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◆◆◆ MATERIAL SAFETY DATA SHEET ◆◆◆

CHEMICAL NAME: CDA 102
CHEMICAL FAMILY: Oxygen Free Copper

PHYSICAL DATA

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| 1. | BOILING POINT (°C): | 2595 |
| 2. | MELTING POINT “ | 1083 |
| 3. | VAPOR PRESSURE (mm Hg.) @1628°C | 1.0 |
| 4. | VAPOR DENSITY (AIR=1) | N/A |
| 5. | SPECIFIC GRAVITY (H ₂)=1 | 8.96 |
| 6. | PERCENT VOLATILE, BY VOLUME (%) | N/A |
| 7. | EVAPORATION RATE | N/A |
| 8. | SOLUBILITY IN WATER | INSOLUBLE |

HAZARDOUS INGREDIENTS

COMPONENTS-Cas #	PERCENTAGE	PEL	TLV	STEL	IDLH
Copper (7440-50-8)	100%				
Fume		0.1	0.2	-	unk.
Dusts & Mists		1.0	1.0	-	unk.



HEALTH HAZARD DATA



ROUTES OF EXPOSURE: Inhalation of dusts, fumes or mists is the primary route of exposure for most health effects. Ingestion results from pulmonary clearance following inhalation and from poor personal hygiene.

TARGET ORGAN/MODE OF ACTION:

CU: Eyes, nose, throat, skin – irritation: “Flu-like” symptoms, liver rare.

SIGNS AND SYMPTOMS:

CU: Irritation of eyes, nasal mucous, skin, upper respiratory tract, metallic taste, skin or hair discoloration (green), allergic dermatitis (rare). Metal Fume Fever” (characteristic influenza-like symptoms include: fever, chills, aches, fatigue, dry throat, nausea, and usually elevated white blood cell count; all of which are rapidly and completely reversible upon removal. Ingestion may result in nausea, vomiting, diarrhea, gastritis; “Wilson’s Disease” (extremely rare genetic body) may intensify the toxic effects in chronic exposure situations. Fragments of copper metal or alloys lodged in eye result in discoloration and abscess.

PREPLACEMENT MEDICAL CONSIDERATIONS: Chronic respiratory disease, skin disease, and Wilson’s disease.

MEDICAL SURVEILLANCE: Employee’s developing any of the above conditions should be referred for further medical evaluation. Diagnostic tests include increased urinary levels of copper and zinc, leucocytosis for metal fume fever, and serum zinc levels.

CARCINOGEN/MUTAGEN/ TERATOGEN: Unk.

REMARKS: Adverse health effects from over exposure are primarily associated with processes involving welding, cutting, grinding, or smelting of this product. Health effects most likely from zinc due to low melting point.



EMERGENCY AND FIRST AID PROCEDURES



EYE: Flush with large amounts of water.
SKIN: Wash with mild soap and water, if irritation persists, get follow-up medical attentions.
INHALATION: Move person to fresh air. Perform CPR, if necessary.
INGESTION: Give large amounts of water and induce vomiting, if conscious.
REMARKS: Refer accident victim for medical attention following any accidental eye exposure, inhalation, or ingestion.

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A
FLAMMABLE LIMITS: N/A
EXTINGUISHING MEDIA: Unk.
AUTOIGNITION TEMPERATURE: N/A
SPECIAL FIREFIGHTING PROCEDURES: N/A
UNUSUAL FIRE AND EXPLOSION HAZARDS: Finely divided dust is flammable.
REMARKS: Vapor explosion may result from contact of water with molten metal.

REACTIVITY DATA

STABILITY: Stable

INCOMPATIBILITY: Solid Copper acetylides that are shock sensitive may be formed by copper dusts and mists in the presence of acetylene. Contact with acids may liberate flammable and explosive hydrogen gas.

HAZARDOUS DECOMPOSITION PRODUCTS: Cu_2O .
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID: N/A

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Evacuate unprotected personnel from the spill/release area. Ventilate the area of release. Absorb liquid (with contaminant) by use of vermiculite, dry sand, earth, or similar material.

WASTE DISPOSAL METHOD: Reclaim, if possible. Seal waste in container. Check with local/state authorities regarding landfill disposal.



SPECIAL PROTECTION INFORMATION



VENTILATION: Local exhaust: Design for process, concentration, toxicity, as needed.
 MECHANICAL: May be used depending on process, concentration and/or toxicity. Consult Ind. Hgy.
 SPECIAL: Ventilate hot work in confined spaces.
 OTHER: Refer to 29 CFR 1910.94 and .252 (grinding, buffing, polishing, and welding, cutting, brazing, ramts).
 PROTECTIVE GLOVES: See other protective Equip.
 EYE PROTECTION: See other protective Equip.
 CONTAINMENT/ISOLATION PRACTICES: Design for process, if feasible.

<u>RESPIRATORY PROTECTION:</u> <u>CONCENTRATION</u>	<u>TYPE OF RESPIRATORY PROTECTION</u>
10 X PEL or less	Fume or High Efficiency Particulate (HEPA) Filter Respirator w/ half Face piece.
50 X PEL or less	HEPA Filter Respirator w/full face piece
100 X PEL or less	Helmet Type Powered Air Purifying Respirator (PAPR) w/ HEPA filter.
2000 X PEL or less	Type C Supplied Air Respiratory (airline) Full face piece, Hood, or Helmet operated in Positive Pressure Mode (pressure-demand, continuous Flow) at Manufacturer's maximum recommended flow rate for Hood/Helmet or 6 cfm for Full-Face piece.
Greater than 2000 X PEL or unknown Concentrations	Self-contained Breathing Apparatus (SCBA), Open Circuit type operated in Positive Pressure Mode -or- Type C Airline operated in Positive Pressure Mode In combination with Escape Provision (Short Duration, Positive Pressure, Open Circuit SCBA).

OTHER PROTECTIVE EQUIPMENT: Gloves and Eye Protection selection must be based on the process hazards or the physical / thermal hazards such as leather welding gloves, welding helmet, or face-shield for grinding.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Do not wear contact Lenses while wearing a respirator or when dusts, mists, or fumes may get into eyes.

OTHER PRECAUTIONS: Good personal hygiene and housekeeping practices will serve to minimize exposure and reduce the spread of surface contamination.

ACGIH Documentation of Threshold Limit Values, current edition.
NIOSH Occupational Health Guidelines.
OSHA Publication 2206 (29 CFR 1910.1000)

SATURN INDUSTRIES, INC.
John E. Lee, President

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