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Safety Data Sheet	Page 1 of 7
	Printing date: 0.10. 2012
Substance name: **COPPER OXYCHLORIDE technical**	Revision date: 20.08.2018
	Number of the revision: 11

1. Identification of substance / mixture / company

1.1.	**Product identification (ECHA Reference number of the substance):**	**COPPER OXYCHLORIDE technical** *02-2119707615-40-0000*	
1.2.	**Important identified use of the substance:**	Inorganic salt for the Plant Protective Product (PPP): fungicide / bactericide. Not mixed with materials having an acid or a strong basic pH reaction.	
1.3.	**Manufacturer / supplier (importer, the distributor):**		
1.3.1.	Supplier's name:	**CINKARNA CELJE, Inc.**	PE: Kemija Celje
1.3.2.	Supplier's address and phone number:	Kidričeva 26, 3001 Celje, SLOVENIA Tel.: +386 3 427 60 00	
1.3.3.	Contact (email address) :	vesna.gabersek@cinkarna.si	
1.4.	Emergency telephone 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.	**Classiffication of the substance or mixture:** (in accordance with 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.	**Elements label:**	*GHS06, GHS09*  **Danger** **Hazard Statements:** H301 Toxic if swallowed. H332 Harmful if inhaled. H410 Very toxic to aquatic life with long lasting effects. **Precautionary Statements:** P270 Do not eat, dring or smoke when using this product. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician. P330 Rinse mouth. P405 Store lock up. 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./ **Substance / mixture: COPPER OXYCHLORIDE technical**

In accordance with Regulation (EC) No. 1272/2008

Chemical name	CAS No. EC No. Index No.	Reference No.	% wt/vol/max. conc.	Hazard phrases (H) Class and category of risk
Dicopper chloride trihydroxide *Reference to section 16.*	1332-65-6 215-572-9 029-017-00-1	*02-2119707615-40-0000*	95 - 98 wt. %	301, 332, 400, 410 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

4. First aid measures

4.1.	**Description of the first aid**	General measures: poisoning symptoms may take several hours to occur; therefore a close medical observation for at least 48 hours after the accident is recommended. Prevent further contact with the product (inhalation of dust, mist or vapour). Patient is immediately removed from the contaminated area into fresh air or into well - ventilated area and protect him from the cold or heat. In case of unconsciousness place him in unconscious position (on the left side). In case of respiratory arrest and / or cardiac arrest - according to the basic process: release of the airways, preferably not administered artificial respiration by mouth - gain automatic defibrillator and started with external cardiac massage. Call medical support and submit original packaging with the label.
	After inhalation:	The patient is immediately removed from the contaminated area to fresh air. If the patient cough, has shortness of breathes or has a burning sensation in the mouth, throat or chest, seek medical help immediately.
	After skin contact:	Remove contaminated clothing and shoes. Thoroughly wash the affected parts of the body with water and soap. If the skin irritation occurs and persists, seek medical attention.
	After eye contact:	Using the thumb and forefinger open up eye lids and rinse the opened eye for 15 minutes under running water or physiological saline. Contact lenses should be removed immediately. If irritation and redness persist, seek medical attention.
	After swallowing:	Wash out mouth with water and drink 2-3 dl water. WARNING! Do not induce vomiting. If patient is not completely conscious, don't give something to drink nor induce vomiting. Seek medical attention.
4.2.	**The most important symptoms and effects both acute and belated:**	Various tests indicate possible occurence of nausea, abdominal cramps and vomiting due to stomach irritation. Symptoms of being exposed to high concentrations of copper are hepatic toxicity and neurological disordes (but no adverse effects on the distribution in the tissues), rapid heart rate, lower blood pressure, cardiovascular collapse and unconsciousness. Even workers with forty years of service don't seem to be affected with lung injury.
4.3.	**Indication of any immediate medical care and special treatment:**	Establish and maintain the necessary vital functions. If necessary, decontaminate the skin and mucous membranes. Antidotes are not indicated. Treatment is symptomatic.

5. Fire fighting measures

5.1.	**Extinguishing media**	
	Suitable extinguishing agents:	Dry extinguishing resource, carbon dioxide (CO_2), foam.
	Unsuitable extinguishing agents:	Do not use direct water jet.
5.2.	**Specific risks associated with 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-gualified persons:	See section 6.3.2
6.1.2	For rescuers:	See section 4.1
6.2.	Environmental precautions	If the water pollution – inform the competent services.
6.3.	Methods and materials for containment and cleaning	
6.3.1.	Appropriate spill containment techniques:	In the event of substance being mixed with water – prevent (substance cover with soil or other absorbent materials) the spread into the underground drainage pipe system or streams.
6.3.2.	Appropriate cleaning procedures	
	Techniques of neutralization:	Cover the substance with soil, peat or other neutral absorbent material.
	Decontamination techniques:	Spillage: protect the affected area; danger warnings must be placed in order to

		protect the contaminated area; notify responsible authorities about the existing danger; withdraw all workers against the direction of the wind; use personal protective equipment (as described in 8.2.2); call the relevant Center for more information.
	Absorbent materials:	Neutral absorbent materials: soil, turf, sand or other absorbent material.
	Cleaning techniques:	In the case of spillage pick up the substance with a shovel and place it into a clean and labeled container with a fully sealable lead. Do not breathe in the dust. If the substance can not 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.
	Suction techniques:	Use industrial vacuum cleaner for dry cleaning – wet and dry vacuum cleaners (with a brush, with adapter for dust).
	The equipment needed for containment / cleaning:	The equipment used depends on the type and extent of contamination. General equipment: tank, neutral absorbent material, shovel and foil to prevent dust. Cleaning is carried out under supervision of experts. It usually takes fire management intervention.
6.3.3.	Improper cleaning techniques:	Retention in the direction of the wind; rinse with water before the substance is mechanically removed; use of detergent with an acid reaction.
6.4.	**References to other sections:**	Not required.
7. Handling and storage		
7.1.	**Precautions for safe handling**	
7.1.1.	Recommendations	
	Safe handling with the 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 hazardous materials and instructions on safety and health at work.
	Prevent treatment with incompatible materials:	Follow all instructions for the work and SDS.
	Prevent releases of substance or mixture:	Follow all instructions for the work and SDS.
7.1.2.	General hygiene (eating, drinking and smoking is strictly prohibited in working areas; washing hands;...):	Use personal protective equipment. Upon completion of work protective clothing must be washed. Likewise the person must wash their hands with water and soap. Even during the break workers should wash their hands. While working you should not eat, drink or smoke.
7.2.	**Conditions for dafe storage, including the incompatibility**	
	Command the risks associated with	
	- explosive atmospheres:	Unspecified.
	- corrosive substances:	The substance must be isolated from corrosive substances (acids, bases).
	- incompatible substances or mixtures:	Substances with acids/strong basic reaction.
	- volatile substances:	Not specified.
	- potential sources of ignition:	Unspecified.
	Control effects	
	- weather conditions:	Substance shouldn't be exposed to rain and shouldn't be used in areas with high humidity.
	- environmental pressure:	Unspecified.
	- temperature:	Room temperature.
	- solar light:	Substance must be separated from direct sunlight.
	- humidity:	The substance is hygroscopic.
	- vibration:	Not specified.
	Ensuring the itegrity of the substance or mixture by the use of	
	- stabilizers:	Not required.
	- antioxidants:	Not required.

	Other advices including the following	
	- ventilation requirements:	Ventilation (local and spatial).
	- specific constructions for storehouse:	Specific constructions are not required.
	- limits by storage conditions:	Limit quantities are not provided by proper storage.
	- compatibility with packaging:	Substance is compatible with the packaging.
7.3.	**Specific end use:**	Use only in accordance with instructions (point 1.2). *Informations for point* 7 are from EFSA *Reference to section 16.*
8. Exposure controls / personal protection		
8.1.	**Control parameters**	
8.1.1.	Threshold limit value (TLV):	**Copper:** Inhalable = 1 mg / m^3; Alveolar = 0,1 mg /m^3; Short term = 4 mg /m^3
	DNEL	Cooper is an essential metal. A regulating mechanism inside the organism is mantaining 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 controls**	
8.2.1.	Appropriate controls:	Ventilation (local and spatial).
8.2.2.	Personal protection	
	- respiratory protection:	In the case of short term-exposure use respirator-dust mask standard EN 149:2001+A1:2009, class: FFP3 protective factor 20. For prolonged or intense exposure use the filtering half masks standard EN 140:1999/AC:2000, with filter for particles EN 143:2017, type:P3.
	- skin protection:	The degree of protection depends on the purpose of handling of the substance. We can use protective clothing (standard EN 13688:2013), which can be washed after use and re-worn, and rubber footwear or footwear protecting against chemicals (standard EN 13832-1:2006). After work we wash with water and soap.
	- hand protection:	Protective gloves made of PVC, PE material or neoprene (standard EN 374-5:2017) with 0.1 to 0.4 mm thick for disposable gloves and 0.5 to 1.0 mm thick for re-usable gloves. After work we wash hands with water and soap and protect the skin with cream.
	- eye / face protection:	Safety glasses to the standard EN 166:2002.
	- heat hazard:	There are no thermic dangers.
	Other:	No need
8.2.3.	Environmental exposure controls:	Contamined 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. *Informations for section 8 are from EFSA.* *Reference to section 16.*
9. Physical and chemical properties		
9.1.	**Information on basic physical and chemical properties**	
	- form:	Fine powder

	- colour:	Green
	- odour:	Odourless
	- pH:	6,0 – 7,5 (1 % water dispersion, at 20 °C)
	- melting point:	Substance decomposes before melting point.
	- boiling point:	No boiling point before decomposition.
	- flash point:	Not required (solid).
	- evaporation rate:	Not applicable. *Explanation*: fine powder.
	- flammability:	Not highly flammable. *Basis for decision:* wholly inorganic salts are not combustible or flammable.
	- upper / lower flammability or explosive limits:	Not applicable. *Explanation*: inorganic salts are not combustible or flammable.
	- vapour pressure:	Not applicable. Inorganic solid compound.
	- vapor density:	Not applicable. *Basis of decision:* fine green powder.
	- 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; dicloromethane: < 10mg/L; toluene: < 11,0 mg/L.
	- partition coefficient: n-octanol/water:	Not viable due to the negligible solubility in water and n-octanol.
	- decomposition temperature:	240 °C (for cca 57,39 % copper)
	- viscosity:	Not required (solid).
	- explosives properties:	No explosive properties.
	- oxidizing solids:	Not oxidizing. The temperature of decomposition is high as the activation energy. Substance copper oxychloride is practicaly inert in oxidation conditions.
9.2	**Other information:**	Surface tension: 72,2 mN/m at 20 °C (57,39 % Cu). *Informations for section* 9 are from EFSA *Reference to section 16.*

10. Stability and reactivity

10.1	**Reactivity:**	Substance is stabe, practically insoluble in water. The substance reacts very slowly.
10.2	**Chemical stability:**	Copper oxychloride is not a self – heating substance. Experience of use indicates that it does not ignite in contact with water or evolve gases. Though copper oxychloride is a solid, experience of use and manufacture indicates taht it may be considered to be corrosive to metals in a solution (low pH, high hardness of water).
10.3	**Possibility of hazardous reactions:**	There are no dangerous reactions (section 9 and 10).
10.4	**Conditions to be avoided:**	Moisture (substance is hygroscopic), substances with acid reaction.
10.5	**Incompatible materials:**	Materials with acid reaction, strong acids and bases, chlorates.
10.6	**Hazardous decomposition products:**	Oxides of copper, hydorgen chloride (in case of fire).

11. Toxicological information

11.1	**Information on toxicological effects**	
	- 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**
	- serious eye damage / irritation:	**Not classified**

	- sensitization by inhalation and skin sensitization:	**Not classified**
	- germ cell mutagenicity:	**Not classified** Copper compounds are unlikely to be genotoxic in normal, correct use.
	- carcinogenicity:	**Not classified** At real levels of exposure, the substance does not show the potential for carcinogenicity.
	- reproductive toxicity:	**Not classified -** does not cause impaired fertility or development of defects of the fetus or offspring. NOAEL (parental, offspring): 15 mg/kg bw/day NOAEL (reproductive): 24 mg/kg bw/day
	- STOT – single exposure:	**Not classified**
	- STOT – repeated exposure:	**Not classified**
	- aspiration hazard:	**Not classified** *The data point 11:* EFSA *Reference to section 16.*
12. Ecological data		
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* *ErC_{50} (algae, 72 h): > 165,9 mg/L*
12.2.	**Stability and degradation:**	**The substance is stable and is not biodegradable.**
12.3.	**The ability to accumulate in organisms:**	**Tests have not shown accumulation in organisms.**
12.4.	**Mobility in soil:**	Copper is medium-mobile. Affects the mobility of copper: **pH** (low acid value - solubility of copper is greater); **redox potential** (cooper is more soluble in wet soils or in soils with low redox potential); microbial activity and **organic matter** (humic substances).
12.5.	**Results of PBT and vPvB assessment:**	**The substance is not considered to PBT/vPvB.**
12.6	**Other adverse effects:**	The risk to soil micro-organisms, biological wastewater treatment and to non-terrestrial land-based plants / organisms is low. No influence on nitrification and mineralization in the soil is noticed. Bees - LD50 oral. (acute): 12.1 µg / bee; LD50 contact (acute): 44.3 µg / bee; Earthworm and other soil microorganisms: NOAEC (earthworms, 10 years): 4 kg Cu / ha / year. Birds: risk is acceptable for doses of 5 kg Cu / ha / year. Copper compounds are not an endocrine disruptor in mammals. *Informations for section 12 are from EFSA* *Reference to section 16.*
13. Disposal considerations		
13.1.	**Methods of waste management:**	Residues of substances are stored in their original 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, ADN, IMDG, ICAO-TI/IATA-DGR:	ADR / RID / IMDG
14.1	**UN Number:**	3288
14.2	**Proper shipping name:**	TOXIC INORGANIC SUBSTANCE, SOLID, N.O.S. (copper oxychloride)
14.3	**Class:**	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:**	Avoid release to the environment. Do not breathe in the dust.
14.7	**Cargo transport with Annex II of MARPOL 73/78 and the IBC code:**	The substance is not to be transported in bulk.

14.8.	**Tunnel restriction code:**	(E)
14.9.	**Classification code:**	T5
14.10.	**Hazard label:**	6.1 
15. Regulatory information		
15.1.	**Regulations / legislation on health, safety and environment specific substance:**	This product is a subject to applicable regulations of Plant Protective Products; CLP Regulation; REACH Regulation; Rules on Classification, Packaging and Labeling 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	**The chemical safety assessment:**	A chemical safety assessment for this substance is not implemented.
16. Other information:		
	Indication of changes	Point: 2, 3, 8.1.1, 9, 11, 12, 14
	A list of all phrases of the hazard (H) and precautionary statements (P) from 2 to 15:	H400 Very toxic to aquatic life.
	Training of workers:	A Course of safety, occupational health, fire safety and handling of hazardous chemicals.
	Sources:	Classified by CLP Regulation (EC) No.: 1907/2006, 1272/2008 with changes and additions Commission Directive No.: 2008/58/EC; 2009/2/EC with changes and additions Legislation on: Safety and Health at Work, Waste management ADR – European Agreement Concerning the International Carriage of Dangerous Goods by Road
	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 ECHA = European Chemicals Agency EFSA = European Food Safety Authority ErC50 = 50% reduction in growth rate LD50 = Median Lethal Dose LC50 = Median Lethal Concentration NOAEL = No Observed Adverse Effect Level NOAEC = No Observed Adverse Effect Concentration PEC = Predicted Effect Concentration PBT = Persistent, Bioaccumulative, Toxic chemical
Information is based on our knowledge of the substance during the preparation of this data sheet. If the buyer does not use the substance as advised he will carry the responsibility of any damages that may occur. Of course, the information in the SDS shall not relieve anyone of customer duty to take into the account all legislation that is bound to its area of activity.		