method: Bacterial reverse mutation assay OECD 471

Results: Negative

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Using the weight of evidence approach, it can be seen that the carcinogenicity data on copper compounds are conclusive but not sufficient to classify copper sulphate pentahydrate according to this hazard class.

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

Reproductive toxicity data are conclusive but not sufficient to classify Copper Sulphate Pentahydrate according to this hazard class.

Method: OECD 416 (Rat)

Results: NOAEL > 1500ppm

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Tested substance: Copper sulphate Pentahydrate.

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

There is no evidence of target organ toxicity (STOT) - single exposure for copper sulfate pentahydrate.

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

The specific toxicity data for target organs (STOT) - repeated exposure, are conclusive, but not sufficient to be able to classify Copper Sulphate Pentahydrate according to this hazard class.

Method: Rats and mice (repeated dose for 90 days). Method Equivalent to EU Method B.26

Results: damage to soon miss

NOAEL 16.7 Cu/kg bw/day (rats) NOAEL 97 Cu/kg bw/day - mice (males);

NOAEL 126 Cu/kg bw/day – mice (female).

Liver and kidney damage

NOAEL 16.7 Cu/kg bw/day (rats)

Tested substance: Copper sulphate Pentahydrate.

This study was used for the calculation of the DNEL (oral and systemic) of 0.041 mg Cu/kg/bw/day (assuming a Safety Factor of 100 and an oral absorption of 25%).

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the substance is not listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

This product is dangerous for the environment and highly toxic for aquatic organisms. In the long term, it have negative effects on aquatic environment.

12.1. Toxicity

Acute aquatic toxicity data and classification:

The acute toxicity of copper ions was evaluated using 451 L(E)C50 values from studies performed on soluble copper compounds. An L(E)C50 of 25.0 µg Cu/L (referred to the geometric mean) obtained on Daphnia magna at pH 5.5-6.5 is the lowest species-specific value.

Copper sulphate pentahydrate is classified as very toxic to aquatic organisms.

Copper is an essential nutrient regulated by homeostatic mechanisms which is not subject to bioaccumulation phenomena. Bioavailable copper ions are rapidly eliminated from the water column.

Long-term toxicity

Chronic freshwater toxicity and derivation of PNEC data

The chronic toxicity of copper ions deriving from soluble copper compounds is estimated by taking into consideration the values of 139 NOEC/EC10 of 27 species representative of different trophic levels (fish, invertebrates and algae). The species-specific NOEC values were normalized using Biotic Ligand models and used to derive the Species Sensitivity Distribution (SSD) and the corresponding lowest HC5 safeguard concentration value (the median fifth percentile of the SSD) of 7.8 µg Cu dissolved /L.

This value is considered to be 90% protective for European surface waters and represents a reasonable worst case. A chronic freshwater PNEC value of 7.8 µg dissolved Cu/L was established, applying an assessment factor of 1, for local risk estimation.

Chronic toxicity to sea water and derivation of PNEC data

The chronic toxicity of copper ions deriving from soluble copper compounds is estimated by taking into consideration the values of 51 NOEC/EC10 of 24 species representative of the different trophic levels (fish, invertebrates and algae).

Species-specific NOEC values were calculated after normalization for the amount of dissolved organic carbon (DOC) and was used to derive SSD and HC5 values. The normalization relative to a typical coastal waters DOC of 2 mg/l resulted in a HC5 of 5.2 µg dissolved Cu/L.

A chronic PNEC value for seawater of 5.2 µg dissolved Cu/L was established, applying an assessment factor of 1, for local risk estimation.

Chronic toxicity for freshwater sediments and derivation of PNEC data

The chronic toxicity of copper ions deriving from soluble copper compounds is estimated by taking into consideration the values of 62 NOEC/EC10 of 6 benthic species.

NOECs were related to DOC and Volatile Acid Sulphides (AVS) and were used to derive SSD and HC5 values. A HC5 value of 1741 mg Cu/kg, corresponding to 87 mg Cu/kg/dw, is calculated for low AVS sediments with a basic organic carbon value of 5%.

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A chronic PNEC value for freshwater sediments of 87 mg Cu/kg/dw was established, applying an assessment factor of 1, for local risk estimation. Chronic terrestrial toxicity and derivation of the PNEC data

The chronic toxicity of copper ions deriving from soluble copper compounds is estimated by taking into consideration the values of 252 NOEC/EC10 of 28 species representing different trophic levels (decomposers, primary producers, primary consumers). The NOEC values were adjusted for differences between soils contaminated in the laboratory and soils contaminated in the field by adding a leaching aging factor of 2. These values were subsequently normalized to a range of EU soils using regressive bioavailability models and used to derive SSD and the lowest value of HC5 which is 65.5 mg Cu/kg/dw. By applying an assessment factor of 1, a basic soil PNEC value of 65.5 mg Cu/kg/dw is assigned.

STP toxicity

The chronic toxicity of copper ions from soluble copper compounds is estimated using NOEC and EC50 values from high quality studies with bacteria and protozoa used in sewage treatment plants (STP).

The statistically derived NOEC is 0.23 mg Cu/L in STP.

Applying an assessment factor of 1 assigns a PNEC value of 0.23 mg Cu/L for STP.

12.2. Persistence and degradability

The copper ions derived from copper sulphate pentahydrate are not degradable.

The fate of copper ions in the water column is studied using Ticket Unit World Model models. Elimination was also estimated through a mesocosm study and three field studies. Rapid elimination has been demonstrated (70% elimination in 28 days). Literature data confirm the strong bonds between copper ions and sediment, with the formation of stable Cu-S complexes. However, the remobilisation of copper ions from the water column is not expected. Therefore the criteria for considering Copper as Persistent are not met.

12.3. Bioaccumulative potential

The bioaccumulation criteria are not applicable for essential metals.

12.4. Mobility in soil

Copper ions bind strongly to the soil.

The average water/soil partition coefficient (Kp) is 2120 L/Kg.

12.5. Results of PBT and vPvB assessment

The substance does not have persistence, bioaccumulation and toxicity (PBT) properties and is not very persistent and very bioaccumulative. (vPvB).

12.6. Endocrine disrupting properties

Based on the available data, the substance is not listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

12.7. Other adverse effects

Copper sulphate pentahydrate does not contribute to ozone layer damage, ozone formation, global warming and acidification.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

14.1. UN number or ID number

ADR / RID, IMDG, IATA: 3077

ADR / RID: In accordance with Special Provision 375, this product, when is packed in receptacles of a capacity ≤ 5Kg or 5L, is not submitted to ADR provisions.

IMDG: In accordance with Section 2.10.2.7 of IMDG Code, this product, when is packed in receptacles of a capacity ≤

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IATA: 5Kg or 5L, is not submitted to IMDG Code provisions.
 In accordance with SP A197, this product, when is packed in receptacles of a capacity \leq 5Kg or 5L, is not submitted to IATA dangerous goods regulations.

14.2. UN proper shipping name

ADR / RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cupric sulphate)
 IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cupric sulphate)
 IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cupric sulphate)

14.3. Transport hazard class(es)

ADR / RID: Class: 9 Label: 9
 IMDG: Class: 9 Label: 9
 IATA: Class: 9 Label: 9


14.4. Packing group

ADR / RID, IMDG, IATA: III

14.5. Environmental hazards

ADR / RID: Environmentally Hazardous
 IMDG: Marine Pollutant
 IATA: Environmentally Hazardous


14.6. Special precautions for user

ADR / RID:	HIN - Kemler: 90 Special provision: -	Limited Quantities: 5 kg	Tunnel restriction code: (-)
IMDG:	EMS: F-A, S-F	Limited Quantities: 5 kg	
IATA:	Cargo: Passengers: Special provision:	Maximum quantity: 400 Kg Maximum quantity: 400 Kg A97, A158, A179, A197, A215	Packaging instructions: 956 Packaging instructions: 956

14.7. Maritime transport in bulk according to IMO instruments

Information not relevant

SECTION 15. Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EU: E1

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Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Contained substance

Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

not applicable

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage \geq than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has been prepared for the substance.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Acute Tox. 4	Acute toxicity, category 4
Eye Dam. 1	Serious eye damage, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 1	Hazardous to the aquatic environment, chronic toxicity, category 1
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate

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- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

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 16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
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 18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
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 - Handling Chemical Safety
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology
 - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
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 - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation

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puriss.**

of chemical-physical properties are reported in section 9.

Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

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