SAFETY DATA SHEET: CUPRIC OXIDE

1. IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>CUPRIC OXIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms:</td>
<td>Copper (II) oxide; Black copper oxide</td>
</tr>
<tr>
<td>Formula and Formula Weight:</td>
<td>CuO  79.55</td>
</tr>
<tr>
<td>Integra numbers beginning with:</td>
<td>C920.10</td>
</tr>
<tr>
<td>Recommended Use:</td>
<td>Commercial/industrial use</td>
</tr>
<tr>
<td>Restrictions on Use:</td>
<td>No information available</td>
</tr>
</tbody>
</table>

INTEGRA Chemical Company
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000

2. HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>OSHA Classification:</th>
<th>Hazard Category:</th>
<th>Hazard Statement:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None identified</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Hazards Not Otherwise Classified: No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>% Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cupric oxide</td>
<td>Copper (II) oxide; Black copper oxide</td>
<td>01317-38-0</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Inhalation: Remove person to fresh air and keep comfortable for breathing. If breathing difficulty persists seek immediate medical attention.
Eye Contact: Flush eyes with water for at least 15 minutes. Seek immediate medical attention.
Skin Contact: Flush skin with plenty of water. Seek medical attention if irritation develops.
Ingestion: Rinse mouth and give victim large quantities of water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.
Additional notes: Symptoms and effects include skin, eye, respiratory irritation; eye burns; capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous excitation followed by depression, jaundice, convulsions, blood effects, paralysis, coma.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Material is not flammable. Use extinguishing media suitable to surrounding materials.
Special Equipment and Precautions: Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.
Specific Hazards: Fire conditions may liberate toxic and noxious fumes.
Hazardous combustion products: Oxides of copper

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Prevent spread of spill. Wear suitable protective equipment. Sweep or scoop into clean, dry disposal container. Flush spill area with water.

7. HANDLING AND STORAGE

Incompatible Materials: Aluminum, boron, cesium acetylene carbide, dirubidium acetylide, hydrazine, hydrogen, hydrogen sulfide, lead oxide, magnesium, potassium, phthalic anhydride, sodium, titanium, zirconium.
Storage and Handling: Store in a cool, dry, well-ventilated area away from incompatible materials. Keep containers tightly closed and protect them from physical damage.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA & ACGIH Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA TWA: 1 mg/m3 (as Cu)</th>
<th>ACGIH TWA: 1 mg/m3 (as Cu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cupric oxide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Engineering Controls: Use general or local exhaust ventilation to meet TLV and PEL requirements.
Respiratory Protection: Respiratory protection required if airborne concentrations exceed PEL or TLV. Use a NIOSH approved respirator with a particulate filter.
Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure.

Facilities storing or utilizing this material should have readily accessible eyewash stations and safety showers. Select respirators and other safety equipment in accordance with regulations and based upon the particular conditions of use and risk of exposure. Always use safe chemical-handling and good industrial hygiene practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance:</th>
<th>Fine black powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold:</td>
<td>Not available</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY
Reactivity: No information available
Stability: Stable
Possibility of Hazardous Reactions: Hazardous polymerization will not occur
Conditions to Avoid: None identified
Incompatibles: Aluminum, boron, cesium acetylene carbide, dirubidium acetylide, hydrazine, hydrogen, hydrogen sulfide, lead oxide, magnesium, potassium, phthalic anhydride, sodium, titanium, zirconium.
Decomposition Products: Oxides of copper

11. TOXICOLOGICAL INFORMATION
Effects of Over Exposure:
Inhalation: Inhalation may irritate the nose, throat and upper respiratory tract.
Skin Contact: Contact may cause skin irritation.
Eye Contact: May irritate or burn the eyes.
Ingestion: May be harmful if swallowed. Copper poisoning may result from ingestion. Symptoms include capillary damage, headache, cold sweat, weak pulse, kidney and liver damage, central nervous excitation followed by depression, jaundice, convulsions, blood effects, paralysis and coma.
Chronic Effects: Prolonged or repeated skin contact may produce severe irritation or dermatitis. Prolonged or repeated exposure to dusts of copper salts may cause discoloration of the skin or hair and blood and liver damage. May also cause ulceration and perforation of the nasal septum, runny nose, metallic taste and irritation of the mucous membranes.
Target Organs: No information available
Additional Effects: May aggravate pre-existing skin disorders, liver disorders, impaired kidney or pulmonary function, glucose-6-phosphate-dehydrogenase deficiency, or pre-existing Wilson’s disease.
Reproductive Effects: No information available
Carcinogenicity: None identified
Toxicity Data:
Cupric oxide LD50 (oral, rat) >2500 mg/kg

12. ECOLOGICAL INFORMATION
Aquatic Toxicity Data: Terrestrial Toxicity Data:
Cupric oxide LC50 Oncorhynchus mykiss: 0.2 mg/L - 96 No information available
Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility in soil: No information available
Other adverse effects: Very toxic to aquatic life

13. DISPOSAL CONSIDERATIONS
Disposal Procedures: Dispose of material and containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION
This product is not a regulated material for domestic ground transporation.

15. REGULATORY INFORMATION
Cupric oxide is listed in the TSCA inventory and in SARA 313 (as copper compounds).

16. OTHER INFORMATION
NE = Not established, NA = Not applicable or Not available

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***** END OF SDS *****