Infosafe No™	1CH25	Issue Date :January 2019	RE-ISSUED by CHEMSUPP

Product Name : **COPPER (FOIL, TURNINGS AND WIRE)**

Not classified as hazardous

1. Identification

GHS Product Identifier: COPPER (FOIL, TURNINGS AND WIRE)

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Recommended use of the chemical and restrictions on use: Electrical wiring and conductors, switches, ammunition, manufacture of bronzes, brass and other copper alloys, plumbing, works of art; electroplated protective coatings and undercoats for nickel chromium, zinc etc. cooking utensils; corrosion resistant piping; insecticides; catalyst; antifouling paints. Flakes used as insulation for liquid fuels. Whiskers used in thermal and electrical composites; laboratory reagent.

Other Names

Name	Product Code
COPPER WIRE LR	CL076
COPPER FOIL LR	CL054
COPPER TURNINGS TG	CT056
COPPER FOIL AR	CA054

Other Information

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture: Not classified as hazardous according to the Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004] 3rd Edition, Safe Work Australia.
Not classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

3. Composition/information on ingredients

Chemical Characterization: Solid

Ingredients

Name	CAS	Proportion	Hazard Symbol	Risk Phrase
Copper	7440-50-8	100 %		

4. First-aid measures

Inhalation: No specific measures

Ingestion: Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.

Skin: Remove contaminated clothing and wash affected skin with soap and water. Seek medical advice if effects persist.

Eye contact: Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. In all cases of eye contamination it is a sensible precaution to seek medical advice.

First Aid Facilities: Maintain eyewash fountain and safety shower in work area.

Advice to Doctor: Treat symptomatically based on judgement of doctor and individual reactions of the patient.

Other Information: For advice, contact the National Poisons Information Centre (Phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products: Irritating, toxic and corrosive fumes and vapours, including copper fumes and oxides of copper.

Specific Methods	Use extinguishing media most appropriate for the surrounding fire.
Precautions in connection with Fire	Use suitable protective equipment for surrounding fire.

6. Accidental release measures

Personal Protection	Use personal protective equipment listed in Section 8.
Clean-up Methods - Small Spillages	Sweep up (avoid generating dust) and remove to a suitable, clearly labelled container for disposal in accordance with local regulations.

7. Handling and storage

Precautions for Safe Handling	Avoid generation or accumulation of dusts. Avoid prolonged or repeated contact with skin, eyes and clothing . Keep container tightly closed when not in use. Keep away from incompatibles such as acetylene, ammonium nitrate, bromates, chlorates, iodates, chlorine, (chlorine and oxygen difluoride), chlorine trifluoride, ethylene oxide, fluorine, hydrogen peroxide, hydrazine mononitrite, hydrogen sulfide, hydrazoic acid, lead azide, potassium peroxide, sodium azide, and sodium peroxide, strong acids and strong oxidizing agents.
Conditions for safe storage, including any incompatabilities	No special storage requirements.
Corrosiveness	More resistant to atmospheric corrosion than iron, forming a green layer of hydrated basic carbonate. Readily attacked by alkalies. Attacked by acetic acid and other organic acids.

8. Exposure controls/personal protection

Occupational exposure limit values

Name	STEL		TWA		
	mg/m3	ppm	mg/m3	ppm	Footnote
Copper			0.2		Copper (fumes)

Other Exposure Information	These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity. A time weighted average (TWA) has been established for Copper, dusts & mists (as Cu) (Safe Work Australia) of 1 mg/m³ and for Copper (fume) (Safe Work Australia) of 0.2 mg/m³. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.
Appropriate engineering controls	In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. These methods should be used in preference to personal protective equipment.
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.
Hand Protection	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Excellent: Nitrile, Neoprene gloves Fair: NR Latex.
Personal Protective Equipment	Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.
Body Protection	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hygiene Measures	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

9. Physical and chemical properties

Form	Solid
Appearance	A metal with a distinct reddish colour.
Odour	Odourless.
Melting Point	1083 °C
Boiling Point	2595 °C
Solubility in Water	Insoluble.
Solubility in Organic Solvents	Slowly soluble in ammonia water.
Specific Gravity	8.94
Vapour Pressure	1 mm (@ 1628 °C)
Flammability	Non combustible material.
Molecular Weight	63.55
Other Information	Ductile, malleable. Excellent conductor of electricity. Dissolves readily in nitric and hot concentrated sulfuric acids, in hydrochloric and dilute sulfuric acids slowly, but only when exposed to the atmosphere. Heat of fusion: 48.9 cal/g. Mohs' hardness: 3.0. Specific Resistance: 1.673 microohms/cm.

10. Stability and reactivity

Chemical Stability	May discolour on exposure to air and moisture.
Conditions to Avoid	Moisture. Heat, flames, ignition sources and incompatibles.
Incompatible Materials	Keep away from incompatibles such as acetylene, ammonium nitrate, bromates, chlorates, iodates, chlorine, (chlorine and oxygen difluoride), chlorine trifluoride, fluorine, ethylene oxide, fluorine, hydrogen peroxide, hydrazine mononitrite, hydrogen sulfide, hydrazoic acid, lead azide, potassium peroxide, sodium azide, and sodium peroxide, strong acids and strong oxidizing agents.
Hazardous Decomposition Products	Copper oxides. Emits toxic fumes.
Possibility of hazardous reactions	Reacts violently with acetylene, ammonium nitrate, bromates, chlorates, iodates, chlorine, chlorine trifluoride, (chlorine + oxygen difluoride), ethylene oxide, fluorine, hydrogen peroxide, hydrazine mononitrate, hydrazoic acid, hydrogen sulfide, lead azide, potassium peroxide, sodium azide and sodium peroxide.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Ingestion	Ingestion of sufficient concentrations may cause irritation and possible burning and pain of mucous membranes in the mouth, pharynx, oesophagus, and gastrointestinal tract, with metallic taste, salivation, headache, nausea, abdominal/gastric pain, dizziness, convulsions, shock, bloody diarrhoea and vomiting. The vomitus is characteristically greenish-blue. If vomiting does not occur immediately systemic copper poisoning may occur, symptoms include of capillary damage, headache, cold swear, weak pulse, stomach and intestine ulceration, internal haemorrhage, nephritis, jaundice, CNS damage, kidney and liver damage, shock, coma and possibly death. Poisoning could occur due to this material being soluble in hydrochloric acid, which the stomach contains.
Inhalation	Inhalation of copper dust and fumes may irritate the respiratory tract (nose, throat, lungs) and mucous membranes. Symptoms may include of coughing, sore throat, wheezing, metallic taste, high temperature, and shortness of breath. May result in harmful corrosive effects including lesions, ulcerations and perforation of the nasal septum and respiratory tract, delayed pulmonary oedema, pneumonitis and emphysema. When heated this compound may give off copper fume, which may cause 'fume metal fever' with symptoms similar to the common cold, including chills and stiffness of the head as well as high temperatures, nausea, coughing and general weakness.
Skin	May cause discolouration of the skin; greenish-black skin. May cause skin irritation, possibly severe, resulting in redness, itching and pain. May cause skin sensitization, an allergic reaction, which becomes

	evident upon re-exposure to this material.
Eye	Causes eye irritation with symptoms including redness, itching, pain, stinging, blurred vision, discoloration and possible eye damage (permanent corneal opacifiaction, chemical conjunctivitis, ulceration) leading to irreversible eye injury.
Carcinogenicity	No evidence of carcinogenic properties.
Chronic Effects	Prolonged or repeated exposure to dusts of copper may cause discolouration of the skin or hair and or demantitis. Repeated inhalation can cause chronic respiratory disease. Prolonged or repeated exposure to the eye may cause severe injury to the iris or cornea and may cause blindness. Prolonged or repeated exposure may cause blood and liver damage, ulcerationand perforation of the nasal septum, runny nose, metallic taste, atrophic changes and irritation of the mucous membranes. Chronic copper poisoning is typified by hepatic cirrhosis, enlargement of the liver, jaundice, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis. Pregnant women should not use this product! This product has been suspected to cause birth defects, low birth weight, psychological, behavioural defects, and cause adverse effects on the female and male reproductive systems.
Mutagenicity	No evidence of mutagenic properties.
Other Information	Due to the physical form of this product no hazardous properties are expected when used and handled with appropriate care. The above TOXICOLOGICAL INFORMATION relates to copper dust.

12. Ecological information

Ecotoxicity	Quantitative data on the ecological effect of this product are not available.
Persistence and degradability	Methods for the determination of biodegradability are not applicable to inorganic substances.

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

14. Transport information

Transport Information	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG); by the IATA Air Transport Dangerous Goods Regulations; or by the IMDG (International Maritime Dangerous Goods) Code. Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS). Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	Not Scheduled

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Chemical Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.
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Empirical Formula & Structural Formula Cu

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