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SAFETY DATA SHEET	Page 1 of 7
	Issued on: 24.02.2016
Trade name: **CUPRABLAU Z 35 WG**	Revised on: 20.08.2018
	Version: 03

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

1.1.	**Product identifier (Product registration number):**	**CUPRABLAU Z 35 WG** *(Reference no. for copper oxychloride: 02-2119698277-20-0000)*
1.2.	**Relevant identified uses of the substance/mixture and uses advised against:**	Plant Protective Product (PPP): preventive contact fungicide/bactericide Not mixed with products having acid 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.**
1.3.2.	Supplier address and phone:	Kidričeva 26, 3001 Celje, SLOVENIA Tel.: +386 3 427 60 00
1.3.3.	E-Mail (competent person):	vesna.gabersek@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)**	**Eye Irritant; Category 2** **Hazardous to the aquatic environment /Acute/; Category 1** **Hazardous to the aquatic environment /Chronic/; Category 1** **Hazard Statements:** H319, H400, H410 *Note: Detailed explanation can be found under point 16.*
2.2.	**Label elements:**	*GHS09, GHS07*  **Warning** **Hazard Statements:** H319 Causes serious eye irritation. H410 Very toxic to aquatic life with long lasting effects. **Precautionary Statements:** P280 Wear protective gloves/protective clothing/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. P337 + P313 If eye irritation persists: Get medical advice/attention. P391 Collect spillage. P501 Dispose of contents / container in accordance with national regulations.
2.3.	**Other hazards:**	SPe1 Do not contaminate water with the product or its container. Do not clean application equipment near surface water/ Avoid contamination via drains from farmyards and roads. EUH401 To avoid risks to human health and the environment, comply with the instructions for use.

3. Composition/information on ingredients

3.1. **Substances/ mixture: CUPRABLAU Z 35 WG**

Chemical name	CAS No. EC No. Index No.	ECHA Reference No.	% wt/vol/max. conc.	Classification according to 1272/2008 Hazard phrases (H) Class and category of risk
Dicopper chloride trihydroxide *Reference: section 16.*	1332-65-6 215-572-9 029-017-00-1	02-2119698277-20-0000	61,5 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 first aid measures:**	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.
	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.
	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.
	Eyes/mycosis 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.
	Ingestion:	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	**Most important symptoms and effects, acute and delayed:**	Various tests indicate possible occurrence of nausea, abdominal cramps and vomiting due to stomach irritation. Symptoms of being exposed to high concentrations of copper are hepatic toxicity, neurological disorders (but no adverse effect 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 attention and special treatment needed:**	Establish and maintain the necessary vital functions. In case of larger consumption of preparation, gastric lavage is needed. There is no specific antidote. Treatment is symptomatic.

5. Firefighting measures

5.1.	**Extinguishing media**	
	Appropriate media:	Use dry extinguishing media, carbon dioxide CO_2 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:**	n.a.

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:**	
6.3.1.	Appropriate spillage retaining techniques (fencing, covering drains, retaining procedures):	In the case when the product is mixed with water – prevent (product 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 the product with soil, peat of 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 product 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 product can not be re-used it should be disposed of in accordance with the applicable Rules of the disposal of hazardous waste. If the product 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 product 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:	
	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 Plant Protective Product.
	Prevent handling of incompatible substances or mixtures:	Follow all instructions for use and SDS.
	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 product must be isolated from corrosive substances (acids, bases).
	- incompatible substances or mixtures:	Substances with acids / strong basic reaction.
	- evaporation substances:	Not specified.
	- potential ignition sources:	Unspecified.
	How to control the effects of	
	- weather conditions:	Product shouldn’t be exposed to rain and shouldn’t be used in areas with high humidity.
	- ambient pressure:	Unspecified.
	- temperature:	Room temperature.
	- sunlight:	Product must be separated from direct sunlight.
	- humidity:	The product is hygroscopic.
	- vibrations:	Not specified.
	Securing integrity of substance or mixture by use of:	
	- stabilizers:	Not required.

	- antioxidants:	Not required.
	Other advice including:	
	- ventilation requirements;	Ventilation (local and spatial).
	- 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:	Product is compatible with the packaging.
7.3.	**Specific end use(s):**	Use only in accordance with instructions (point 1.2). *Informations for point 7 are from EFSA* *Reference to section 16.*
8. Exposure control/ personal protection		
8.1.	**Control parameters**	
8.1.1.	Limit values (MV):	Copper: Inhalable = 1 mg /m^3; Alveolar = 0,1 mg /m^3; Short term = 4 mg /m^3
	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:	
	- 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 radiation protection:	There are no thermic dangers.
	Other:	No need.
8.2.3.	Environment exposure control:	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:**	
	- appearance	Wettable Granules (WG)
	- color	Green
	- odor:	Odorless
	pH:	8,5 – 10,0 (1 % aqueous dispersions, at 20°C)
	Melting/freezing point:	Decomposes before melting point > 200°C.
	Boiling point and boiling range :	Decomposes before boiling point > 200°C.
	Flash point:	Not required (solid).
	Vaporization rate:	Not applicable (fine powder).
	Flammability (solid, gas):	Not flammable (inorganic salts are not combustible or flammable).
	Upper/lower flammability or explosive limit:	Not applicable (inorganic salts are not combustible or flammable).
	Vapor pressure:	Not applicable (inorganic solid compound).
	Vapor density:	Not applicable (fine 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. *Data for active substance: copper oxychloride.*
	partition coefficient: n-octanol-water	Not viable due to negligible solubility in water and n-octanol.
	Decomposition temperature:	240°C (for ca 57,39% copper).
	Viscosity:	Not required (fine inorganic powder).
	Explosion properties:	Not explosive. Copper oxychloride is an inorganic salt which is stable and don't have explosive properties.
	Oxidation properties:	No oxidizing properties. 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 ^{O}C (57,39 % Cu). *Informations for section 9 are from* EFSA *Reference to section 16.*

10. Stability and reactivity

10.1.	**Reactivity:**	The product is very stable, insoluble in water, soluble in mineral acids, acetic acid and ammonium hydroxide.
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 is not expected).
10.4.	**Conditions to avoid:**	Moisture (product 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, hydrogen chloride (in case of fire). When stored and used correctly, decomposition doesn't occur.

11. Toxicological data

11.1.	**Information on toxicological effects**	
	- Acute toxicity:	**Acute toxicity / oral / - Not classified** LD 50 (rat): > 2000 mg/kg b.w. (*product testing*) **Acute toxicity / inh./; Not classified** LC50 (rat): > 5,08 mg/L air/ 4h (*product testing*) **Acute toxicity / derm./ - Not classified** LD 50 (rat): > 2000 mg/kg b.w. (*product testing*)

	- skin corrosion/irritation:	**Not classified** Skin irritation test (rabbits): Not irritant. (*product testing*)
	- Serious eye damage/irritation:	**Eye Irritant; Category 2** *Source: product testing.*
	- respiratory or skin sensitization:	**Not classified** *Source: product testing.*
	- 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.
	- Toxicity for reproduction:	**Product is not toxic to reproduction** – 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**
	- Inhalation hazards:	**Not classified** *Informations for section 11 are from* EFSA *Reference to section 16.*
12. Ecological information		
12.1.	**Toxicity:**	**Cuprablau Z 35 WG: Aquatic Acute toxicity, Category 1 and the Aquatic Chronic toxicity, Category 1** *Product is classified as substance – copper oxychloride:* *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.	**Persistence and degradability:**	The substance copper oxychloride is persistent and not biodegradable. Degradation is not expected.
12.3.	**Accumulation in organisms:**	Tests did not show accumulation of copper 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.	**PBT and vPvB assessment results:**	**The substance is not considered as PBT/vPvB.** The substance is persistent, bioaccumulation is very low. Substance is rarely an indicator of toxicity.
12.6.	**Other adversative 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.	**Waste treatment methods:**	Remain product should be stored in original, labeled packaging. When the buyer or the final user ceases to engage with plant protection, product and packaging should be submitted to an authorized collector of hazardous substances in accordance with the applicable environmental legislation regulating the management of hazardous waste 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	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper oxychloride)
14.1.	**UN number:**	3077

14.2.	**UN proper shipping (technical name if required):**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (copper oxychloride)
14.3	**Transport hazard class:**	9
14.4.	**Packaging group:**	III
14.5.	**Hazard to environment:**	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.	**Bulk transport by MARPOL 73/78 Annex II and IBC Code:**	The product is not to be transported in bulk.
14.8.	**Tunnel code:**	(E)
14.9.	**Classification code:**	M7
14.10.	**Limited quantities (LQ):**	Up to 5 kg
14.11.	**Hazard label:**	9 

15. Regulatory information

15.1.	**Rules and regulations regarding health, safety, and environmental hazard specific to the substance or mixture:**	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.	**Chemical safety assessment:**	A chemical safety assessment for this product is not implemented.

16. Other information

	Amendments made in the revised edition:	Point: 2.1, 3, 8, 9, 11, 12, 16
	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.
	Training of personnel:	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, Active substance and Plant Protective Products, 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 EFSA = European Food Safety Authority EC50 = Median effective concentration 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 PBT = Persistent, Bioaccumulative, Toxic PEC = Predicted effect concentration REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals

Informations are based on our current knowledge of the product. If the buyer does not use the product as advised, he will carry the responsibility of any damages that may occur. Of course, the information in the SDS does not mean, that is not necessary to consider all legislation that is bound to buyer's area of activity.