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MATERIAL SAFETY DATA SHEET

I. PRODUCT INFORMATION

TRADE NAME (COMMON NAME OR SYNONYM)

Copper Tubing (all sizes and wall thicknesses including; Type K, L, M, DMV, Ref, K/OXY/MED and ARC/OXY/MED)

<u>CHEMICAL NAME</u>	<u>FORMULA</u>	<u>MOLECULAR WEIGHT</u>
Copper	Cu	63.55

<u>CONTACT</u>	<u>PHONE NUMBER</u>	<u>ISSUED DATE</u>	<u>SUPERCEDES</u>
Safety/Environmental	618/337-6000	January 12, 2010	August 13, 2007

II. COMPOSITION/INFORMATION ON INGREDIENTS

<u>MATERIAL OR COMPONENT</u>	<u>C.A.S. No.</u>	<u>WT. %</u>	<u>PERMISSIBLE AIR CONC. (mg/cu.m.)</u>	
			<u>OSHA</u>	<u>ACGIH</u>
Copper	7440-50-8	99.9+	Dust - 1.0 Fume - 0.1	1.0 0.2

III HAZARDS IDENTIFICATION

<u>PRIMARY ROUTES OF ENTRY</u>	<u>INGESTION</u>	<u>INHALATION</u>	<u>SKIN</u>	<u>CARCINOGENICITY</u>
	X			Not listed as a carcinogen by NTP, IARC, or OSHA

ACUTE OVER EXPOSURE (SYMPTOMS AND EFFECTS)

A. Fumes are created by heating metallic copper past its melting point. Proper soldering or sweating copper tubes will not produce fumes. Brazing of copper tube may produce fumes. Consult Copper Development Association, Inc. (CDA) "The Copper Tube Handbook" for proper joining methods, and recommended solders, fluxes and filler metals (see CDA link on Cerro Flow Products, LLC website to obtain handbook). Use approved ventilation or respiratory protection if the possibility of fumes exists. Inhalation of fume may cause irritation of the respiratory tract or metal fume fever (chills, fever, aching muscles, dry mouth and throat, headache, nausea, vomiting, and diarrhea). Onset may be delayed several hours.

B. Ingestion of metallic copper is not a primary route of exposure. Metallic copper may be moderately irritating to the gastrointestinal tract.

CHRONIC OVEREXPOSURE (SYMPTOMS AND EFFECTS)

No long term effects. Skin irritation or discoloration of the skin and hair are short term.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED

Wilson's Disease (an abnormal genetic condition) could be aggravated.

IV. FIRST AID MEASURES

Inhalation: Remove from exposure; place individual under care of a physician.

Ingestion: Induce vomiting in conscious individual and call a physician.

Skin or Eyes; Flush with plenty of water. If symptoms develop, consult a physician.

V. FIRE FIGHTING MEASURES

<u>FLASH POINT</u>	<u>AUTO IGNITION TEMPERATURE</u>	<u>FLAMMABLE LIMITS IN AIR (% BY VOL.)</u>
Not Applicable	Not Applicable	Not Applicable

<u>FIRE AND EXPLOSION HAZARDS</u>	<u>FIRE EXTINGUISHING AGENTS RECOMMENDED</u>	<u>FIRE EXTINGUISHING AGENTS TO AVOID</u>
Not Applicable	No specific agents recommended	No specific agents recommended

SPECIAL FIRE FIGHTING PRECAUTIONS

Copper tube will not burn or give off toxic gases in normal fires Use fire fighting methods compatible with surrounding materials.



VI. RELEASE MEASURES

SPILLS OR LEAKS

Proper installation of copper tubes will not produce dust. Consult Copper Development Association, Inc (CDA) "The Copper Tube Handbook" for proper joining methods (See CDA link on Cerro Flow Products, LLC website to obtain handbook) Vacuuming is preferred for dust. Do not use compressed air for cleaning. Recycle unused or scrap copper tube at a local scrap metal dealer.

VII. HANDLING AND STORAGE

NORMAL HANDLING

Avoid conditions which create fumes or fine dust. Use of approved respirators is required where adequate ventilation cannot be provided. Do not use copper tubing where incompatible materials may be present, (see section X).

STORAGE

Avoid storage near incompatible materials, see Section X.

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

Local exhaust is recommended for dust and/or fume generating operations where airborne exposure may exceed permissible air concentrations.

PERSONAL HYGIENE

Avoid inhalation or ingestion. Practice good housekeeping and personal hygiene procedures. Showering is recommended if significant dust exposure occurs.

SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS

No special precautions.

LABEL SIGNAL WORD:

CAUTION

RESPIRATORY PROTECTION

Where airborne exposures may exceed OSHA/ACGIH permissible air concentrations, the minimum respiratory protection recommended is a negative pressure air purifying respirator with cartridges that are NIOSH/MSHA approved against dust, fumes, and mists having a TWA not less than 0.05 mg/cu.m.

EYES AND FACE

Safety glasses recommended when dust or shavings may exist.

OTHER CLOTHING AND EQUIPMENT

Protective clothing is recommended to prevent burns during installation of tube or splattering of fluxes, solder or filler metals.

IX. PHYSICAL/CHEMICAL PROPERTIES

MATERIAL IS (AT NORMAL CONDITIONS)

Solid

APPEARANCE AND ODOR

Yellow-red metal, various shapes and sizes.

MELTING POINT (DEGREES C)

1083

BOILING POINT (DEGREES C)

2595

SPECIFIC GRAVITY (H₂O = 1)

8.96

VAPOR DENSITY (AIR = 1)

Not applicable

SOLUBILITY IN WATER (% BY WT.)

Insoluble

pH

Not Applicable

VAPOR PRESSURE (mm Hg)

Not Applicable

EVAPORATION RATE

Not Applicable

X. STABILITY AND REACTIVITY

STABILITY

Stable

CONDITIONS TO AVOID

Not Applicable

INCOMPATIBILITY (MATERIALS TO AVOID)

Reacts violently with acetylene, hydrogen peroxides, gaseous chlorine, ammonia nitrate, bromates, chlorates, hydrogen sulfide, lead azide, and hydrazine.

HAZARDOUS DECOMPOSITION PRODUCTS

Copper does not decompose

HAZARDOUS POLYMERIZATION

Will not occur

CONDITIONS TO AVOID

Not Applicable

XI. TOXICOLOGICAL INFORMATION

<u>LD50 (SPECIES, ROUTE)</u>	<u>LC50 (SPECIES)</u>	<u>MUTAGENICITY</u>
Copper: 3.5 mg/kg (mouse, intraperitoneal)	Not Available	Not positive in Ames test

XII. ECOLOGICAL

<u>ECOTOXICITY</u>	<u>ENVIRONMENTAL FATE</u>
The LC50 for copper in the fathead minnow is 12 mg/L.	Acid solutions promote mobility and solubility of copper.

XIII. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE, AND LOCAL DISPOSAL OR DISCHARGE LAWS).

Recycling or disposal must be in accordance with the appropriate federal, state, or local statutes or regulations.

XIV. TRANSPORT

DOT REGULATION AND ID (OR PIN) NUMBER
Not regulated by DOT.

XV. REGULATORY INFORMATION

WHMIS CLASSIFICATION, SARA REGULATION AND OTHER INFORMATION

WHMIS does not classify this material

TSCA Status ----- On TSCA Inventory

Regulated under SARA Title III:

Sect. 302 ----- None

Sect. 311/312 ----- Immediate and Delayed

Sect. 313 Chemicals ----- Copper

CERCLA Reportable Quantity ----- 5,000 pounds for Copper Powder

XVI. REFERENCES

PERMISSIBLE CONCENTRATION REFERENC
OSHA regulations for airborne contaminants 29 CFR 1910.1000 and 1018; ACGIH Threshold Limit Values for Chemical Substances

HAZARD INFORMATION REFERENCES

Documentation of the Threshold Limit Values, 6th Ed., ACGIH
Patty's Industrial Hygiene and Toxicology, Vol. 2A, 3rd Rev. Ed., 1981
NFPA Fire Protection Guide on Hazardous Materials, 10th Ed., 1981
Handbook of Toxic and Hazardous Chemicals, Sittig, Marshall, 1981
TOMES Plus Database, Micromedex, Inc., Vol. 17, 1993
DATATOX Database, Spectrum Research, Inc., Version 2.0, 1992

GENERAL

Handbook of Chemistry and Physics, 57th Ed., 1976-77, Weast, R. C., Editor, CRC Inc.
American Welding Society, Welding Handbook Volume 2., 1995.
Copper Development Association, The Copper Tube Handbook, 1999

XVII. ADDITIONAL INFORMATION

INFORMATION (HAZARDS, FIRST AID, ETC.) IS ABBREVIATED. MORE INFORMATION IS CONTAINED IN REFERENCES FOUND IN SECTION XVII .

No additional information.

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