

SAFETY DATA SHEET

SECTION 1. Identification of the Substance and Manufacturer

Product:

Chemical Name: Copper (II) Oxide
 Product Name: 13600 Series Cupric Oxide; Cupric Oxide

Common uses: Industrial Chemicals.
 Restrictions of use: None known.

Manufacturer: American Chemet Corporation www.chemet.com
 145 HWY 282 / P.O. Box 1160
 East Helena, MT 59635 U.S.A.
 +1(406) 227-5302 (Phone) +1(406) 227-8047 (Fax)

Emergency telephone number:

Emergency Contact
 Emergency Phone No. 3E Company (24 hour(s).)

American Chemet Corporation / 3E Company - Global Incident Response Access Code: 334129
 American Chemet Corporation / 3E Company - Contract Number 14882

| Americas | Europe | Asia Pacific | Middle East/Africa |
|--|-----------------|-----------------|--------------------|
| +1 866 519 4752 (US & Canada) or +1 760 476 3961 (Americas Non-Specific) | +1 760 476 3952 | +1 760 476 3960 | +1 760 476 3959 |

Local Contact (if Applicable):

SECTION 2. Hazard Identification

Classification System:

The classification is based on the criteria in the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**GHS Label Elements
 Warning**



H410 - Very toxic to aquatic life with long lasting effects.
Aquatic Acute, Category 1. Aquatic Chronic, Category 1.



H313 - May be harmful in contact with skin, Category 5.
 H332 - Harmful if inhaled, Category 4.
 H320 - Causes eye irritation, Category 2B.

Precautionary Statements:

P264 - Wash thoroughly after handling.
 P363 - Wash contaminated clothing 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 gets medical advice/attention.
 P261 - Avoid breathing dust/mist.
 P271 - Use only outdoors or in a well-ventilated area.
 P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P312 - Call a POISON CENTER or doctor if you feel unwell.
 P273 - Avoid release to the environment.
 P391 - Collect spillage.
 P501 - Dispose of contents/container in accordance with local/national/international regulations.

SECTION 3. Composition/Information of Ingredients**Substances**

| Component | %w/w | EC Number | CAS No. | Hazard statement(s) (GHS Classification) |
|---------------|------|-----------|-----------|--|
| Cupric Oxide | 98% | 215-269-1 | 1317-36-0 | H313 - May be harmful in contact with skin H320 - Causes eye irritation H332 - Harmful if inhaled H410 - Very toxic to aquatic life with long lasting effects |
| Cuprous Oxide | 1.5% | 215-270-7 | 1317-39-1 | H313 - May be harmful in contact with skin H320 - Causes eye irritation H332 - Harmful if inhaled H410 - Very toxic to aquatic life with long lasting effects |

SECTION 4. First Aid Measures

| | |
|---|--|
| Inhalation: | Remove patient from exposure, keep warm and at rest. If symptoms persist, obtain medical attention. |
| Ingestion: | Wash out mouth with water and give 200-300 mL water to drink. DO NOT induce vomiting. If symptoms persist, obtain medical attention. |
| Skin Contact: | For skin exposure, remove contaminated clothing and wash with soap and water. |
| Eye Contact: | If irritated, flush eyes and skin with large volumes of fresh water for 15 minutes. If symptoms persist, obtain medical attention. |
| Medical Notes: | If any adverse symptoms persist, seek immediate medical attention. |
| Most important symptoms and effects, both acute and delayed, | Dust may have irritant effect on skin, eyes, and air passages. |
| Indication of the immediate medical attention and special treatment needed. | Treat symptomatically, as seen above in this section. |

SECTION 5. Fire-Fighting Measures

| | |
|--|--|
| Extinguishing Media: | |
| Suitable Extinguishing Media: | CO2, ABC Dry extinguisher, or water spray. |
| Unsuitable Extinguishing Media: | Do not use halogenated extinguishing media. |
| Specific hazards arising from the chemical: | The material is non-flammable. Use firefighting measures appropriate to surrounding materials. |
| Special Exposure Hazards: | |
| Additional Information: | Collect contaminated fire fighting water separately. It must not enter the sewer system. |
| Advice for firefighters: | A self-contained breathing apparatus and suitable protective clothing should be worn in fire conditions. Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Dispose of fire debris and contaminated water in accordance with local regulatory guidelines. |

SECTION 6. Accidental Release Measures

| | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | Spilled material may produce dust hazard if not handled correctly. Wear appropriate personal protective equipment: coveralls, gloves & eye protection. |
| Environmental precautions | Do not allow to enter drains or watercourses. If the product enters drains or sewers, immediately inform the local water company. Where there is contamination of streams, rivers or lakes, contact local agencies with responsibility for the environment. |
| Methods and materials for containment and cleaning up | Contain spillages and clean up with vacuum or conventional tools and attempt to minimize dusting. Place in a suitable container for recycling or disposal in accordance with local and national waste regulations. |
| Reference to other sections | See Section 7, 8 & 13 |

SECTION 7. Handling and Storage

| | |
|-------------------------------|---|
| Precautions for safe handling | Avoid dust generation. Avoid inhalation of dusts. Workers to wear personal safety equipment in accordance with valid regulations. Provide adequate ventilation to ensure that the occupational exposure limit is not exceeded. In case of inadequate ventilation wear respiratory protection. |
|-------------------------------|---|

Conditions for safe storage, including any incompatibilities

Store in a cool/ low-temperature, and well-ventilated (dry) place. Keep away from food, drink, and animal feedings. Keep containers properly sealed when not in use.

Storage Temperature

Keep in a cool place.

Storage Life

Stable under normal conditions.

Incompatible materials

May react violently with: Acids, bases.

Specific end use(s)

Industrial chemicals

SECTION 8. Exposure Controls/Personal Protection

Control parameters:

Occupational Exposure Limits:

Copper as dusts & mist:

| OSHA PEL 8-hour TWA | | CAL/OSHA PEL 8-hour TWA | |
|------------------------|---------------------|----------------------------|---------------------|
| PEL-TWA | 1 mg/m ³ | PEL-TWA | 1 mg/m ³ |

*PEL-TWA is the airborne permissible exposure limit averaged over an 8-hour time period.

Occupational Exposure Recommended Limits:

Copper as dusts & mist:

| NIOSH REL Up to 10-hour TWA | | ACGIH TLV © 8-hour TWA | |
|--------------------------------|---------------------|---------------------------|---------------------|
| REL-TWA | 1 mg/m ³ | TLV-TWA | 1 mg/m ³ |

*REL-TWA is the maximum concentration of exposure for up to 10 hours a day during a 40-hour work week.

** ACGIH TLV © are threshold limit value guidelines established by the American Conference of Governmental Industrial Hygienists for choosing safe levels of exposure.

Biological limit value:

No information available.

Exposure Controls:

All personal protective equipment, including respiratory equipment, used to control exposure to hazardous substances must be selected to meet the requirements of national personal protective equipment regulations. Use general dilution type ventilation to keep dust below the U.S.A. OSHA and EU exposure limits.

Personal Protection:

Respiratory Protection:



Cartridge type particulate filter respirator or dust-mask conforming to U.S.A. NIOSH.

- Refer to Respiratory Protective Devices approved by NIOSH under 42 CFR 84 and the appropriate European standard.

Hand Protection:



Wear suitable gloves if prolonged skin contact is probable and skin is sensitive.

Eye Protection:



Wear protective eyewear (goggles, safety glasses or face shield).

Skin Protection:

Wear long sleeve shirt(s) if contact is probable and skin is sensitive.

Environmental Protection:

Do not allow to enter drains or watercourses.

SECTION 9. Physical and Chemical Properties

Physical state

Powder.

Colour

Black

Odour

Odourless.

Melting point/ freezing point (°C)

1326°C .

Boiling point/ boiling range (°C)

Not applicable. (solid that melts >300 °C)

Flammability (solid/gas)
Lower and upper explosion limit/
flammability limit

Non-flammable.
Not applicable to solids.

Flash Point (°C)
Auto-ignition temperature
Decomposition temperature
pH (Value)
Kinematic viscosity
Solubility (Water)

Not applicable. (inorganic solid).
Not applicable to solids.
>300°C at 101.72 kPa
Not applicable. (inorganic solid).
Not applicable to solids.
>0.230 g/l at 20°C (pH 5.1– 5.5)
0.000394 g/l at 20°C (pH 6)
0.00001 g/l at 20°C (pH 9)
Not applicable. (inorganic solid).
Not applicable. (inorganic solid Melting
Point (1326°C)).

Partition Coefficient (n-Octanol/water)
Vapour Pressure (Pascal)

Density and/or Relative Density
Particle Characteristics

6.32 g/cm³ at 20°C
Ranges for volume-based distributions
across all grades.
D10 1.3 µm – 7.0 µm
D50 2.9 µm – 14.0 µm
D90 5.4 µm – 18.4 µm

Specific Gravity (Water = 1)
Viscosity (mPa.s)
Percent Volatile by volume (%)

6.4
Not applicable (inorganic solid)
0%

Other information

None

Information with Regard to Physical Hazard Classes

Explosive properties
Oxidising properties
Auto-ignition temperature (C°)

Not explosive.
Not oxidising.
None

Other Safety Characteristics
No information available.

SECTION 10. Stability and Reactivity

Reactivity

Thermally stable.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Will not occur.

Conditions to avoid

Keep at a temperature not exceeding (°C): 100 (in moist conditions)
Avoid dust generation.

Incompatible Materials

May react violently with: Acids, Bases.

Hazardous Decomposition Product(s)

Copper fumes will be released if heated above its melting point (1326 °C).

SECTION 11. Toxicological Information

Information on toxicological effects

Substances

Acute toxicity

Oral

LD50 >2500 mg/kg bw (male and female) (rat)

Dermal

LD50 >2000 mg/kg bw (male and female) (rat)

Inhalation

Based on the available data, the classification criteria are not met.

Skin corrosion/irritation

Based on the available data, the classification criteria are not met.

Serious eye damage/irritation

Based on the available data, the classification criteria are not met.

Respiratory or skin sensitization

Based on the available data, the classification criteria are not met.

Germ cell mutagenicity

Based on the available data, the classification criteria are not met.

| | |
|---------------------------------|--|
| Carcinogenicity | Based on the available data, the classification criteria are not met. |
| Reproductive toxicity | Based on the available data, the classification criteria are not met. |
| STOT-single exposure | Based on the available data, the classification criteria are not met. |
| STOT-repeated exposure | Based on the available data, the classification criteria are not met. |
| Aspiration hazard | Based on the available data, the classification criteria are not met. |
| Absorption | Copper is an essential element and therefore, its concentration in the body is strictly and efficiently regulated by homeostatic mechanisms. |
| Information on other hazards | |
| Endocrine disrupting properties | Sub chronic and chronic studies show no adverse effects on reproductive organs or endocrine functions. |
| Other information | No information available. |

SECTION 12: Ecological Information







| | |
|---------------------------------|--|
| Toxicity | |
| Acute | Aquatic Chronic 1 : Very toxic to aquatic life with long lasting effects. Aquatic invertebrates: Daphnia magna L(E)C50: 25.0 µg/L (pH 5.5 – 6.5) |
| Persistence and degradability | Cupric oxide does not meet the criteria for "persistent". Copper ions derived from cupric oxide cannot be degraded. |
| Bioaccumulative potential | Copper is an essential nutrient regulated by homeostatic mechanisms and does not bioaccumulate. Bio-available copper ions are rapidly removed from the water column |
| Mobility in soil | Copper-ions bind strongly to soil. log Kp (solids-water in soil): 2120 L/kg |
| Endocrine disrupting properties | Sub chronic and chronic studies show no adverse effects on reproductive organs or endocrine functions. |
| Other adverse effects | Cupric oxide does not contribute to ozone depletion, ozone formation, global warming, or acidification. |
| Other information | See Section: 8. |

SECTION 13: Disposal Considerations

| | |
|-------------------------|--|
| Waste treatment methods | Dispose of surplus or waste materials in accordance with local or national regulatory guidelines. Local or national competent authority or regulations may have specific classifications or guidelines. |
| Additional information | Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Dispose of surplus and contaminated materials (including sawdust) at an approved landfill or in accordance with other national or regional provisions. |

SECTION 14: Transportation Information

| | |
|-----------------------|--|
| US DOT: | Not Regulated. Class 9 materials do not require placarding for U.S.A. ground transport (49 CFR 172.504(f)(9)). Exceptions, except when all or part of the transportation is by vessel, the requirements specific to marine pollutants do not apply to non-bulk packagings transported by motor vehicle, rail car, or aircraft (49 CFR 171.4(c)). Permissive labeling is allowed by U.S.A. DOT (49 CFR 172.401(c)). |
| Proper Shipping Name: | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper (II) Oxide), Class 9, PG III, MARINE POLLUTANT |

| | Land transport (ADR/RID) Excluding U.S.A. Ground Transport | Sea transport (IMDG) | Air transport (ICAO/IATA) |
|-------------------------------|--|--|--|
| | ADR/RID Class 9 (M7) Miscellaneous dangerous substances and articles | IMDG Class 9 | ICAO/IATA Class 9 |
| UN number | UN3077 | UN3077 | UN3077 |
| UN Proper Shipping Name | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper (II) Oxide) Class 9, PG III, MARINE POLLUTANT | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper (II) Oxide) Class 9, PG III, MARINE POLLUTANT | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper (II) Oxide) Class 9, PG III, MARINE POLLUTANT |
| Transport hazard class(es) | 9   | 9   | 9   |

| Packing Group | III | III | III |
|---|---|---|--|
| Environmental hazards | Yes. Environmentally hazardous substance | Yes. Environmentally hazardous substance. Classified as a Marine Pollutant. | Yes. Environmentally hazardous substance |
| Special precautions for user | No information available | No information available | No information available |
| Maritime transport in bulk according to IMO Instruments | Product is not transported in bulk. | Product is not transported in bulk. | Product is not transported in bulk. |
| Additional Information | Tunnel Restriction Code E Kemler Code 90 | | |

SECTION 15: Regulatory Information

Safety, health, and environmental regulations/legislation specific for the substance or mixture

International Inventories (Listed)

United States (TSCA) Canada (DSL/NDSL)
EC inventory (EU) AICS (Australia)
NZIoC (New Zealand) Japan (ENCS)
ECL (Korea) Philippines (PICCS)
China (IECSC)

Chemical Safety Assessment

Yes

Other Information

Cupric Oxide is not an ozone-depleting substance and not a persistent organic pollutant.
U.S. EPA EPCRA Section 313 Reportable Product – (contains copper)
U.S. EPA Reportable Quantity: 5,000 lbs. (2,270 kg)
REACH Registration Number for American Chemet Corporation's Cupric Oxide: 05-2114625702-54-0000

SECTION 16: Other Information

Date of Issue: 04/07/2011

Revision: 20

Date of Revision: 11/30/2023

References:

A full list of references can be provided upon request.

Revisions completed to this SDS follow the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Revision 7 (GHS, Rev. 7), aligning with international trading partners.

Training advice:

None required.

Country Specific 24-Hour Emergency Phone Numbers: 3E Company

| Country | Number | Languages |
|----------------|-------------------|-----------|
| Australia | +61 1 800 886 951 | English |
| China | +86 4001 2001 74 | Chinese |
| New Zealand | +64 800 451719 | English |
| United Kingdom | +44 8 08 189 0979 | English |
| Korea | 080-880-0455 | Korean |

Additional Information:

Keep out of reach of children.

Read and follow all label instructions. Information contained in this publication or as otherwise supplied to Users is believed to be accurate and is given in good faith. However, this is not a guarantee of specific product features. It is for the Users to satisfy themselves of the suitability of this information for their own particular purpose. American Chemet gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that exclusion is prevented by law. American Chemet accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patents, Copyright and Designs cannot be assumed.