Infosafe No™ 1CH2A Issue Date :August 2022 RE-ISSUED by CHEMSUPP

Product Name **Copper oxide black**

Classified as hazardous

Section 1 - Identification

Product Identifier	Copper oxide black
Company Name	CHEMSUPPLY AUSTRALIA PTY LTD (ABN 19 008 264 211)
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia
Telephone/Fax Number	Tel: (08) 8440-2000
Emergency Phone Number	CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)
E-mail Address	www.chemsupply.com.au
Recommended use of the chemical and restrictions on use	Ceramic colourant, reagent in analytical chemistry, insecticide for potato plants, catalyst, purification of hydrogen, batteries and electrodes, aromatic acids from cresols, electroplating, solvent for chromic iron ores, desulfurising oils, rayon, metallurgical and welding fluxes, antifouling paints, phosphors and laboratory reagent.

Other Names

Name	Product Code
COPPER (II) OXIDE	
COPPER (II) OXIDE LR	CL055
COPPER (II) OXIDE AR	CA055
Cupric oxide	
Copper monoxide	
Black copper oxide	

Other Information

ChemSupply Australia 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 ChemSupply Australia 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 ChemSupply Australia 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.

Section 2 - Hazard(s) Identification

GHS Classification of the Substance/Mixture	Acute Toxicity - Oral: Category 4 Hazardous to the Aquatic Environment - Acute Hazard: Category 1 Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1
Signal Word	WARNING
Hazard Statement (s)	H302 Harmful if swallowed. H410 Very toxic to aquatic life with long lasting effects.
Pictogram (s)	Environment, Exclamation mark

Precautionary Statement – Prevention	P264 Wash thoroughly after handling. P270 Do no eat, drink or smoke when using this product. P273 Avoid release to the environment.
Precautionary Statement – Response	P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth.

Precautionary Statement – Disposal	P501 Dispose of contents/container according to local, state and federal regulations.
Other Information	The fumes of this material can cause 'metal fume fever.'

Section 3 - Composition and Information on Ingredients

Ingredients	Name	CAS	Proportion
	Copper (II) oxide	1317-38-0	100 %

Section 4 - First Aid Measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Immediately obtain medical aid if cough or other symptoms appear.
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	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. If persistent irritation occurs, obtain medical attention.
Eye	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek medical attention.
First Aid Facilities	Maintain eyewash fountain and drench facilities in work area.
Advice to Doctor	Treat symptomatically and supportively. The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel.

Section 5 - Firefighting Measures

Hazards from Combustion Products	Acrid smoke or dust and irritating and highly toxic gases, copper fumes, copper alloys, cuprous oxide and oxygen.
Special Protective Equipment for Firefighters	Full protective clothing and self-contained breathing apparatus.
Specific Methods	Use extinguishing media most appropriate for the surrounding fire. No limitations to the type of extinguishing media.
Specific Hazards Arising from the Chemical	Material does not burn. Runoff may pollute waterways. Fire or heat may produce irritating, poisonous and/or corrosive fumes. Containers may explode when heated.
Hazchem Code	2X
Decomposition Temperature	1026 °C

Section 6 - Accidental Release Measures

Spills & Disposal	Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas. Prevent dust cloud. Avoid breathing dust. Use clean non-sparking tools to collect material and place it into loosely-covered plastic containers for later disposal. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.
Personal Precautions	Avoid dust formation and avoid breathing dust.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)
Clean-up Methods - Small Spillages	Sweep up (avoid generating dust) and using clean non-sparking tools transfer to a clean, suitable, clearly labelled container for disposal in accordance with local regulations.
Environmental Precautions	Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers.

Section 7 - Handling and Storage

Precautions for Safe Handling	Avoid ingestion and inhalation dusts. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated. Use only with adequate ventilation. In

	case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Wear suitable protective clothing. Change contaminated clothing. Wash thoroughly after handling. The user should consider that the toxicological and physiological properties of many compounds are not yet well determined and that new hazardous products may arise from reactions between chemicals.
Conditions for safe storage, including any incompatibilities	Store in suitable, labelled, tightly closed containers, in a cool, dry, well-ventilated area away from incompatible substances. Sensitive to moisture and air. Keep well closed and protected from direct sunlight and moisture. Protect against physical damage. Keep away from heat. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.
Storage Temperatures	Store at room temperature (15 to 25 °C recommended).

Section 8 - Exposure Controls and Personal Protection

Other Exposure Information	A time weighted average (TWA) has been established for Copper, dusts & mists (as Cu) [7440-50-8] (Worksafe Aust) of 1 mg/m³ and for Copper (fume) [7440-50-8] (Worksafe Aust) 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.
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.
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 and Face 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.
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.
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	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Section 9 - Physical and Chemical Properties

Form	Solid
Appearance	Black to brownish-black amorphous or crystalline powder, granules or monoclinic crystals.
Odour	Odourless.
Melting Point	1326 °C (decomposition)
Boiling Point	1026 °C (decomposes)
Decomposition Temperature	1026 °C

Solubility in Water	Insoluble.
Solubility in Organic Solvents	Practically insoluble in alcohols; soluble in dilute acids, ammonium chloride, alkali metal cyanides, strong acid solutions, hot formic acid and boiling acetic acid solutions; dissolves quickly in ammonium carbonate solution; slowly soluble in ammonia solution.
Specific Gravity	6.3 - 6.49
pH	~7 (50 g/l, H2O, 20 °C) (slurry).
Volatile Component	0 %vol @ 21 °C
Density	6.48 g/cm3
Flammability	Non combustible material.
Explosion Properties	Cupric oxide powders can explode when heated with powdered aluminium, aluminium perchlorate, hydrogen, magnesium, phthalic anhydride. Ignites on contact with dichloromethylsilane, hydrogen sulfide, hydrogen trisulfide. Exposure to moist air at >100 °C can result in spontaneous combustion.
Molecular Weight	79.55
Other Information	Band gap 1.2eV. Bulk Density: 1.25 kg/l. Index of refraction: 2.63 (BETA).

Section 10 - Stability and Reactivity

Chemical Stability	Stable at room temperature in closed containers under ordinary conditions of use and storage. Sensitive to moisture.
Possibility of Hazardous Reactions	Exposure to moist air at >100 °C can result in spontaneous combustion. Reactive with reducing agents, strong acids, alkali metals and finely powdered metals. Cupric oxide powders can explode when heated with powdered aluminium, anilinium perchlorate, hydrogen, magnesium, phthalic anhydride. Forms explosive acetylides with acetylene (in caustic solutions), and nitromethane. Cesium acetylene carbide explodes on contact with cupric oxide at 350 °C. Ignites on contact with dichloromethylsilane, hydrogen sulfide, hydrogen trisulfide. Reacts violently with boron (after warming), hydrazine, hydroxylamine, dirubidium acetylide, phospham, titanium (when heated) and zirconium. Cupric oxide is reduced when heated with sodium, and reduced to metallic copper when heated with potassium at temperatures below its melting point. The reactions proceed with vivid incandescence. The pelleted mixture of barium acetate, copper(II) oxide and yttrium oxide when heated in a furnace, can cause an explosion, 'from formation of pyrolysis products'. Copper oxide and manganese dioxide react at 359 °C incandescently. Solutions of sodium hypobromite are decomposed by powerful catalytic action of cupric ions, even as impurities.
Conditions to Avoid	Moisture, moist air at temperatures above 100 °C, dust generation, excessive temperatures, flames, sparks and incompatible materials.
Incompatible Materials	Reducing materials, strong oxidizing agents, acids and bases, alkali metals, alkaline earth metals, finely powdered metals, acetylene in caustic solutions, anhydrides, carbon monoxide, carbide compounds, cesium acetylene carbide at 350 °C, dichloromethylsilane, dirubidium acetylide, fluorine, hydrazine and derivatives, hydrides, hydrogen sulfide, hydrogen trisulfide, hydroxylamine, lead oxide, magnesium, manganese dioxide at 359 °C, nitromethane, organic compounds, mixture of barium acetate and yttrium oxide, phospham, potassium, phthalic anhydride, rubidium acetylene carbide, silicon compounds, sodium, solutions of sodium hypobromite, zirconium. Heating with powdered aluminium, anilinium perchlorate, boron, hydrogen, magnesium, phthalic anhydride and titanium.
Hazardous Decomposition Products	Acrid smoke or dust and irritating and highly toxic gases, copper fumes, copper alloys, cuprous oxide and oxygen.

Hazardous Polymerization	Will not occur.

Section 11 - Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 470 mg/kg.
Ingestion	Toxic if swallowed. May cause gastrointestinal irritation, metallic or sweet taste, severe nausea and vomiting, diarrhoea, salivation, abdominal pain, epigastric burning, headache, cold sweat, dizziness, lethargy and muscular weakness. May cause gastrointestinal bleeding and ulceration with haemorrhagic gastritis, haemolysis, haematemesis, haematuria and melena, anaemia, weak pulse, tachycardia, respiratory difficulty, liver and kidney damage and failure, jaundice, hypotension, CNS disorders, seizures, central nervous system excitation followed by depression, circulatory system failure vascular collapse and damage, convulsions, paralysis and coma, shock and death in severe cases. Hepatic and renal failure may develop several days after acute ingestion. Methaemoglobinaemia may rarely occur.
Inhalation	May be harmful if inhaled. Irritating to the respiratory system. Symptoms may include headaches, nausea, coughing and breathing difficulties. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities. Inhalation of copper fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, burning sensation, irritation and redness of the throat, coughing, wheezing, sneezing, shortness of breath, nausea, vomiting, rigors, fever, chills, weakness, chest pain, muscle pain and increased white blood cell count.
Skin	Irritating to skin, which may result in redness, erythema, scaling, itchiness, eczema, allergic contact dermatitis, hypersensitivity and a discoloration of the hair, teeth and skin. May be harmful if absorbed through the skin.
Skin Corrosion/Irritation	Skin irritation test, human. Result: irritating.
Eye	May cause irritation to the eyes, which may result in redness, lachrymation and possible corneal injury and possible conjunctivitis.
Serious Eye Damage/Irritation	Eye irritation test, human. Result: irritating.
Carcinogenicity	Not listed in the IARC Monographs.
Reproductive Toxicity	Copper [resp]: human-direct contact is toxic to sperm, low motility counts. Copper is a Suspected Developmental Toxicant.
Mutagenicity	No evidence of mutagenic properties.
Chronic Effects	Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated exposure to dusts may cause discolouration of the skin or hair, blood and liver damage, ulceration and perforation of the nasal septum, runny nose, metallic taste, gastrointestinal effects, hepatic cirrhosis, brain damage and demyelination, kidney defects, liver failure and atrophic changes and irritation of the mucous membranes. Individuals with Wilson's disease are unable to metabolize copper. Thus, copper accumulates in various tissues (such as the cornea) and may result in liver, kidney, spleen and brain damage. Chronic exposure to copper may cause vineyard sprayer's disease (lung and liver lesions), and has lead to haemolytic anaemia and accelerates arteriosclerosis.

Section 12 - Ecological Information

Ecotoxicity	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Quantitative data on the ecological effect of this product are not available. Due to the poor solubility of the product, no harmful effects on plants and/or aquatic organisms are to be expected when handled and used with due care and attention.
Persistence and Degradability	Methods for the determination of biodegradability are not applicable to inorganic substances.
Information on Ecological Effects	When released into the soil or water, this material is not expected to biodegrade. When released into the water, this material is not expected to evaporate significantly.

Environmental Protection	Do not allow to enter waters, waste water, or soil!
Acute Toxicity - Fish	LC50 Oncorhynchus mykiss (rainbow trout: 25mg/l; 96hr.
Acute Toxicity - Daphnia	EC50 Water flea: 0.4mg/l; 48hr.

Section 13 - Disposal Considerations

Disposal Considerations	Dispose of according to relevant local, state and federal government regulations.

Section 14 - Transport Information

ADG UN Number	3077
ADG Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
ADG Transport Hazard Class	9
ADG Packing Group	III
Hazchem Code	2X
EPG Number	9C1
IERG Number	47
IMDG EMS	F-A, S-F
Environmental Hazards	Very toxic to aquatic organisms. May cause long term adverse effects in the aquatic environment.

Section 15 - Regulatory Information

Poisons Schedule	S6

Section 16 - Any Other Relevant Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals'. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand. Safe Work Australia, 'Hazardous Chemical Information System'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment'.
Contact Person/Point	Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. ChemSupply Australia Pty Ltd accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
Empirical Formula & Structural Formula	Cu O
Other Information	R22 Harmful if swallowed. R50/53 Very toxic to aquatic organisms. May cause long term adverse effects in

the aquatic environment.
S22 Do not breathe dust.
S60 This material and container must be disposed of as hazardous waste.
S61 Avoid release to the environment.
...End Of MSDS...