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SAFETY DATA SHEET	Page 1 of 8
	Issued on: 02.09.2015
Trade name: **COPPER OXYCHLORIDE – Inorganic salt**	Revised on: 26.07.2022
	Version: 10

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

1.1.	**Product identifier (Product registration number, nanoform, UFI):**	**COPPER OXYCHLORIDE - Inorganic salt** *01-2119966120-46-0006*	
1.2.	**Relevant identified uses of the substance/mixture and uses advised against:**	Inorganic salt: copper oxychloride is used in various branches of industry: chemical, textile, agrochemical, wood and for professional use: feed supplement and fertilizer, for galvanic protection. Not mix with products having acidic or strong basic reaction.	
1.3.	**Details of the supplier of the safety data sheet (manufacturer, importer, only representative, downstream user or distributor):**		
1.3.1.	Supplier name:	CINKARNA CELJE, d.d.	Division: Kemija Celje
1.3.2.	Supplier address and phone:	Kidričeva 26, 3001 CELJE, SLOVENIJA, +386 3 427 60 00	
1.3.3.	E-Mail (competent person):	karmen.veber@cinkarna.si	
1.4.	**Emergency phone number:**	In the case of health hazards consult with personal or emergency doctor, in the case of life-threatening situation, call **112.** Additional information is available: **Weekdays from 7 to 15 am: Phone: +386 3 427 6341**	

2. Hazards identification

2.1.	Classification of substance or mixture:	Regulation (EC) No. 1272/2008 **Acute toxicity / oral /; Category 3** **Acute toxicity / inh. /; Category 4** **Hazardous to the aquatic environment /Acute/; Category 1;** **Hazardous to the aquatic environment /Chronic/; Category 1;** **Hazard Statements**: H301, H332, H400, H410
2.2.	Label elements:	GHS09, GHS07  **Danger** H301 Toxic if swallowed. H332 Harmful if inhaled. H410 Very toxic to aquatic life with long lasting effects. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. P301 + 310 IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician. P304 + 340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P330 Rinse mouth. P501 Dispose of contents/container in accordance with national regulations.
2.3.	Other hazards:	EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

3. Composition/information on ingredients

3.1. /3.2	**Substances/ mixture: COPPER OXYCHLORIDE - Inorganic salt**

Chemical name	CAS No. EC No. Index No.	REACH Registration No. Reference No.	% wt/vol/max. conc.	Classification according to Regulation (EC) No 1272/2008 (CLP)	SCL, M-factor, ATE
Dicopper chloride trihydroxide	1332-65-6 215-572-9 029-017-00-1	*01-2119966120-46-0006*	95-98 wt %	Acute toxicity / oral. /; Category 3 Acute toxicity / inh. /; Category 4 Hazardous to the aquatic environment /Acute/; Category 1; M=10 Hazardous to the aquatic environment /Chronic/; Category 1; M=10 H301, H332, H400, H410	Oral: ATE = 299 mg/kg bw Inhalation: ATE = 2,83 mg/l (dust or haze) M = 10 M = 10

4. First aid measures

4.1.	**Description of first aid measures:**	General measures: The safety of the rescuer must be ensured before rescuing the victim. The affected person should be removed from the contaminated area to fresh air or a well-ventilated area as soon as possible and protected from the cold or heat. In case of unconsciousness, the victim is placed in the unconscious position (on the left side). In case of respiratory arrest and / or cardiac arrest, resuscitation is performed according to the basic resuscitation procedure: airway relaxation, preferably not artificial mouth breathing - an automatic defibrillator is obtained, and external cardiac massage is started.
	Inhalation:	Remove affected person from contaminated area to fresh air. If the affected person coughs, has difficulty breathing, or has a burning sensation in the mouth, throat, or chest, seek medical attention immediately.
	Skin contact:	Remove contaminated clothing, gloves and shoes. Wash the affected parts of the body thoroughly with plenty of soap and water. If skin irritation persists, seek medical attention.
	Eyes/mycosis contact:	Open eyelids with thumb and forefinger and rinse your eyes with clean water or saline for 15 minutes. In case of wearing contact lenses, they should be removed immediately, and eye rinsing should be continued. If irritation and redness persist, seek medical attention.
	Ingestion:	The affected person should rinse the oral cavity with water and drink 2-3 dl of water. ATTENTION! Do not induce vomiting. Do not give anything to a person with a narrowed consciousness or induce vomiting. Call a doctor.
4.2	**Most important symptoms and effects, acute and delayed:**	Various tests suggest the possible occurrence of nausea, abdominal cramps and vomiting as a result of irritation of the gastric mucosa. Symptoms of high copper concentrations are liver toxicity and neurological disorders (but without side effects on tissue distribution), rapid heartbeat, lowering of blood pressure, cardiovascular collapse, unconsciousness. There are no lung injuries in workers with forty years of service.
4.3.	**Indication of any immediate medical attention and special treatment needed:**	Basic life functions need to be established and maintained. Gastric lavage is indicated if a large amount of fertilizer is suspected. There is no specific antidote. Treatment is symptomatic.

5. Firefighting measures

5.1.	**Extinguishing media**	
	Appropriate media:	Use dry extinguishing media, carbon dioxide CO2 or foam. Water is only used in the dispersed state.
	Inappropriate media:	Don’t use direct water jet.
5.2.	**Specific hazards arising from the substance or mixture:**	In the case of fire – hydrogen chloride and oxides of copper may form. Never rinse the contaminated soil with water. Water from the fire should not be allowed to enter drain systems or watercourses. It should be separately collected and disposed of at an appropriately regulated landfill, in accordance with the applicable Rules of the

		disposal of hazardous waste.
5.3.	**Advice for firefighters:**	Not required.
6. Accidental release measures		
6.1.	**Personal precautions protective equipment and emergency procedures**	
6.1.1.	For non-emergency persons:	See section 6.3.2
6.1.2.	For emergency responders:	See section 4.1
6.2.	**Environmental precautions:**	Potential for water contamination – inform the competent services.
6.3.	**Methods and material for containment and cleaning up**	
6.3.1.	Appropriate spillage retaining techniques (fencing, covering drains, retaining procedures):	In the case when the fertilizer is mixed with water – prevent (fertilizer cover with soil or other absorbent materials) the spread into the underground drainage pipe system or streams.
6.3.2.	Appropriate cleaning procedures	
	Neutralization techniques:	Cover substance with soil, peat of other neutral absorbent material.
	Decontamination techniques:	Scatter: warn the persons present of the danger, secure the dangerous area, inform the responsible services, withdraw from the wind direction, use personal protective equipment (point 8.2.2), call the Information Centre, tel.: 112.
	Absorbent materials:	Neutral material: earth, peat, sand or any other absorbent material.
	Cleaning techniques:	In the case of scattering pick up the substance with a shovel and place it into a clean and labelled container with a fully sealable lead. Do not breathe in the dust. If the substance cannot be re-used it should be disposed of in accordance with the applicable Rules of the disposal of hazardous waste. If the substance is mixed with absorbent material in moisture soil, it should be mechanically removed like hazardous waste. We use personal protective equipment (read 8.2.2). After work the soil and dirty objects area is washed with water and detergent. Waste water should not enter drain systems or watercourses.
	Sucking techniques:	Use industrial vacuum cleaner for dry cleaning – wet and dry vacuum cleaners (with a brush, with adapter for dust).
	Required equipment for retaining /cleaning:	The equipment used depends on the type and extent of contamination. General equipment: tank, neutral absorbent material, shovel and foil to prevent dusting. Cleaning is carried out under supervision of experts. Usually fire management intervention is supervising.
6.3.3.	Inappropriate cleaning or retaining techniques:	Retention in the direction of the wind; rinsing with water before the fertilizer is mechanically removed; using the detergent with an acid reaction.
6.4.	**Reference to other sections:**	Not required.
7. Handling and storage		
7.1.	**Precautions for safe handling**	
7.1.1.	Recommendations shall be specified to:	No data.
	Safe handling of substance or mixture:	Use in well ventilated area. Accumulation of dust and powder should be reduced to a minimum that the concentration of dust does not exceed the limit value (point 8.1.1). Mandatory use of personal protective equipment (read section 8.2.2.). Follow instructions for safe handling of substance.
	Prevent handling of incompatible substances or mixtures:	Follow all instructions for use and SDS.
	Operations and conditions which create new risks by altering the properties of the substance or mixture, and to appropriate countermeasure:	There is no change in the properties of the substance, so there is no risk and no appropriate countermeasures.
	Reduce the release of the substance or mixture to the environment:	Follow all instructions for use and SDS.
7.1.2.	General working hygiene (prohibited eating, drinking and smoking within working area; washing hands …):	Use Personal Protective Equipment (PPE). Protective clothing must be washed after work. Likewise, the person must wash hands with water and soap. Even during the break workers should wash their

		hands. At the time of use you should not eat, drink or smoke.
7.2.	**Conditions for safe storage, including any incompatibilities**	
	Management of risk associated with:	
	- explosive atmospheres:	Unspecified.
	- corrosive substances:	The substance must be isolated from corrosive substances (acids, bases).
	- incompatible substances or mixtures:	Substances with acids reaction.
	- evaporation substances:	Unspecified.
	- potential ignition sources:	Unspecified.
	How to control the effects of	
	- weather conditions:	Substance shouldn't be exposed to rain and shouldn't be used in areas with high humidity.
	- ambient pressure:	Unspecified.
	- temperature:	Room temperature.
	- sunlight:	Substance must be separated from direct sunlight.
	- humidity:	The product is hygroscopic.
	Securing integrity of substance or mixture by use of:	
	- stabilisers:	Not required.
	- antioxidants:	Not required.
	Other advice including:	
	- ventilation requirements;	Store in the original packaging (closed and marked); in a well-ventilated area so that the dust concentration does not exceed the limit value (point 8.1.1); separate from food, drink and feed; in a dry, cool place (room temperature); away from children, animals and non-professionals. Keep away from acids and bases. Protect from direct sunlight. Prevent dust formation.
	- specific designs for storage rooms or vessels (including retention walls and ventilation):	Specific constructions are not required.
	- quantity limitations regarding storage conditions:	Limited quantities are not determined by proper storage.
	- packaging compatibility:	Substance is compatible with the packaging.
7.3.	**Specific end use(s):**	Use only in accordance with instructions (point 1.2). Reference to section 16.

8. Exposure control/ personal protection

8.1.	**Control parameters**	
8.1.1.	-Limit values (LV): -Biological limit values (BLV):	Copper: (limit value): Inhalable = 1 mg / m^3; Alveolar = 0.1 mg / m^3 (short-term value) = 4 mg / m^3 Not relevant.
	DNEL:	Copper is an essential metal. A regulating mechanism inside the organism is maintaining the balance between the amount of copper that is necessary for normal physiological functioning and the amount which is already harmful for the organism. ADI = 0,15 mg Cu/kg bw/day AOEL = 0,08 mg Cu/kg bw/day NOAEL (oral, rat) = 16 mg Cu/kg bw/day
	PNEC:	Different processes and environmental factors are affecting on copper accumulation in soil such as: pH, organic matter, soil texture and cation exchange capacity (CEC). The largest impact on copper accumulation has locally and regional environment characteristics. The risk of surface water depends on quantity of soluble copper. An effect on aquatic organisms depends on water hardness, pH and

		dissolved organic carbon. Not expected that copper would spread into sewage water treatment plants and effected on respiration in the sewage.
8.2.	**Exposure control**	
8.2.1.	Appropriate engineering controls:	Ventilation (local and spatial).
8.2.2.	Personal protective equipment:	No data.
	- respiratory protection:	In the case of short term-exposure use respirator-dust mask standard EN 149, class: FFP3 protective factor 20. For prolonged or intense exposure use the filtering half mask standard EN 140, with filter for particles EN 143, type: P3.
	- skin protection:	The degree of protection depends on the purpose of handling of the substance. We can use protective clothing (standard EN 13688), which can be washed after use and re-worn, and rubber footwear or footwear protecting against chemicals (standard EN 13832-1). After work we wash with water and soap.
	- hand protection:	Protective gloves against chemicals (standard EN 374-1) with 0.1 to 0.4 mm thick for disposable gloves and 0.5 to 1.0 mm thick for re-usable gloves. Water and chemical resistant gloves made by neoprene or latex. After work we wash hands with water and soap and protect the skin with cream.
	- eye/face protection:	Safety goggles closed at the sides - tightly adjustable according to the SIST EN 166 standard.
	- heat radiation protection:	There are no thermic dangers.
	Other:	No data.
8.2.3.	Environment exposure control:	Contaminated water from fire should not be spilled into drains or watercourses. We must prevent the development of dust – ensure adequate ventilation. Waste should be sorted and disposed to an appropriate landfill regulated under the current Rules on the disposal of hazardous waste. Information for section 8 are from EFSA. Reference to section 16.

9. Physical and chemical properties

9.1.	**Information on basic physical and chemical properties:**	
	- Physical state:	Fine powder
	- colour	Green
	- odour:	Odourless
	pH:	6,0 – 7,5 (1 % aqueous dispersions, at 20°C)
	Melting/freezing point:	Decomposes before melting point.
	Boiling point or initial boiling point and boiling range	Decomposes before boiling point.
	Flash point:	Heavily combustible preparation. Justification: Inorganic salts are not flammable.
	Auto-ignition temperature:	Not relevant.
	Flammability (solid, gas):	Useless. Justification: Inorganic salts are not flammable.
	Lower and upper explosion limit:	Useless. Justification: Inorganic salts are not flammable.
	Vapor pressure:	Useless (fine powder).
	Density and/or relative density:	No data.
	Solubility:	Water, at 20°C (57.39% Cu): 1.19 mg / L, at pH = 6.6; 101 g / L, at pH = 3.1 and 0.525 mg / L at pH

		= 10.1 Organic solvents, 20°C: methanol, acetone = <8.2 mg / L; dichloromethane = <10 mg / L; toluene = <11.0 mg / L
	Partition coefficient: n-octanol-water:	Not applicable (negligible solubility in water and n-octanol).
	Particle properties:	No data.
	Decomposition temperature:	240°C (for approx. 57.39% copper).
	Kinematic viscosity:	Useless. Justification: Inorganic salt powder.
	Relative vapour density:	Useless. Justification: Inorganic salt powder.
9.2.	**Other information:**	Surface tension: 72.2 mN / m at 20°C (57.39% Cu). Data for point 9: EFSA
9.2.1	Information on physical hazard classes	
	- Explosives:	Not relevant. Substance is not explosive.
	- Flammable gases:	Not relevant. Substance is not flammable gas.
	- Aerosols:	Not relevant. Substance is not aerosol.
	- Oxidising gases:	Not relevant. Substance is not oxidising gas.
	- Flammable liquids:	Not relevant. Substance is an inorganic salt powder.
	- Flammable solids:	Not relevant. Substance is an inorganic salt powder.
	- Corrosive to metals:	Not relevant. Substance is an inorganic salt powder.
9.2.2	**Other safety-related parameters:**	

10. Stability and reactivity

10.1.	**Reactivity:**	The substance is very stable, insoluble in water.
10.2.	**Chemical stability:**	Copper oxychloride is not a self-heating substance. Experience of use indicates that it doesn't ignite in contact with water or evolve gases. Production experience and experience in use indicate that the substance is not corrosive in solid state. Corrosivity for metals is possible when the substance is in the solution and has low pH and high-water hardness.
10.3.	**Possible hazardous reactions:**	See section 9 and 10 (dangerous reactions are not expected).
10.4.	**Conditions to avoid:**	Moisture (substance is hygroscopic) and substances with acid reaction.
10.5.	**Incompatible materials:**	Substances with acid reaction, strong acids and bases, chlorates.
10.6.	**Hazardous decomposition products:**	Copper oxides (in case of fire or at high temperatures). When stored and used correctly, decomposition doesn't occur.

11. Toxicological data

11.1.	**Information on hazard classes as defined in Regulation (EC) No 1272/2008**	
	- Acute toxicity:	Acute toxicity (oral); Category 3 LD50 oral. (rat): 299 mg/kg bw Acute toxicity (inhalation); Category 4 LC50 inh. (rat) = 2,83 mg/L air/ 4 hours - /only nose/ Acute toxicity (derm.); Not classified LD50 derm. (rat) > 2000 mg/kg
	- Skin corrosion/irritation:	Not classified Source: material test: copper oxychloride.
	- Serious eye damage/irritation:	Not classified Source: material test: copper oxychloride.
	- Respiratory or skin sensitisation:	Not classified Source: material test: copper oxychloride.
	- Germ cell mutagenicity:	Not classified Copper compounds are not mutagenic when used properly and

		normally.
	- Carcinogenicity:	Not classified At real exposure levels, the fertilizer does not show carcinogenic potential.
	- Toxicity for reproduction:	Not classified -_does not cause impaired fertility or development of defects of the fetus or offspring. Material: copper oxychloride. NOAEL (parental, offspring): 15 mg/kg bw/day NOAEL (reproductive): 24 mg/kg bw/day
	- STOT – single exposure:	Not classified Source: material test: copper oxychloride.
	- STOT – repeated exposure:	Not classified Source: material test: copper oxychloride.
	- Aspiration hazard:	Does not fall under this danger.
	- Endocrine disrupting properties	Not classified. Copper compounds do not have the properties of endocrine disruptors when used correctly and normally.
12. Ecological information		
12.1.	**Toxicity:**	The substance is classified in the Aquatic Acute toxicity; Category 1 and in the Aquatic Chronic toxicity; Category 1 LC50 (fish, 96 h): < 1 mg/L. LC50 (aquatic invertebrates, 48 h): 0,29 mg/L ErC50 (algae, 72 h): > 165,9 mg/L
12.2.	**Persistence and degradability:**	The substance is persistent and not biodegradable. Degradation is not expected.
12.3.	**Bio accumulative potential:**	Tests did not show accumulation of copper in organisms.
12.4.	**Mobility in soil:**	Copper is moderately mobile. Copper mobility is affected by: pH (at low - acid value the solubility of copper is higher), redox potential (copper is more soluble in wet soils or in soils with low redox potential), activity of microorganisms or organic matter (humic substances - fulvic and humic acids) which affects the cation exchange of copper - cations from the soil solution replace e.g. colloidal cations.
12.5.	**Results of PBT and vPvB assessment:**	Substance is not considered as PBT/vPvB. It is persistent, bioaccumulation is very low. Substance is rarely an indicator of toxicity.
12.6.	**Endocrine disrupting properties:**	Not classified. Substance is persistent, bioaccumulation is absent, so it does not have the properties of endocrine disruptors.
12.7.	**Other adversative effects:**	The risk to soil micro-organisms, biological sewage treatment and non-target terrestrial plants / organisms is low. The effect on nitrification and mineralization in the soil is not observed. Bees - LD50 oral. (acute): 12.1 µg / bee; LD50 contact (acute): 44.3 µg / bee; Earthworms and other soil microorganisms: NOAEC (earthworms, 10 years): 4 kg Cu / ha / year. Birds: the risk is acceptable for doses of 5 kg Cu / ha / year. Copper is not an endocrine / hormone disruptor for mammals. Data for point 12: EFSA
13. Disposal considerations		
13.1.	**Waste treatment methods:**	Remains of fertilizer should be stored in original, labelled packaging. Waste materials and packaging are given on rent to an authorized collector of hazardous substances in accordance with applicable environmental legislation, which regulates hazardous waste management and the management of packaging and packaging waste. Caution: Do not re-use empty containers!
14. Transport information		
	ADR, RID, AND, IMDG, ICAO-TI/IATA-DGR	ADR /RID / IMDG
14.1.	**UN number or ID number:**	3288
14.2.	**UN proper shipping name:**	TOXIC INORGANIC SUBSTANCE, SOLID, N.O.S. (copper oxychloride)

14.3	**Transport hazard class(es):**	6.1
14.4.	**Packaging group:**	II
14.5.	**Environmental hazards:**	YES ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper oxychloride)
14.6.	**Special precautions for user:**	Avoid release to the environment. Do not breathe in the dust.
14.7.	**Maritime transport in bulk according to IMO instruments:**	The product is not to be transported in bulk.

15. Regulatory information

15.1.	**Safety, health and environmental regulations/legislation specific for the substance or mixture:**	This product is a subject to applicable regulations of Plant Protective Products; This product is a subject of CLP Regulation; REACH Regulation; Rules on Classification, Packaging and Labelling of dangerous substances; Chemicals law and the law of: safety, occupational health, environmental protection and management of hazardous chemicals; Rules on the protection of workers from the risks related to exposure to chemical agents at work; Rules on personal protective equipment; International carriage of dangerous goods by road / ADR /; A list of harmonized standards, the use of which creates a presumption of conformity of the product with the requirements.
15.2.	**Chemical safety assessment:**	A chemical safety assessment for this product is not implemented.

16. Other information

	Amendments made in the revised edition:	Changes in section 14.
	List of relevant, hazard statements, safety phrases and/or precautionary statements. Write out the full text of any statement which are not written out in full under Sections 2 to 15:	H301 Toxic if swallowed. H332 Harmful if inhaled. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects.
	In the case of mixtures, an indication of which of the methods of evaluating information referred to in Article 9 of Regulation (EC) No 1272/2008 was used for the purpose of classification:	Substance is not a mixture.
	Training of personnel:	A Course of safety, occupational health, fire safety and handling of hazardous chemicals.
	Key literature references and sources for data:	Classified according to CLP; Chemicals Act; Occupational Safety and Health Act; Regulation 2003/2003 / EC / Mineral fertilizers /; Rules on waste management; Rules on the management of packaging and packaging waste; Decision on the publication of Annexes A and B to the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR); Rules on the protection of workers from the risks related to exposure to chemical substances at work.
	A key or legend to abbreviation and acronyms used in the safety data sheet:	ADI = Acceptable Daily Intake AOEL = Acceptable Operator Exposure Level CLP = Classification, Labelling and Packaging DNEL = Derived No-Effect Level EFSA = European Food Safety Authority ErC50 = 50% reduction in growth rate LC50 = Median lethal concentration LD50 = Median lethal dose NOAEL = No observed adverse effect level PBT = Persistent, Bio accumulative, Toxic PEC = Predicted effect concentration REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals

Data specified above are based on research and experience of the supplier at the time of compiling the present MSDS. The supplier may not assume responsibility in case the buyer/user should fail to use the product in accordance with the relevant suggestions and recommendations. No information contained in the present SMDS may release the buyer/user from liability to strictly follow any legal requirements regarding his business activities.