COPPER (II) OXIDE

Alpha Resources LLC

Safety Data Sheet

Issue Date: 08/12/2021

SECTION 1 Identification

Product Identifier

Product Name	COPPER (II) OXIDE
Chemical Name	Copper (II) Oxide
Part Numbers	AEB1002, AEB1002-500, AR01029, AR01029B, AR01039
Chemical Formula	CuO
CAS Number	1317-38-0

Company Information

Registered Company Name	Alpha Resources LLC
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Emergency Phone Number

Association / Organization	CHEMTREC
Emergency Telephone No.	(800) 424-9300

SECTION 2 Hazard(s) Identification

Classification of the Substance or Mixture

NFPA 704 Diamond

Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health, Red = Fire, Yellow = Reactivity, White = Special (Oxidizer or water reactive substances)

Classification	Acute Toxicity (Oral) Category 4, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Eye Irritation Category 2A, Specific target organ toxicity – single exposure Category 3 (respiratory tract irritation), Specific target organ toxicity – repeated exposure Category 2, Chronic Aquatic Hazard Category 1

Label Elements

Hazard Pictogram(s)	
Signal Word	Warning

Hazard Statement(s)

H302	Harmful if swallowed
H332	Harmful if inhaled
H315	Causes skin irritation
H319	Causes serious eye irritation

H335	May cause respiratory irritation
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects

Hazard(s) not Otherwise Classified

Not applicable

Precautionary Statement(s) Prevention

P260	Do not breathe dust/fume
P271	Use only outdoors or in a well-ventilated area
P264	Wash all exposed external body areas thoroughly after handling
P270	Do not eat, drink, or smoke when using this product
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statement(s) Response

P362	Take off contaminated clothing and wash before reuse
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
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P302+P352	IF ON SKIN: Wash with plenty of water and soap
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P330	Rinse mouth
P332+P313	If skin irritation occurs: Get medical advice/attention

Precautionary Statement(s) Storage

P405	Store locked up
P403+P233	Store in a well-ventilated place – Keep container tightly closed

Precautionary Statement(s) Disposal

P501	Dispose of contents/container to authorized hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / Information on Ingredients

Substances

CAS No	%[weight]	Name
1317-38-0	>97	Copper (II) oxide

SECTION 4 First-Aid Measures

Description of First Aid Measures

Eye Contact	If this product comes in contact with the eyes: ➢ Immediately hold eyelids apart and flush the eye continuously with running water. ➢ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ➢ Seek medical attention without delay; if pain persists or recurs, seek medical attention.
Skin Contact	If skin contact occurs: ➢ Immediately remove all contaminated clothing, including footwear.

	➢ Flush skin and hair with running water (and soap if available). ➢ Seek medical attention in event of irritation.
Inhalation	➢ If fumes or combustion products are inhaled remove from contaminated area. ➢ Lay patient down. Keep warm and rested. ➢ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ➢ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ➢ Transport to hospital, or doctor, without delay.
Ingestion	➢ IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. ➢ For advice, contact a Poison Center or a doctor at once. ➢ Urgent hospital treatment is likely to be needed. ➢ In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ➢ Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise: INDUCE vomiting with fingers down the back of the throat, ONLY IF CONSCIOUS. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

Most important symptoms and effects, both acute and delayed

See Section 11

SECTION 5 Fire-Fighting Measures

Extinguishing Media

➢ Water spray or fog, foam, dry chemical powder, carbon dioxide.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

Special protective equipment and precautions for fire-fighters

Fire Fighting	➢ Alert fire department and tell them location and nature of hazard. ➢ Wear breathing apparatus plus protective gloves in the event of a fire. ➢ Prevent, by any means available, spillage from entering drains or water courses. ➢ Cool fire exposed containers with water spray from a protected location. ➢ Equipment should be thoroughly decontaminated after use.
Fire / Explosion Hazard	➢ Contact with moist air at over 100°C can result in spontaneous combustion. Decomposes on heating to produce cuprous oxide. ➢ Not combustible. ➢ Not considered a significant fire risk, however, containers may burn. ➢ Decomposition may produce toxic fumes or metal oxides.

SECTION 6 Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	➢ Remove all ignition sources. ➢ Clean up all spills immediately. ➢ Avoid contact with skin and eyes. ➢ Control personal contact with the substance by using protective equipment. ➢ Use dry clean up procedures and avoid generating dust.

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	➢ Place in a suitable, labelled container for waste disposal. ➢ Environmental hazard – contain spillage.
Major Spills	➢ Environmental hazard – contain spillage. ➢ Control personal contact by wearing protective clothing. ➢ Prevent, by any means available, spillage from entering drains or water courses. ➢ Recover product wherever possible. ➢ Neutralize/decontaminate residue. ➢ IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. IF WET: Vacuum/shovel up and place in labelled containers for disposal. ➢ ALWAYS: Wash area down with large amounts of water and prevent runoff into drains.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and Storage

Precautions for safe handling

Safe Handling	➢ Avoid all personal contact, including inhalation. ➢ Use in a well-ventilated area. ➢ Wear protective clothing when risk of exposure occurs. ➢ Avoid contact with incompatible materials. ➢ Avoid physical damage to containers. ➢ When handling, NEVER eat, drink, or smoke. ➢ Keep containers securely sealed when not in use. ➢ Always wash hands with soap and water after handling.

Conditions for safe storage, including any incompatibilities

Suitable Container	❖ Polyethylene or polypropylene container. ❖ Check all containers are clearly labelled and free from leaks.
Storage Incompatibility	❖ None known.

SECTION 8 Exposure Controls / Personal Protection

Control parameters

❖ **Occupational Exposure Limits (OEL)**

❖ **INGREDIENT DATA**

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELs)	Copper (II) oxide	Copper fume (as Cu)	0.1 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) – Table Z1/Z3	Copper (II) oxide	Total Dust	15 mg/m3	Not Available	Not Available	Not Available
US OSHA Permissible Exposure Levels (PELs) – Table Z1/Z3	Copper (II) oxide	Respirable fraction: Dust	5 mg/m3	Not Available	Not Available	Not Available

❖ **Emergency Limits**

Ingredient	TEEL-1	TEEL-2	TEEL-3
Copper (II) oxide	0.75 mg/m3	11 mg/m3	93 mg/m3

Ingredient	Original IDLH	Revised IDLH
Copper (II) oxide	100 mg/m3	Not Available

Exposure Controls

Engineering Controls	➢ Exhaust ventilation should be designed to prevent accumulation and recirculation in the workplace and safely remove dust from the air.

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Personal Protection	
Eye and Face Protection	➢ Safety glasses with side shields. ➢ Chemical goggles. ➢ Eye wash unit.
Skin and Body Protection	➢ Overalls. ➢ PVC apron. ➢ Barrier cream or skin cleansing cream.
Hand Protection	➢ Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. ➢ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include frequency and duration of contact, chemical resistance of glove material, glove thickness, and dexterity. ➢ Wear chemical protective gloves, e.g. polychloroprene, nitrile rubber, butyl rubber, fluorocaoutchouc, or polyvinyl chloride. ➢ Gloves should be examined for wear and/or degradation constantly.
Respiratory Protection	➢ Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

SECTION 9 Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Black to brownish black sticks/powder.
Physical State	Divided solid
Odor	Odorless
Melting Point / Freezing Point (°C)	1326
Relative Density (Water = 1)	6.3-6.5
Solubility in Water	Immiscible
Molecular Weight	79.55

SECTION 10 Stability and Reactivity

Reactivity	See section 7
Chemical Stability	➢ Product is considered stable. ➢ Hazardous polymerization will not occur.
Possibility of Hazardous Reactions	See section 7
Conditions to Avoid	See section 7
Incompatible Materials	See section 7
Hazardous Decomposition Products	See section 5

SECTION 11 Toxicological Information

Information on toxicological effects

Inhaled	Material can cause respiratory irritation.
Ingestion	Accidental ingestion may be harmful. A metallic taste, nausea, vomiting, and burning feeling in the upper stomach region occur after ingestion of copper and its derivatives. Vomitus is usually green/blue and discolors contaminated skin.

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Skin Contact	May cause redness, pain, skin, and hair discoloration. Material can cause inflammation of the skin.
Eye	Material can cause eye irritation and damage.
Chronic	Long term exposure to respiratory irritants may result in airways disease.

Copper (II) oxide	Toxicity –Oral (Rat) LD50; >2500 mg/kg Toxicity – Dermal (Rat) LD50; >2000 mg/kg Irritation – Skin (Rabbit): no irritation Irritation – Eyes (Rabbit): mild eye irritation Irritation – Skin (Guinea pig): no skin sensitization

Acute Toxicity	√	Carcinogenicity	X
Skin Irritation/Corrosion	√	Reproductivity	X
Serious Eye Damage/Irritation	√	STOT – Single Exposure	√
Respiratory or Skin Sensitization	X	STOT – Repeated Exposure	√
Mutagenicity	X	Aspiration Hazard	X

Legend: X *– Data either not available or does not fill the criteria for classification*
√ *- Data available to make classification.*

SECTION 12 Ecological Information

Toxicity

Endpoint	Test Duration (hr)	Species	Value
EC50	72	Algae or other aquatic plants	0.014 mg/L
EC50	48	Crustacea	92.7 mg/L
LC50	96	Fish	>364000 mg/L
EC50(ECx)	72	Algae or other aquatic plants	0.014 mg/L
EC50	96	Algae or other aquatic plants	0.047 mg/L

DO NOT discharge into sewer or waterways

Persistence and Degradability – HIGH

Bioaccumulative Potential – LOW (LogKOW = 1.429)

Mobility in Soil – LOW (KOC = 14.3)

SECTION 13 Disposal Considerations

Waste Treatment Methods

Product / Packaging Disposal	➢ Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. ➢ This material may be recycled if unused, or if it has not been contaminated to make it unsuitable for its intended use. ➢ DO NOT allow wash water from cleaning or process equipment to enter drains. ➢ It may be necessary to collect all wash water for treatment before disposal. ➢ In all cases, disposal to sewer may be subject to local laws and regulations and these should be considered first.

SECTION 14 Transport Information

Labels Required

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Marine Pollutant	

Land transport (DOT):

UN Number	3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (contains copper (II) oxide)
Transport hazard class(es)	9
Packing group	III
Environmental hazard	Environmentally hazardous
Special precautions for user	Hazard Label – 9 Special Provisions – 8, 146, 335, 384, A112, B54, B120, IB8, IP3, N20, N91, T1, TP33

Air transport (ICAO-IATA / DGR)

UN Number	3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. *(contains copper (II) oxide)
Transport hazard class(es)	9 ERG Code 9L
Packing group	III
Environmental hazard	Environmentally hazardous
Special precautions for user	Special Provisions – A97, A158, A179, A197, A215 Cargo Only Packing Instructions – 956 Cargo Only Maximum Qty / Pack – 400 kg Passenger and Cargo Packing Instructions – 956 Passenger and Cargo Maximum Qty / Pack – 400 kg Passenger and Cargo Limited Quantity Packing Instructions – Y956 Passenger and Cargo Limited Maximum Qty / Pack – 30 kg G

Sea transport (IMDG-Code / GGVSee)

UN Number	3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains copper (II) oxide)
Transport hazard class(es)	9
Packing group	III
Environmental hazard	Marine Pollutant
Special precautions for user	EMS Number – F-A, S-F Special Provisions – 274, 335, 966, 967, 969 Limited Quantities – 5 kg

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product Name	Group
Copper (II) oxide	Not Available

Transport in bulk in accordance with the ICG Code

Product Name	Ship Type
Copper (II) oxide	Not Available

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SECTION 15 Regulatory Information

Safety, Health, and Environmental Regulations / Legislation Specific for the Substance or Mixture

❖ **copper (II) oxide is found on the following regulatory lists**

US CWA (Clean Water Act) – Priority Pollutants
US CWA (Clean Water Act) – Toxic Pollutants
US DOE Temporary Emergency Exposure Limits (TEELs)
US EPCRA Section 313 Chemical List
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) Table Z-1
US OSHA Permissible Exposure Levels (PELs) Table Z-3
US Toxic Substances Control Act (TSCA) – Chemical Substance Inventory
US TSCA Chemical Substance Inventory – Interim List of Active Substances

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

❖ **Section 311/312 hazard categories**

Flammable (Gases, Aerosols, Liquids, or Solids)	No
Gas under pressure	No
Explosive	No
Self-heating	No
Pyrophoric (Liquid or Solid)	No
Pyrophoric Gas	No
Corrosive to metal	No
Oxidizer (Liquid, Solid, or Gas)	No
Organic Peroxide	No
Self-reactive	No
In contact with water emits flammable gas	No
Combustible Dust	No
Carcinogenicity	No
Acute toxicity (any route of exposure)	Yes
Reproductive toxicity	No
Skin Corrosion or Irritation	Yes
Respiratory or Skin Sensitization	No
Serious eye damage or eye irritation	Yes
Specific target organ toxicity (single or repeated exposure)	Yes
Aspiration Hazard	No
Germ cell mutagenicity	No
Simple Asphyxiant	No
Hazards Not Otherwise Classified	No

❖ **US EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)**

None Reported

State Regulations

❖ **US California Proposition 65**

None Reported

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National Inventory Status

National Inventory	Status
Australia – AIIC / Australia Non-Industrial Use	Yes
Canada – DSL	Yes
Canada – NDSL	No (copper (II) oxide)
China – IECSC	Yes
Europe – EINEC / ELINCS / NLP	Yes
Japan – ENCS	Yes
Korea – KECI	Yes
New Zealand – NZIoC	Yes
Philippines – PICCS	Yes
USA – TSCA	Yes
Taiwan – TCSI	Yes
Mexico – INSQ	Yes
Vietnam – NCI	Yes
Russia – FBEPH	Yes
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)*

SECTION 16 Other Information

Revision Date	08/12/2021
Initial Date	09/09/2019

The data and information as stated was furnished by the manufacturer/vendor/supplier of this product. Alpha Resources LLC cannot warrant the accuracy of this information and shall not be responsible or liable for any damage that may result, should any of the information be erroneous.