



# MATERIAL SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name** : **Copper and Copper alloy ( flat & drawn) Products**

**Chemical Name** : Metal Alloy

**Synonyms** : Copper-Zinc Alloys, UNS/CDA Alloy Nos. C21000 – C28000  
ETP & DHP Copper UNS/CDA Alloy Nos C11000 & C12200

**Chemical Family** : Copper-Zinc for brass and Pure copper LME grade A

**Formula** : Not applicable – mixture

**Product Use** : Metallurgical Products

**Manufacturer's Address** : Meta Copper and Alloy Limited.  
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## 2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS No	Components <sup>0</sup>	Formula	% by weight	*EC No.	EU Classification	
					Symbol	R-phrase
7440-50-8	Copper	Cu	60-99.99	231-159-6	None	None
7440-66-6	Zinc	Zn	0.01 - 40	231-175-3	None	None
7439-92-1	Lead <sup>@</sup>	Pb	<0.007	231-100-4	None	None
7440-31-5	Tin**	Sn	<0.1	231-141-8	None	None
7439-89-6	Iron	Fe	<0.03	231-096-4	None	None
7723-14-0	Phosphorous <sup>#</sup>	P	<0.035	231-768-7	F, N	R 11, 16, 50

<sup>0</sup> in applicable homogeneous material \*EU Directive 67/548/EEC <sup>@</sup> Exemption list for RoHS Directive 2002/95/EC: Appendix C 6c. Lead as an alloying element in copper containing up to 4% lead by weight. Appendix A Threshold Level for lead: 1000ppm(0.1%). \*\* Applicable in only TBC ( Tin bearing Copper) <sup>#</sup> Applicable in only P -Cu alloy

## 3. HAZARDS IDENTIFICATION

**Regulatory Status: IN SOLID FORM, THIS MATERIAL IS NOT HAZARDOUS**

### WARNING!

**EXPOSURE TO DUST OR FUMES** CAN CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH EYES,SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING

**HAZARD RATINGS** :(for dust or fume only ) Degree of hazard (0 = low, 4 = extreme)

**Hazardous Materials Identification System (HMIS)** : Health: 2 Flammability: 0 Physical Hazard : None

**National Fire Protection Association (NFPA)** : Mixture. Not rated.

#### **HUMAN THRESHOLD RESPONSE DATA**

**Odor Threshold:** : Unknown  
**Irritation Threshold:** : Unknown  
**Immediately Dangerous to Life or Health(IDLH) Value(s):** : The IDLH for this product is not known. The IDLH for copper( dust or fumes) is 100 mg/m<sup>3</sup>. & for Zinc oxide 500 mg/m<sup>3</sup>.

**POTENTIAL HEALTH EFFECTS: IN SOLID FORM, THIS MATERIAL DOES NOT CONSTITUTE ANY HEALTH HAZARD**

#### **ACUTE EFFECTS /CHRONIC EFFECTS:**

**Eye** : Dust or fume can cause irritation consisting of redness, swelling, and pain. May Cause conjunctivitis with repeated exposures.

**Skin** : Material not expected to be absorbed through the skin. Repeated Contact with dust may cause mild irritation consisting of redness and/or swelling.

**Inhalation** : Inhalation of high concentrations of powder, dust, or fume may cause severe respiratory and nasal irritation, coughing, and breathing and/or nausea, vomiting and stomach pain. The metal fume may also produce influenza-like symptoms, known as metal fume fever. Symptoms of this reaction may include metallic taste, runny nose, nausea, fever and chills. These effects usually disappear within 24 hours, but may be delayed in onset. Chronic exposure to lead can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage in humans including changes in cognitive function.

**Ingestion** : Ingestion of large amounts of dust may cause nausea, diarrhea and or stomach pain

**Medical conditions aggravated by exposure** : Exposure to dust or fume may aggravate an existing dermatitis, blood condition, asthma, emphysema, or other respiratory disease

**Potential environmental effects** : None known for the Product

#### **4. FIRST AID MEASURES**

**Eye contact** : Immediately flush out fume and dust particles with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician at once.

- Skin contact** : If exposed to dust or fumes, wash skin with plenty of water. Remove contaminated clothing and shoes and launder before reuse. If skin irritation or rash develops and persists or recurs, get medical advice
- Inhalation** : If symptoms of lung irritation occur (coughing, wheezing or breathing difficulty), remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep affected person warm and at rest. Get medical attention
- Ingestion** : Not a likely route of exposure for finished metal alloy. If dust is ingested, immediately drink water to dilute. Consult a physician if symptoms develop

**NOTE FOR PHYSICIANS:** There is no specific antidote to the active ingredients in this product; **Use symptomatic treatment.**

## 5. FIRE FIGHTING MEASURES

PROPERTY	VALUE	PROPERTY	VALUE
Explosive	: No	Flammable	: No
Combustible	: No	Pyrophoric	: No
Flash Point (°C)	: Not Applicable	Burning Rate of Material	: Not Applicable
Lower Explosive Limit	: Not Applicable	Autoignition Temp	: Not Applicable
Upper Explosive Limit	: Not Applicable	Flammability Classification: (defined by 29 CFR 1910.1200) Incompatible Materials for Storage or Transport:	: Not Applicable

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Not applicable in Solid Form

Dust may cause an ignitable and/or an explosive risk. For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire-extinguishing media appropriate to fight surrounding fire.

**SPECIAL FIREFIGHTING PROCEDURES:** Non Required

## 6. ACCIDENTAL RELEASE MEASURES

**FOR ALL TRANSPORTATION ACCIDENTS, CALL MCAL Works Office at 91-832-6693000 / 6693007 / 6693092/91-832-2783944-47**

**IN SOLID FORM NOT APPLICABLE** Dispose off, as per guidelines under Section 13, WASTE DISPOSAL

## 7. HANDLING AND STORAGE : In solid form, no special requirements

### STORAGE:

Shelf Life Limitations : None known.

Incompatible Materials for Packaging : None known.

Incompatible Materials for Storage or Transport: : None known.

Other Precautions : None Known

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION: In solid form, no special requirements.**

CAS#	CHEMICAL NAME	ACGIH TLV	OSHA PEL	FA TWA	INTERNATIONAL OELS
7440-50-8	Copper	0.2 mg/m <sup>3</sup> (fume), 1 mg/m <sup>3</sup> (dusts and mists)	0.1 mg/m <sup>3</sup> (fume) 1 mg/m <sup>3</sup> (dusts and mists)	0.2 ppm (fume)	Austria, Belgium, Canada: 0.2 mg/m <sup>3</sup> (fumes), 1 mg/m <sup>3</sup> (dusts) Denmark: 1.0 mg/m <sup>3</sup> (dust and powder) Germany (MAK): 0.1 mg/m <sup>3</sup> (fume), 1 mg/m <sup>3</sup> (dusts and mists)
7440-66-6	Zinc	None established	None established	10ppm (Dust)	None established
7439-92-1	Lead	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	0.15 ppm (fumes)	Austria, Denmark, Germany, Sweden, Switzerland: 0.1 mg/m <sup>3</sup> Norway, Poland: 0.05 mg/m <sup>3</sup>
7439-89-6	Iron	None established	None established	5 mg/m <sup>3</sup> (Iron oxide fumes)	None established
7440-31-5	Tin	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	None established	U.K. (LTEL): 5 mg/m <sup>3</sup> Austria & Germany (MAK), Belgium, Finland, Denmark, The Netherlands, Poland, Switzerland: 2 mg/m <sup>3</sup> Hungary, Norway: 1 mg/m <sup>3</sup>

If this (brass) product is melted and fumes are generated, zinc oxide fumes could be formed. The ACGIH TLV and OSHA PEL for zinc oxide fume is 5 mg/m<sup>3</sup>.

**ENGINEERING CONTROLS: In solid form, no special requirements.** Local / general exhaust ventilation/dust filtration system is recommended based on volume of dust or fumes if generated

- Eye / face protection** : Use safety glasses.
- Skin protection** : Wear impervious (cut-resistant) gloves and other protective clothing (aprons, coveralls) as appropriate. If generating a dust, wash thoroughly after handling.
- Respiratory protection** : Respiratory protection not normally needed. If dusting occurs or fumes are generated above the PEL/TLV, use a NIOSH-approved half-face or full-face respirator equipped with High Efficiency Particulate (HEPA) filter cartridges.
- General hygiene considerations** : Do not eat, drink, or smoke while using this product in dust

## 9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	VALUE	PROPERTY	PROPERTY
Appearance:	: Red/gold metallic	Vapor Density (air = 1):	: Not applicable
Odor:	: None	Boiling Point (deg F):	: No data
Molecular Weight:	: Not applicable - Mixture	Melting point:	: L:905 - 1083°C (1661- 1981°F) S:900-1065°C (1652-1949°F)
Physical State:	: Solid	Specific gravity (g/cc):	: 8.39-8.89
pH	: Not applicable	: Bulk Density	: 8.39-8.89 g/cc
Vapor Pressure (mm Hg)	: Not applicable	Viscosity (cps):	: Not applicable
Vapor Density	: Not applicable	Decomposition Temperature	: Not applicable
Solubility in Water (20 Deg C):	: Negligible/ Not applicable	Evaporation Rate	: Not Applicable
Volatiles Percent by volume:	: Not applicable	Octanol/water partition Coefficient	: Unknown

## 10. STABILITY AND REACTIVITY

<b>Stability</b>	: Stable under normal temperatures and pressure.
<b>Conditions to avoid</b>	: Not affected by mechanical impact or shock or by electrical discharge.
<b>Materials to avoid</b>	: Acetylene, chlorine
<b>Hazardous decomposition</b>	: When heated to decomposition, may produce metal oxides and fumes.
<b>Products</b>	: Inhalation of high concentrations of metal fumes may cause a Condition known as "metal fume fever" which is characterized by flu-like symptoms
<b>Hazardous polymerization</b>	: Will not occur

## 11. TOXICOLOGICAL INFORMATION

### THE FINISHED METAL/ALLOY METAL IS NOT HAZARDOUS IN ITS SOLID FORM

**POTENTIAL EXPOSURE ROUTES:** For dust: ingestion, inhalation, and eye contact. For fume: inhalation and eye contact..

For dust/ fume only :		For Components		
		Copper	Lead	Zinc
Oral LD50	Believed to be moderately toxic	3.5 mg/kg (mouse, Intraperitoneal)	No data	No data
Dermal LD50	Believed to be > 2 g/kg	375 mg/kg (rabbit, Subcutaneous)	No data	No data
Inhalation LC50	Believed to be slightly to moderately toxic	No data	No data	No data
Irritation	Believed to be an eye and respiratory Irritant	Respiratory irritant	Not irritating	Eye irritant

**Sub chronic/ chronic toxicity** : No information for product. *Lead has caused blood, kidney And nervous system damage in laboratory animals.*

**Carcinogenicity** : This metal product is not known or reported to be carcinogenic. *The International Agency for Research on Cancer (IARC) lists lead as possibly carcinogenic to humans, group 2B.*

**Mutagenicity** : This metal product is not known or reported to be mutagenic. *Lead has been shown to be mutagenic in several in vitro assays.*

**Reproductive,teratogenicity or Developmental effects** : This metal product is not known or reported to cause reproductive or developmental effects. *Lead has been shown to affect fetal development and reduce male reproductive function in laboratory animals.*

**Neurological effects** : This metal product is not known or reported to cause neurological effects. *Lead has caused peripheral and central nervous system damage and behavioral effects in laboratory animals*

**Interactions with other chemicals which enhance toxicity** : None known or reported

## 12. ECOLOGICAL INFORMATION:

**ECOTOXICITY:** No data is available on this metal product. Individual constituents are as follows

**Copper** : The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with the physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentrations varying from 0.015 to 3.0 mg/l have been reported as toxic, particularly in soft water to many kinds of fish, crustaceans, mollusks,insects, and plankton.

- Lead** : LC50(48 hrs.) to bluegill (*Lepomis macrochirus*) is reported to be 2-5 mg/l. Lead is toxic to waterfowl.
- Mobility** : *Dissolved lead may migrate through soil.*
- Persistence/degradability** : *Lead may persist and accumulate in the environment.*
- Bioaccumulation:** : No data

### 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D. This product does come under the category of Hazardous Waste under Schedule 4 of the Hazardous waste Rules 2003. Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and non hazardous wastes. **This product is a candidate for metal reclamation.**

### 14. TRANSPORT INFORMATION

	U.S. DOT	RID/ADR	IMDG	IATA	IMO	CANADA TDG
PROPER SHIPPING NAME	:					
HAZARD CLASS	:					
UN NO	:					
PACKING GROUP	:					NOT REGULATED
LABEL	:					
REPORTABLE QUANTITY	:					

### 15. REGULATORY INFORMATION

#### US FEDERAL

- TSCA** : The components of this product are listed on the Toxic Substance Control Act inventory
- CERCLA** : Zinc, R.Q. = 1000 lbs.; Copper, R.Q.= 5000 lbs. No reporting is required if diameter of the pieces of metal is equal to or exceeds 100 micrometers (0.004 inches).
- SARA 313** : Copper, Zinc (fume or dust), Lead
- SARA 313 Hazard Class**      **Health For dust or fume only**

Acute : Yes	Fire:	Reactivity:	Release of Pressure:
Chronic:Yes	None	None	None
- SARA 302 EHS List** : None of the components of this product are listed

**\*RQ = Reportable Quantity**

**EUROPEAN REGULATIONS**

This material in its solid form is not required to be labeled under EC regulations. Because this material contain lead at < 0.007%, this material is not considered **Harmful**

**CANADIAN REGULATIONS**

- DSL LIST : The components of this product are on the DSL or are exempt from reporting under the new Substances Notification Regulations
- IDL : Copper.
- WHMIS : This product is considered to be a manufactured article and therefore not subject to WHMIS requirements.

**16. OTHER INFORMATION**

**PREPARED BY : Meta Copper And Alloys Limited**

**DISCLAIMER**

Users are advised to ensure that this information is brought to the attention of the employees, agents, or Contractors who will handle, store, transport, or otherwise be exposed to this product. Distributors of this product are advised to forward this document, or the information contained herein, to their purchaser. Meta Copper And Alloys Limited’s (MCAL) obligations shall be only as set forth in Meta Copper And Alloys Limited’s standard terms and conditions of sale for this product and in no case will Meta Copper And Alloys Limited be held liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of MCAL’s products should make their own evaluation to determine the suitability of each such product for the specific application and to establish safe handling and installation procedures.

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