

**MATERIAL SAFETY DATA SHEET
COPPER SULPHATE TECHNICAL
WITH ANTI-CAKING**



Data wydania: 22.08.2015

Data aktualizacji: 16.12.2022

Strona/stron: 1/11

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

1.1 Product identifier:

Trade name: COPPER SULPHATE PENTAHYDRATE TECHNICAL
Synonyms: copper (II) sulphate pentahydrate, Cupric Sulphate Pentahydrate
REACH: 01-2119520566-40-0050

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

Identified uses:

fertilisers, adhesives, coatings, inks, cosmetics, electroplating & galvanic, glass, lubricants & greases, water treatment, washing and cleaning, absorbents, pigments, catalysts, ceramics, laboratory chemicals, leather dyes, mineral flotation, raw material for non-ferrous smelting, non-metal surface treatment, rubber and plastics, putties, fillers, construction chemicals, polishes and waxes, photochemicals, textile dyes

Uses advised against:

no data available

1.3 Details of the supplier of the material safety data sheet:

CHEM TRADE CENTER Sp. z o.o. Sp. K

ul. Łęczyńska 50A, 20-309 Lublin

Tel. +48 441 37 73

e-mail: info@ctcenter.pl

Person responsible for preparing the MSDS:

info@ctcenter.pl

1.4 Emergency telephone number

Fire Department (Poland): (+48) 998 – available 24/7

General European Emergency Number: 112 – available 24/7

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture:

According to the Regulation (EC) No 1272/2008 of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 **the substance is classified as a hazardous.**

Hazard Class and Category Codes: Hazard Statement Codes:

Acute Tox. 4 H302

Harmful if swallowed

Eye Dam. 1 H318

Causes serious eye damage

Aquatic Acute 1 H400

Very toxic to aquatic life

Aquatic Chronic 1 H410

Very toxic to aquatic life with long lasting effects.

Inhalation: Causes irritation to the respiratory tract, symptoms may include coughing, sore throat, and shortness of breath.

Ingestion: It may cause nausea, vomiting, abdominal pain, metallic taste, and diarrhoea. If vomiting does not happen immediately, systemic copper poisoning may occur. Symptoms may include capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous excitation followed by depression, jaundice, convulsions, blood effects, paralysis and coma. Shock or renal failure may lead to death.

Skin contact: May cause irritation, itching, redness.

Eye contact: Causes serious eye damage.

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Chronic exposure: Prolonged or repeated skin exposure may cause dermatitis. Prolonged or repeated exposure to copper salts dust may cause discolouration of the skin or hair, blood and liver damage, ulceration and perforation of the nasal septum, runny nose, metallic taste, and atrophic changes and irritation of the mucous membranes.

Note: A person with pre-existing skin disorders, impaired liver, kidney, or pulmonary function, glucose 6-phosphatedehydrogenase deficiency, or pre-existing Wilson's disease may be more susceptible to the effects of this substance.

2.2 Label elements:

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



GHS05



GHS08



GHS09

Signal Word: "DANGER"

Hazard statements (H):

H302 - Harmful if swallowed.

H318 - Causes serious eye damage.

H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (P):

Prevention:

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P273 - Avoid release to the environment.

Response:

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.

Disposal:

P501 - Dispose of contents/container to producer of product.

2.3 Other hazards:

Copper sulphate does not meet the criteria as a PBT or vPvB substance in accordance with Annex XIII of the REACH Regulation and has not been included in the list of substances identified as having endocrine disrupting properties in accordance with the criteria of (EC) 2017/2100.

SECTION 3: Composition/information on ingredients

3.1 Substancje

Chemical formula	$\text{CuSO}_4 \times 5\text{H}_2\text{O}$
Content of $\text{CuSO}_4 \times 5\text{H}_2\text{O}$	97% -100%
Content of SiO_2	0-3%
Cu content	min. 24%
Molecular weight	249,7 g/mol
Index No	029-023-00-4

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CAS No	7758-99-8
EC No	231-847-6
ATE (oral)	481 mg/kg b.w.
M-Factor acute	10
M-Factor chronic	1

3.2 Mixtures: Not applicable.

SECTION 4: First Aid measures

4.1 Description of first aid measures:

General Information: Remove clothes and shoes contaminated with the product. If the injured person is unconscious or has convulsions - do not give fluids or induce vomiting. Call for medical help.

Inhalation: If possible, immediately take the exposed individual from the area to the fresh air, and keep them warm and calm. Seek medical advice. In case of unconsciousness, place the patient stably in a recovery position for transportation.

Skin contact: Take off contaminated clothing and wash with soap and plenty of water all the contaminated parts of the body. In case of irritation seek medical advice.

Eye contact: Remove contact lenses, if present and easy to do. Wash immediately with plenty of water for at least 15 minutes. Seek medical advice immediately.

Ingestion: Call a doctor immediately. Induce vomiting as directed by medical personnel. Keep warm, calm and restful until the arrival of the doctor

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

Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, conjunctivitis, corneal opacity.

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

No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media:

Suitable extinguishing media: Substance is not flammable. Use extinguishing media appropriate for surrounding fire (micronized water, CO₂, foam).

Unsuitable extinguishing media: No limitations of extinguishing agents are known

5.2 Special hazards arising from the substance or mixture:

Call the fire department!

Keep a safe distance. Do not breathe vapours. If safety reasons allow, remove undamaged containers from the fire area. Evacuate upwind or perpendicular to the direction of the wind. Wear appropriate masks when fighting a fire. Wear breathing apparatus if vapours are released. Copper oxides and sulphur oxides may be formed during fire or heating.

5.3 Advice for fire-fighters:

Fire-fighters should wear proper protective equipment and self-contained (positive pressure if available) breathing apparatus with full facepiece. Collect the contaminated water to avoid reaching sewers or watercourses.

SECTION 6: Accidental release measures

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6.1 Personal precautions, protective equipment and emergency procedures:

6.1.1 For non-emergency personnel Use personal protective equipment! Keep away bystanders, unauthorized persons, children and animals. Avoid inhalation of dust. Only trained and equipped with protective equipment for the eyes, respiratory tract (dust masks), and skin persons should be assigned to work related to removing the effects of the accident.

6.1.2 For emergency responders Avoid inhalation of dusts. Use dust masks with a class P2 filter

6.2 Environmental precautions:

Do not allow the substance to get into drains, sewers, streams or ponds. In case of contamination of sewers or waterways – inform local authorities. In the case of small spills, collect the contamination and transfer it as waste for disposal.

6.3 Methods and material for containment and cleaning up:

6.3.1 Recommendations for preventing the spill from spreading Secure (cover) the drains, and do not allow the product to come into contact with water.

6.3.2 Recommendations for the elimination of the spill Collect the spilt product mechanically into a marked waste container. Avoid generating product dust.

6.3.3 Other information related to a spill or release The container with the collected product shall be secured and properly labelled, then passed for recovery or disposal following environmental protection regulations

6.4 Reference to other sections

Section 8.2 – protective equipment, Section 13 – waste disposal methods.

SECTION 7. Handling and storage

7.1 Precautions for safe handling:

7.1.1 General Recommendations Avoid contact with eyes and skin. Do not inhale product dust. Provide adequate ventilation. Protect against water and atmospheric moisture. When handling the product, use individual protective equipment, protective glasses and gloves, and dust masks.

7.1.2 Recommendations on occupational hygiene When working with the substance: do not eat or drink, do not smoke. Wash your hands thoroughly after finishing work.

7.2 Conditions for safe storage, including any incompatibilities:

DO NOT STACK PALLETS. Store in original, tightly closed containers in a dry and well-ventilated room. Protect against water and atmospheric moisture (highly hygroscopic substance). Keep away from sources of heat, ignition and fire. Keep the storage rooms clean.

7.3 Specific end use(s):

No data available.

SECTION 8. Exposure control/personal protection

8.1 Control parameters:

Country	Poland	The United Kingdom	Germany	Austria
Substance	Cooper and inorganic copper compounds (as Cu)	Copper and compounds: dust and mists (as Cu)	Copper and its inorganic compounds	Copper and its compounds (as CU)
Limit	NDS-0,2 mg/m ³	WEL _{long-term} (8-hr) 1mg/m ³ WEL _{short-term} (15min) 2mg/m ³	MAK – 0,01 mg/m ³ (respirable dust fraction)	MAK – 1 mg/m ³ (inhalable) MAK – 4 mg/m ³ (respirable)
Substance	Silica, amorphous	Silica, amorphous	Silica amorphous	Silica amorphous

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		inhalable dust respirable dust		
Limit	NDS-10mg/m ³ (inhalable) NDS-2mg/m ³ (respirable)	WEL _{long-term (8-hr)} 6mg/m ³ (inhalable) WEL _{long-term(8-hr)} 2,4mg/m ³ (respirable)	MAK – 4 mg/m ³ (inhalable) MAK – 0,3 mg/ m ³ (respirable)	MAK – 4 mg/m ³ (inhalable) MAK – 0,3 mg/ m ³ (respirable)
Indicator	NDS (Maximum allowed concentration) THRESHOLD LIMIT VALUE	WEL - WORKPLACE EXPOSURE LIMIT	MAK (maximale Arbeitsplatz Konzentration) MAXIMUM WORKPLACE CONCENTRATION	MAKTMW (maximale Arbeitsplatzkonzentration Tagesmittelwert) MAXIMUM WORKPLACE CONCENTRATION DAILY AVERAGE MAKZW (maximale Arbeitsplatzkonzentration Kurzzeitwert) MAXIMUM WORKPLACE CONCENTRATION SHORT-TERM VALUE
Legal basis	Dz.U. 2018 poz. 1286 Rozporządzenie Ministra Rodziny, Pracy i Polityki Społecznej z dnia 12 czerwca 2018 r. w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy	EH40/2005 Workplace exposure limits	Deutsche Forschungsgemeinschaft MAK und BAT Werte Liste 2018 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe Mitteilung 54	Verordnung der Bundesministerin für Arbeit, Soziales, Gesundheit und Konsumentenschutz über Grenzwerte für Arbeitsstoffe sowie über krebserzeugende und fortpflanzungsgefährdende (reproduktionsstoxische) Arbeitsstoffe (Grenzwerteverordnung 2018 – GKV 2018)

8.2 Exposure controls:

8.2.1. Appropriate engineering controls at industrial settings

Ensure proper ventilation and efficient dust collection system.

8.2.2. Individual protection measures, such as personal protective equipment



Personal protective equipment:

Handle in accordance with good industrial hygiene and safety practices. Wash hands before breaks and at the end of a workday. Wear proper personal protective equipment for your face, eyes and skin. Take off contaminated clothing. Keep the substance away from food and drinks. Eating, drinking, and smoking are strictly forbidden during product handling.

Eye/face protection:

Wear protective goggles (in case of dust formation use sealed goggles or goggles with sideshields).

Respiratory

In case of dust formation use respirator with an approved filter. The P2 class half-mask

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protection:	is recommended (P2 – retain about 94% of particles smaller than 0,5 micrometer)
Hand protection:	Handle with gloves. Wear suitable gloves resistant to chemical penetration. Choosing the proper gloves is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear. Long sleeved protective clothing and safety footwear are recommended.
Skin protection:	Wear standard working clothing.
Thermal hazards:	No data available.
Environmental exposure controls:	Do not discharge into drains, sewers or streams. Prevent soil and water contamination
Caution:	The protective measures must comply with the requirements set out in national regulations. When the concentration of the substance is determined and known, the selection of personal protective equipment should be based on the concentration of the substance at the given workplace, exposure time and activities performed by the employee. If the concentration of the substance at the workplace is unknown, use personal protective equipment with the highest recommended protection class. The employer is obliged to ensure that both- the personal protective equipment and work clothing and footwear have protective and functional properties and ensure their proper washing, maintenance, repair and decontamination.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties:

Chemical formula	$\text{CuSO}_4 \times 5\text{H}_2\text{O}$
Physical state	Solid, crystalline
Colour	Blue
Odour	Odourless
Melting point/freezing point	Decomposes without melting 110°C
Boiling point or initial boiling point and boiling range	Decomposes without boiling at 110 °C.
Flammability	Copper sulphate pentahydrate is an inorganic salt with copper in a high oxidation state. As such this material is not likely to undergo self-heating under bulk storage conditions and is unlikely to auto-ignite. Self-heating or auto-ignition has not been observed with copper sulphate following use for many years. Based on experience in use, copper sulphate is not pyrophoric (EU Method A.13) and is not flammable in contact with water (EU Method A.12)
Lower and upper explosion limit	Copper sulphate pentahydrate is a stable inorganic substance. None of the components or groups are associated with explosive hazards. All are stable groupings in high oxidation states. Copper sulphate therefore will not have explosive properties and experience in use over many years confirms this conclusion
Flash point	The study does not need to be conducted because the flash point is only relevant to liquids and low melting point solids.
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
pH (concentration approx. 50 g/l H₂O)	4

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Kinematic viscosity	Not applicable
Solubility	22 g/100 g H ₂ O at 25°C
Partition coefficient n-octanol/water (log value)	The octanol:water partition coefficient, Pow, is defined as the ratio of the equilibrium concentrations of a dissolved substance in each of the phases in a two phase system consisting of octanol and water. It is usually expressed on a log scale. It is a key parameter in studies of the environmental fate of organic substances, indicating the potential for bioaccumulation and soil absorption. However, the mechanisms of absorption of Cu ²⁺ into organic matter and living cells are understood to be different from those traditionally attributed to carbon-based substances and the parameter therefore has little relevance to ionic copper. The parameter is therefore not considered to be relevant to copper sulphate.
Vapour pressure	Copper sulphate pentahydrate is an inorganic salt and as such has negligible vapour pressure at environmentally relevant temperatures
Relative density	2,286 g/cm ³
Bulk density	1,1 g/cm ³
Relative vapour density	Not applicable.
Particle characteristics	Data indicated in TDS

9.2 Other information:
No other data available.

SECTION 10. Stability and reactivity

- 10.1 Reactivity:** Stable under recommended storage and handling conditions
- 10.2 Chemical stability:** The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
- 10.3 Possibility of hazardous reactions:** Possible hazardous reaction with powdered magnesium, strong oxides
- 10.4 Conditions to avoid:** Humidity, High temperature
- 10.5 Incompatible materials:** Alkaline products, metals, magnesium, strong oxides.
- 10.6 Hazardous decomposition products:** Thermal decomposition generates Sulphur oxides (SO_x) and Copper oxides (CuO_x).

SECTION 11. Toxicological information

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

Acute toxicity:

Oral: rat male/female – LD₅₀ = 482 mg/kg BW (Lheritier, 1994.)

Copper sulphate pentahydrate is classified as harmful if swallowed (H302).

Inhalation: Based on these data, it is concluded that copper sulphate currently marketed in the EU contains negligible amounts of respirable particles.

Dermal: rat male/female - LD₅₀: > 2000 mg/kg BW (Lheritier, 1993) Based on the available data, copper sulphate pentahydrate does not meet the classification criteria for acute dermal toxicity.

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Skin corrosion/irritation: Rabbit New Zealand White: erythema 0,22; oedema 0 (Mercier, 1994) Copper sulphate pentahydrate was not irritating to skin in accordance with EU criteria.

Rabbit New Zealand White: dosage 100g (Mercier, 1994):

- Cornea - average for 3 animals at 24, 48 and 72 h: 2.56;
- Iris - average for 3 animals at 24, 48 and 72 h: 1.0; • Conjunctiva - average for 3 animals at 24, 48 and 72 h: 2.0;
- Chemosis - average for 3 animals at 24, 48 and 72 h: 3.78.

Copper sulphate pentahydrate is classified as a substance that causes serious eye damage (H318).

Respiratory or skin sensitisation: Guinea pig (induction concentrations: 0.1% w/w in water - injection or 10% w/w formulation in water - injection, topical. Challenge concentration: 10% w/w): All test animals appeared to be clinically normal throughout the study.

Based on available data, the criteria for classification as a skin sensitizer are not met. In the case of respiratory sensitization - no data available.

Germ cell mutagenicity: Based on the available data (in vitro and in vivo tests), the classification criteria are not met.

Carcinogenicity: Based on available data, the classification criteria are not met.

Reproductive toxicity: NOAEL 24 mg/kg body weight/day Based on available data, the classification criteria are not met.

STOT-single exposure: There is no evidence of any specific target organ toxicity after a single exposure to the test substance. Conclusion: Based on the available data, the criteria for classification as a STOT-SE substance are not met

STOT-repeated exposure: Ingestion: Based on available data, the classification criteria are not met.

Inhalation: Based on available data, the classification criteria are not met.

Dermal: Based on available data, the classification criteria are not met.

Based on available data, the classification criteria as a STOT – RE are not met

Aspiration hazard: Copper sulphate pentahydrate does not meet the criteria for aspiration hazard classification.

11.2 Information on other hazards:

11.2.1 Endocrine disrupting properties Not listed.

11.2.2 Other information No additional information.

SECTION 12. Ecological information

12.1 Toxicity:

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity:

pH range 5,5-6,5	$L_{50} = 25 \mu\text{g Cu/l}$	NOEC= $20 \mu\text{g Cu/l}$
pH range >6,5-7,5	$L_{50} = 35 \mu\text{g Cu/l}$	NOEC= $7,4 \mu\text{g Cu/l}$
pH range >7,5-8,5	$L_{50} = 29,8 \mu\text{g Cu/l}$	NOEC= $11,4 \mu\text{g Cu/l}$
across all pHs	$L_{50} = 34,4 \mu\text{g Cu/l}$	NOEC= $14,9 \mu\text{g Cu/l}$

Toxicity to fish:

L_{50} results for fish (*Pimephales promelas*), total exposure duration: 96-hours. effect. conc : 38,4 – 256,2 $\mu\text{g/l}$ water (Erickson RJ, Benoit DA and Mattson VR 1996)

NOEC results for fish (*Pimephales promelas*), total exposure duration 14 days: 66 $\mu\text{g/l}$ water (Brungs, W.A. et al., 1976)

Toxicity to aquatic invertebrates:

EC_{50} results for aquatic invertebrates (*Daphnia magna*), total exposure duration: effect. conc. 48-hours: 33,8 – 792 $\mu\text{g/l}$ water (De Schampelaere KAC, Heijerick DG and Janssen CR 2002)

NOEC results for aquatic invertebrates (*Daphnia magna*), total exposure duration 21 days: 21,5 – 181 $\mu\text{g/l}$ water (Heijerick D., Bossuyt B. and Janssen C. 2001)

Toxicity to aquatic algae and plants:

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EC₁₀ results for aquatic algae (*Pseudokirchneriella subcapitata*, *Chlorella vulgaris*, *Chlamydomonas reinhardtii*, *Scenedesmus quadricauda*), total exposure duration: 72-hours: 31 – 510 µg/l water (De Schampelaere, K.C. and Janssen, C.R. 2006)
NOEC results for aquatic algae (*Macrocystis pyrifera*), total exposure duration 19 days: 10,2 - 50,1 µg/l water (Anderson, Hunt, J.W., Turpen, S.L., Coulon, A.R., Martin, M. 1990)

12.2. Persistence and degradability:

The methods for determining the biological degradability are not applicable to inorganic substances such as copper and its compounds.

12.3. Bioaccumulative potential:

Due to the homeostatic regulation of copper (and other metals), the BCF/BAF are not independent of exposure concentration. An inverse relationship was clearly demonstrated for BCF, BAF, and biota-sedimentary accumulation factors (BSAF). The observed inverse relationship was explained by homeostatic regulation of concentrations in internal tissues: at low metal concentrations, organisms actively accumulate metals to meet their metabolic requirements, while at high When the concentration of metals in the environment is high, organisms are able to excrete excess metals or reduce their absorption. (Review papers of Adams et al., 2003; Mc Geer et al., 2003; supported by many papers from many authors).

12.4. Mobility in soil: Low mobility in soil and aquatic environment.

Soil adsorption study - batch equilibrium method (measurements of the amount of copper concentrations extracted from the soil and from the pore water to determine the partitioning coefficient):

Adsorption coefficient: Kd: 25 — 135 at 20°C (forest soils A, H, I, K, M, N: having low pH, OM (soil organic matter), clay, Fe oxides, Al oxides and CEC);
Kd: 92 — 4318 at 20°C (Soils from river banks and meadows, containing more OM (soil organic matter), clay, Fe oxides and Al oxides (B, C, D, E, F, G, J, L, O, P, Q, R, S, T) (Janssen, R.P.T. et al. 1997)

Soil adsorption study: data compiled of 70 different studies (soil-liquid partitioning coefficients (Kd) for many elements but especially for the metals cadmium, copper, lead, nickel, and zinc were compiled from over 70 studies of various origins collected from the literature):

Adsorption coefficient: Median and mean Log Kd: 3,3 — 3,68. (Sauvé S., W. Hendershot, H.E. Allen 2000)

12.5. Results of PBT and vPvB assessment:

Copper is a natural, essential element, which is needed for the optimal growth and development of all living organisms, including man. All living organisms have homeostasis mechanisms that actively regulate copper uptake and absorption/excretion from the body; due to this regulation, the bio-accumulation criterion does not apply Copper is an element, and as such the criterion 'persistence' is not relevant for the metal and its inorganic compounds in a way as it is applied to organic substances. The removal of inorganic substances from the water column has been discussed as a surrogate for persistence. The rapid removal of copper from the water column documented that for copper this criterion does not apply
Considering the above, copper is not a PBT or vPvB.

12.6. Endocrine disrupting properties:

Subchronic and chronic studies show no adverse effects on reproductive organs or endocrine function.

12.7. Other adverse effects:

No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods:

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Do not discharge into the sewage system. Do not allow contamination of surface waters, surface watercourses and soil. Product waste, including used packaging, should be handed over as hazardous waste to specialized companies with a relevant permit for waste management. Waste properties in accordance with Directive 2008/98/EC of the European Parliament and of the Council of November 19, 2008. on waste and repealing certain directives (OJ L 312, 22.11.2008, p. 3, as amended):

Substance	WE (EC) Number	CAS	EU CLP (1272/2008)	HP Code	Index
Copper sulphate pentahydrate	231-847-6	7758- 99-8	Acute Tox. 4 Eye Dam. 1 Aquatic Acute 1 Aquatic Chronic 1	HP6 'Acute Toxicity': Waste which may cause acute toxicity by ingestion or dermal application or inhalation exposure. HP4 'Irritant — Skin irritation and eye damage': Waste which may cause skin irritation or eye damage upon application. HP14 "Ecotoxic": waste that presents or may present an immediate or delayed risk to one or more components of the environment.	029- 023- 00-4

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN: 3077
IMDG: 3077

14.2 UN proper shipping name

ADR/RID/ADN: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Particulars in the transport document: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (Copper(II) sulphate pentahydrate), 9, III; (-)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper sulphate), MARINE POLLUTANT

14.3 Transport hazard classes

ADR/RID/ADN class: 9 (Miscellaneous dangerous substances and articles - environmentally hazardous substance.)
Classification code: M7
IMDG class: 9
Danger labels: 9 + „fish & tree”



14.4 Packing group

Packing group PG III

14.5 Environmental hazards

Environmental hazards Environmentally Hazardous Substance, Marine pollutant.

14.6 Special precautions for user

Special provisions (Sp): 274, 335, 375, 601.
Excepted quantities (EQ): E1
Limited quantities (LQ): 5 kg
Transport category (TC): 3
Tunnel restriction code (TRC): (-)
Hazard identification No: 90

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EmS:

F-A, S-F

- 14.7 Maritime transport in bulk** The substance is not intended to be transported in bulk according to IMO instruments

SECTION 15: Regulatory information

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

- COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
- Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods
- Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
- European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste

15.2. Chemical safety assessment

The chemical safety assessment has been carried out for copper sulphate.

SECTION 16: Other information

The following changes were introduced:

- adapting the format of the safety data sheet to Regulation 2020/878
- section 3 - adding the M and ATE factors and the molecular weight of the substance,
- section 12 - addition of information on endocrine-disrupting properties,
- section 13 - implementation of HP codes.

Abbreviations and acronyms used in SDS:

vPvB	very Persistent and very Bioaccumulative
PBT	Persistent, bioaccumulative and toxic
NOEC	No Observed Effect Concentration
LD ₅₀	Toxic substance dose expressed in the units of mg/kg body weight needed to kill 50% of the of test subjects exposed.
LC ₅₀	Lethal concentration - a standard measure of surrounding medium toxicity. Half of the sample population (50%) of a specific test-animal in a specified period die from exposure
EC _x	Effective concentration - refers to the mortality rate of specific organisms over varying concentrations of a pollutant

Appropriate training: on-site workplace instruction on the safe use of the substance

The above information describes exclusively the safety requirements of the substance and is based on our present-day knowledge. The information is intended to give advice about the safe handling of the substance named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In case of mixing the substance with other

**MATERIAL SAFETY DATA SHEET
COPPER SULPHATE TECHNICAL
WITH ANTI-CAKING**



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products or in case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

The safety data sheet of the hazardous substance has been prepared on the basis of information submitted in the registration dossier to the European Chemicals Agency and the regulations on hazardous chemicals in force in the European Union. This document has been prepared by :

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