MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product code: A00000240
Name : **Vcopper™ High Reduction Efficiency**

Company:

VELP SCIENTIFICA s.r.l.
Via Stazione, 16
20865 USMATE (MB)
Italy

Telephone : +39 039-628811
Fax : +39 039-6288120
E-mail address: analyticalsupport@velp.it

2. HAZARDS IDENTIFICATION

Classification according to Regulation (EC) n. 1272/2008 (CLP/GHS):
Hazard classes and categories (Reg. 1272/2008): Aquatic Acute 1, Aquatic Chronic 3
Hazard statements (Reg. 1272/2008): H400;H412
Classification according to Directive 67/548/EC :
N – Dangerous for the environment
R50
Labelling according to Regulation (EC) No. 1272/2008 (CLP/GHS)
Hazard pictogram:

Signal word: DANGER
Symbol: Environment, Pictogram Code: GHS09
Hazard statement:
H400: Very toxic to aquatic life
H412: Very toxic to aquatic life with chronic effetct
Precautionary statement:
P273 Avoid release to the environment.
P391 Collect spillage.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
The substance does not meet the criteria for a PBT or vPvB substance in accordance to Regulation EC 1907/2006 -13

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Regulation n. 1272/2008
EINECS N° 231-159-6
CAS N° 7440-50-8
INDEX N° n.a.
Chemical name Copper Conc. (% w/w) min 95
Hazard class and category code Aquatic Acute1, Aquatic chronic 3
Hazard Statement H400

REACH Registration number 01-2119480154-42-000

4. FIRST AID MEASURES

Skin contact: Wash carefully contaminated skin with soap and warm water. Obtain medical advice if irritation occurs.In case of contact with the molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin, because skin tear easily. Cuts or abrasion should be treated promptly with thorough cleansing of the affected area.

Eye contact: Use general measures if eye irritations occur. Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.

Inhalation: Move the exposed person to fresh air at once. Perform artificial respiration if necessary. Obtain medical attention as soon as possible.

Ingestion: In case of significant oral intake(several mg Cu), rinse mouth and give 200-300 ml water to drink. Do not induce vomiting. Get medical attention if any discomfort continues.

Most important symptoms and effects, both acute and delayed:
Gastro-intestinal symptoms are the first symptoms for high oral intakes of soluble copper compounds.
Vomiting may occur.
The most critical organ for delayed effects from “copper excess” is the liver.
Nose-lung irritation may be symptoms occurring after inhalation of fumes/dusts/mists containing copper.
Exposure by inhalation of fine powders in large quantities, may produce symptoms called metal fume fever which last 24/48 hours.

5. FIRE-FIGHTING MEASURES

Extinguish media
Suitable extinguish media: Dry powder extinguisher class D or dry sand.
DO NOT USE: Do not use water or halogenated extinguishing media.
Special protective equipment for firefighters: Wear oxygen or air respirator and suitable safety devices (suit, shoes, hard hat, gloves and glasses).
Potential risk of exposition: Respirable dust and fume.
Particular practice: WARNING: ***Special attention must be paid to processes and/or systems that might raise clouds of very fine powder likely to be flammable in the presence of primers.***

Special hazards arising from the substance: Material is non-flammable.

Advice for fire-fighters: Wear a self-contained breathing apparatus and a fully protective suit and gloves.
Dispose of fire debris and contaminated fire fighting media in accordance with official regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
For non-emergency personnel:
Avoid formation of dust. Ensure adequate ventilation. Avoid inhalation of dust and fumes.
Wear suitable protective equipment.

For emergency personnel:
Avoid formation of dust. Ensure adequate ventilation. Avoid inhalation of dust and fumes.
Wear suitable protective equipment.Keep unprotected persons away.
Environmental precautions:
Keep product away from sewers, surface and underground waters and from the ground.
Methods and material for containment and cleaning up. Do not use compressed air.
Place in a container for recycling with a small shovel.

7. HANDLING AND STORAGE

Precautions for safe handling
Do not reuse empty vessels before they have been cleaned or reconditioned.
Clear up industrial lines and vessels before working with ignition sources.
Before making operations of pouring off, assure yourself that inside the tank there aren't residuals of incompatible substances.
In the matter of protective devices, consult section No. 8 of this SDS.
Conditions for safe storage, including any incompatibilities
Covered, dry and naturally-ventilated area.
Avoid placing material on the floor.
Keep away from food, feed and beverages
Keep away vessels from strong oxidizing agents
Powder must be kept dry.
Do not stack more than 3 pallets high (for products packed in drums).
Do not stack more than 1 pallet high (for products packed in big-bags).
The storage of the product in the stockpiling area must avoid soil percolation of accidental spillages.
Specific end uses: None

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMIT VALUES:

TLV - TWA (ACGIH, 2008) **Cu 0,2 mg/m³ (fumes)**

TLV – TWA (ACGIH, 2008) **Cu 1 mg/m³ (dusts and mists)**

EXPOSURE PATTERN	ROUTE	DESCRIPTOR	DNEL
Human- Long-term - systemic effects	Oral, dermal and inhalation	Internal dose DNEL (Derived No Effect Level). Using absorption factors of 25% for oral, 100% for inhalation (respirable) and 0.03% for dermal exposure routes	0.041mg Cu/kg B wt/d
Human- Short-term - systemic effects	Oral, dermal and inhalation	Internal dose DNEL (Derived No Effect Level) Using absorption factors of 25% for oral, 100% for inhalation (respirable) and 0.03% for dermal exposure routes	0.082mg Cu/kg B wt/d
Human- Short-term – effects- drinking water	Oral	A NOAEL for drinking water	4 mg/l

VENTILATION: Work area must be sufficiently ventilated to keep concentration below the exposure limit

For Denmark, exposure limits are:
-TLV-TWA (ACGIH, 2009), fumes OEL Cu 0.1 mg/m^3
-TLV-TWA (ACGIH, 2009), dust and fogs OEL Cu 1 mg/m^3

Appropriate engineering controls:

Use local ventilation to keep concentration below established threshold values
Personal protection controls
Respiratory protection: Filter mask FFP2 (S) for dusts and FFP3 for fumes.
Local exhaust fumes ventilation (high efficiency: 90-95%)
Cyclones/Filters (to minimize atmospheric emission of dust)
Hands protection: Not necessary
Eye protection: Use safety glasses (EN 166 1F), do not use contact lenses
Skin protection: Not necessary
Environmental exposure controls: avoid release to the environment
Take precautions against spillage into public sewage or into water channels.
Dispose of material and its vessels in hazardous waste collecting area.
No smoking, eating or drinking in the work
area.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE (20°C and 1013 hPa) : Solid. Irregular powder with various granulometry
COLOUR: Copper red
ODOUR: Odourless
ODOUR THRESHOLD: Not applicable as odourless
pH: Not applicable to an inorganic solid
MELTING POINT[°C]: 1059-1069
INITIAL BOILING POINT AND BOILING RANGE[°C]: Not applicable to a solid that melts > 300°C (column 2 of Annex VII of the Reach Regulation)
FLASH POINT[°C]: Not applicable to an inorganic solid
EVAPORATION RATE: Not applicable to an inorganic solid
FLAMMABILITY: Non flammable
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS [g/m3]: Non flammable.
VAPOUR PRESSURE: Not applicable to a solid that melts > 300°C (column 2 of Annex VII of the Reach Regulation)
VAPOUR DENSITY: Not applicable to an inorganic solid
RELATIVE DENSITY [g/cm3]: 0.65 – 5.5
SPECIFIC WEIGHT [g/cm3 at 20 °C]: 8.78
WATER SOLUBILITY [mg/l]: Insoluble – copper needs to be transformed into a copper compound to become soluble. A solubility test (OECD 105) demonstrated a solubility of <1mg Cu/L for a copper powder
PARTITION COEFFICIENT NOCTANOL/WATER: Not applicable to an inorganic solid.
AUTO-IGNITION TEMPERATURE: No auto-ignition.
DECOMPOSITION TEMPERATURE: Decomposition and/or melting starts at 1.059 ° C
VISCOSITY: Not applicable to an inorganic solid
EXPLOSIVE PROPERTIES: Non explosive. The substance does not contain chemical groups associated with explosive properties

10. STABILITY AND REACTIVITY

Reactivity N.A. See section 9.
Chemical stability Under normal conditions of use, the product is stable.
Possibility of hazardous reactions: Reaction with H- equivalents releases soluble copper compounds.
Conditions to avoid: Avoid dust formation and contact with acids.
Incompatible materials: Strong acid
Hazardous decomposition products: The element Cu does not decompose but may be transformed

11. TOXICOLOGICAL INFORMATION

Routes of exposure: inhalation, ingestion and skin-contact.
Acute oral, dermal and inhalation toxicity:
Oral. LD-50 rats: > 2000 mg/kg body weight. Not classified
Dermal. Not classified
Inhalation. Fractions with d50 > 10 µm: Not classified. (Fraction < 10 µm: Harmful by inhalation. LD-50 rats: 1-5 g/m3 air)
Risk of exposure:
STOT single exposure: Not classified
Skin corrosion/irritation: Not classified
Respiratory or skin sensitization: Not classified
Repeated dose toxicity and STOT-RE: Not classified
Mutagenicity: Not classified
Carcinogenity: Not classified
Reproductive toxicity: Not classified
Only selected registry of toxic effects of chemical substances (rtecs) data is presented here.
See actual entry in rtecs for complete information.

12. ECOLOGICAL INFORMATION

Toxicity
Acute aquatic toxicity: Toxicity for pH = 5,5-6,5:L(E)C50 of 25.0 µg Cu/L (Van Sprang et al., 2010, in Copper Chemical Safety Report(CSR), 2010). M-factor: 1
Chronic freshwater toxicity: Not classified.
Predicted No-Effect Concentration (PNEC): 7,8 µg/l is the value of dissolved Cu/l to be used to assess local risks.
Chronic marine waters toxicity: Not classified. PNEC: 5,2 µg/l is the value of dissolved Cu/l to be used to assess local risks.
Chronic freshwater sediment toxicity: PNEC in freshwater sediment is: 87 mg Cu/kg dry sediment weight. It should be used to assess local risks.
Soil toxicity: PNEC in soil is: : 65,5 mg Cu/kg dry weight. It should be used to assess local risks.
Persistence and degradability: Not applicable
Bioaccumulative potential: Not applicable
Mobility in soil: Copper-ions bind strongly to the soil matrix. The binding depends on the soil properties. A median water-soil partitioning coefficient (Kp) of 2120 L/kg has been derived for soils
Results of PBT and vPvB assessment: The PBT and vPvB criteria of Annex XIII to the REACH Regulation do not apply to inorganic substances, such as copper and its inorganic compounds
Other adverse effects: Copper is not expected to contribute to ozone depletion, ozone formation, global warming

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Disposal procedures according to Reg 2014/13572/UE and to decisions 2008/98/EC, as amended by 2014/955/UE

Product disposal: dispose as hazardous waste, according to in force law. In virtue of the origin of the waste and of its present state, several European Waste Codes (EWC) can be applied.
Packaging disposal: dispose according to in force law.

In virtue of the origin of the waste and of its present state, several European Waste Codes (EWC) can be applied

14. TRANSPORT INFORMATION

	Road/ Rail/ Inland Waterways Transport (ADR/RID/ADN)	Maritime Transport (IMDG Code)	Air Transport (ICAO T.I./IATA)
UN number	3077	3077	3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE (copper powder), SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE (copper powder), SOLID, N.O.S..	ENVIRONMENTALLY HAZARDOUS SUBSTANCE (copper powder), SOLID, N.O.S.
Transport hazard class(es)	9	9	9
Transport label/s	9	9	9
Packing group	III	III	III
Environmental hazards	Classified as hazardous	Classified as hazardous	Classified a hazardous
Special precautions for user	(*)	EmS : F-A, S-F (*)	(*)
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable	Not applicable	Not applicable
Labelling			

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance.
The substance is NOT subject to:
- Regulation (EC) n. Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer;
- Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants;
- Regulation (EC) n. 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals.
Chemical Safety Assessment: it has been carried out

16. OTHER INFORMATION

Type of revision: every section - This SDS cancel and substitute every past SDS editions.
Consistent with Regulation (EC) N. 453/2010.
The information reported in this Safety Data Sheet are based on the best scientific and toxicological knowledge up to the date indicated above. These information are based on the bibliography below. Reported data refers only to the pure substance. The downstream user must follow in force laws, and make sure that the SDS information are up to date, appropriate and complete in relation to the product utilization date and to the on-site specific use.

Description of the most important Risk Phrase used in section 2 and 3 of the present SDS
R 50: Very toxic to aquatic organisms.
Description of the most important Hazard Statement used in section 2 and 3 of the present SDS
H400: Very toxic to aquatic life.
Safety Data Sheet based on:
- Regulation EC n. 1907/2006 (REACH)
- Regulation EC n. 2172/2008 (CLP)
- Regulation EC n. 453/2010

Laws and References
- D.Lgs. 152/2006 (Italian law)
- ADR (European Agreement concerning the International Carriage of Dangerous Goods by Road) .
- IMDG Code (International Maritime Dangerous Goods Code).
- IATA (International Air Transport Association).
- SAX'S, (Dangerous Properties of Industrial Materials)
- ACGIH (2009) American Conference of Governmental Industrial Hygienists
- Chemical Safety Report(CSR) Copper 2010

Abbreviations
DNEL: Derived No-effect Level
EC10: Effective concentration to 10% of the test organisms
HC-5: The concentration without effect for 95% of the species = statistically derived environmental threshold value.
LC10: Lethal concentration to 10% of the test organisms
LC50: Lethal concentration to 50% of the test organisms
LD50: Lethal dose to 50% of the test organisms
NOEC: No Observed effect concentration = highest concentration tested without effects
PBT: Persistent Bioaccumulative and Toxic
PNEC: Predicted No-effects concentration
REACH: EC regulation on Registration, Evaluation and Authorisation of Chemicals
TLV-TWA: Threshold Limit Value (TLV) – Time Weighted Average
vPvB. Very Persistent, very Bioaccumulative

The above information is believed to be correct but does not purport to be all inclusive and shall be used as a guide only.
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