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SAFETY DATA SHEET	Page 1 of 8
	Issued on: 12.01.2018
Trade name: **TRIBASIC COPPER SULPHATE Technical**	Revised on: 03.10.2022
	Version: 03

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

1.1.	**Product identifier (Product registration number, nanoform, UFI):**	**TRIBASIC COPPER SULPHATE Technical**	
1.2.	**Relevant identified uses of the substance/mixture and uses advised against:**	Inorganic salt for the Plant Protective Product (PPP): fungicide / bactericide. Not mix with materials having an acid or a strong basic pH 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 4** **Hazardous to the aquatic environment /Acute/; Category 1** **Hazardous to the aquatic environment /Chronic/; Category 1** **Hazard Statements:** H302, H400, H410
2.2.	Label elements:	GHS09, GHS07  **Warning** H302 Harmful if swallowed. H410 Very toxic to aquatic life with long lasting effects. P264 Wash with plenty of water and soap after handling. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. P301 + 312 IF SWALLOWED: Call a POISON CENTRE/doctor/… if you feel unwell. 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: TRIBASIC COPPER SULPHATE Technical**

Chemical name	CAS No. EC No. Index No.	Reference No.	% wt/vol/max. conc.	Classification according to Regulation (EC) No 1272/2008 (CLP)	SCL, M-factor, ATE
Tribasic copper sulphate	12527-76-3 215-582-3 029-018-00-7	*02-2119707604-43-0000*	94 – 96.5 wt. %	Acute toxicity /oral/; Category 4 Hazardous to the aquatic environment /Acute/; Category 1; M = 10 Hazardous to the aquatic environment /Chronic/; Category 1; M = 10 Hazard Statements: H302, H400, H410	oral: ATE = 500 mg/kg b w 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 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:**	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 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	
	Neutralization techniques:	Cover the fertilizer 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 substance 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 in the product, 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:	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:	Fertilizer 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:	
	- 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 need.
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.

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 – 8,5 (1 % aqueous dispersions, at 20°C)
	Melting/freezing point:	Decomposes before melting point.
	Boiling point or initial boiling point and boiling range	No boiling point before decomposition.
	Flash point:	Not required (solid).
	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 (54,2% Cu): < $3{,}42 \cdot 10^{-3}$ g/L, at pH = 7; 0,5 g/L, at pH = 4-6 Organic solvents (20°C): Acetone, ethyl acetate, heptane: < 0,1 g/L; dichloromethane: < 10mg/L;

		toluene = <11.0 mg / L
	Partition coefficient: n-octanol-water:	Not applicable (negligible solubility in water and n-octanol).
	Decomposition temperature:	360°C (for approx. 54,2 % 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 (54,2 % Cu). Data for section 9: EFSA Reference to section 16.
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:**	Substance is stable and reacts very slowly.
10.2.	**Chemical stability:**	Tribasic copper sulphate is not a self – heating substance. Experience of use indicates that it does not ignite in contact with water or evolve gases. Though tribasic copper sulphate is a solid, experience of use and manufacture indicates that it may be considered to be corrosive to metals in a solution (low pH, high hardness of water).
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.
10.6.	**Hazardous decomposition products:**	Copper oxides, sulphur fumes (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 4** LD50 oral. (rat): 300-500 mg/kg bw **Acute toxicity (inhalation); Not classified** **Acute toxicity (derm.); Not classified** LD50 derm. (rat) = > 2000 mg/kg
	- Skin corrosion/irritation:	Not classified.
	- Serious eye damage/irritation:	Not classified.
	- Respiratory or skin sensitisation:	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.
	- Toxicity for reproduction:	Not classified **-** does not cause impaired fertility or development of defects of the foetus 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:	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*
12.2.	**Persistence and degradability:**	The substance is stable and is not biodegradable.
12.3.	**Bio accumulative potential:**	Tests did not show 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:**	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 wastewater treatment and to non-terrestrial land-based plants / organisms is low.
13. Disposal considerations		
13.1.	**Waste treatment methods:**	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, AND, IMDG, ICAO-TI/IATA-DGR	ADR /RID / IMDG
14.1.	**UN number or ID number:**	3077
14.2.	**UN proper shipping name:**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. /tribasic copper sulphate/
14.3	**Transport hazard class(es):**	9
14.4.	**Packaging group:**	III
14.5.	**Environmental hazards:**	YES ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. /tribasic copper sulphate/
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 substance 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; CLP Regulation; REACH Regulation; 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 substance is not implemented.

16. Other information

	Amendments made in the revised edition:	Correction of version
	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:	H400 Very toxic to aquatic life.
	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 classification.
	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 STOT = Specific Target Organ Toxicity vPvB = very Persistent and very Bio accumulative Substance

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.