



INDIUM CORPORATION OF AMERICA®\EUROPE®\ASIA-PACIFIC®  
INDIUM CORPORATION (SUZHOU)®

## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** COPPER AND SILVER ALLOY MIXTURE

**MSDS Number:** MSDS-5696

**Revised Date:** 2 AUGUST 2012

**Product Use:** INDUSTRIAL USE: Metal alloy mixture

#### MANUFACTURER:

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## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

√ Eye    √ Inhalation    √ Skin    √ Ingestion

### CARCINOGEN LISTED IN:

NTP    IARC    OSHA    √Not Listed

GHS

Hazard statement(s)

H303            May be harmful if swallowed  
H335            May cause respiratory irritation

Precautionary statement(s)

P233            Keep container tightly closed  
P261            Avoid breathing dust/fume/gas/mist/vapors/spray  
P270            Do not eat, drink or smoke when using this product  
P273            Avoid release to the environment  
P280            Wear protective gloves/protective clothing/eye protection/face protection  
P362            Take off contaminated clothing and wash before reuse  
P302 +P352    IF ON SKIN: Wash with plenty of soap and water  
P304 + 341    IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305 + 351    IF IN EYES: Rinse continuously with water for several minutes (15 mins)

### POTENTIAL HEALTH EFFECTS:

**Eye Contact:**    May cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes.

**Ingestion:**        May cause irritation.

**Inhalation:**      Inhalation of fume or dust may cause local irritation to the respiratory system.

**Skin Contact:**    Hot molten metal may cause burns to the skin. May cause irritation.

### Chronic:

**COPPER:** Overexposure discoloration of skin and hair. Repeated inhalation can cause chronic respiratory disease. Ingestion may cause liver and kidney damage. Symptoms of systemic copper poisoning may include: capillary damage, headache, central nervous system excitation with jaundice, convulsions and possible coma.

**SILVER:** Chronic skin contact or ingestion of silver powder, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.

### NOTES:

**This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (trace levels of lead)**

**The Indium Corporation does not recommend, manufacturer, market or endorse any of its products for human consumption.**

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Components	% wt	CAS Registry #/EINECS	PEL mg/m <sup>3</sup>	TLV-TWA mg/m <sup>3</sup>	TLV-STEL mg/m <sup>3</sup>	
<b>COPPER</b>	28-80	7440-50-8/231-159-6	(US)	0.1	0.2	-
			(EU)	-	0.2 (fume)	2(dust)
			(Canada)	-	0.2	0.6
			(Singapore)	0.2(fume)	1(dust)	-
			(Mexico)	0.2	-	2
			(China)	-	0.2(fume)	0.6(fume)
<b>SILVER</b>	20-72	7440-22-4/231-131-3	(US)	0.01	0.1	-
			(EU)	-	0.1	-
			(Canada)	-	0.1	0.3
			(Singapore)	0.1	-	-
			(Mexico)	-	0.1	-

**Product does not contain any reportable EU Substances of Very High Concern (SVHC)**

**4. FIRST AID MEASURES**

- Eye Contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.
- Ingestion:** If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.
- Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.
- Skin Contact:** Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention.

**5. FIRE FIGHTING MEASURES**

- Flash Point:** Not established. **Method:** Not established.

**Auto-ignition Temperature:** Not established.

**Flammable Limits:** Limits not established. Massive solid metal is not flammable; however dust or powder may be flammable/combustible. Avoid dust generation. Copper dust may be flammable.

**Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions.

**Special Fire Fighting Procedures:** Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.

## 6. ACCIDENTAL RELEASE MEASURES

**Spill or Leak Procedures:** Contain spill. If molten, cool to allow metal to solidify. If a solid metal, wear gloves, pick up and return to process. If dust, wear recommended personal protective equipment. DO NOT SWEEP. Use a vacuum, place in barrels and return to process if applicable. Otherwise, dispose of following all Federal, State and Local regulations. Metal may have reclaim value. Avoid any dust generation.

## 7. HANDLING AND STORAGE

**Handling Precautions:** Only dry metals should be added to molten bath. If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment. Avoid dust generation.

**Storage Precautions:** Store product in a cool, dry area away from incompatible materials.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Local exhaust ventilation is recommended to control any air contaminants. Control concentration of all components so that their exposure levels are not exceeded.

### Personal protection:

**Eyes:** Chemical safety glasses/goggles and face shield with molten metal.

**Respirator:** An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Wear respirator in dusty environment.

**Skin:** Gloves-leather or impervious (vinyl) type. Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns.

**Other:** Lab coat, safety shower and eye-wash/shower fountain in work area. Avoid the use of contact lenses in high fume areas.

**Work/Hygienic Practices:** Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water immediately upon leaving the work area.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Solid metal/powder

**Boiling Point:** 4,703F (copper), 4,014F (silver)

<b>Odor:</b>	Odorless	<b>Melting Point:</b>	1,981F (copper),1,760F (silver)
<b>Specific Gravity:</b>	See table	<b>pH:</b>	Not applicable
<b>Vapor Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble
<b>Vapor Density:</b>	(air=1) Not applicable.		
<b>Molecular weight:</b>	copper- 63.55 g/mol, silver 107.87g/mol		

## 10. STABILITY AND REACTIVITY

<b>General:</b>	Stable.
<b>Conditions to Avoid:</b>	Not established.
<b>Incompatible Materials:</b>	Strong oxidizing agents, sulphur compounds, strong bases, halogens, strong acids
<b>Hazardous Decomposition / Combustion:</b>	Harmful toxic oxide fumes may form at elevated temperatures.
<b>Hazardous Polymerization:</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>Carcinogenicity: National Toxicity Program (NTP):</b>	No
<b>Occupational Safety &amp; Health Administration (OSHA):</b>	No
<b>U.N. International Agency for Research on Cancer (IARC):</b>	No

<b>LD50:</b>	Not established	<b>LC50:</b>	Not established
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RTECS#  
Copper GL5325000  
Silver: VW3500000

## 12. ECOLOGICAL INFORMATION

No information available on mixture.

## 13. DISPOSAL CONSIDERATION

**Waste Disposal Method:** Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with all Federal, State and Local environmental regulations.

## 14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation). Non hazardous under shipping modes.

North America Emergency Guide Book – Not applicable

UN – none (solid metal)

## 15. REGULATORY INFORMATION

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated hereunder (29 CFR 1910.1200 ET. SEQ.).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).

This product has been classified in accordance with the guidelines set by the Dept of Industrial Health of the Republic of Singapore.

This product has been classified using the Chinese Occupational Exposure Limit for Hazardous Agents in the Workplace, GBZ2-2002.

This product has been classified in accordance with the Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-1999.

California PROP 65(Safe Drinking Water Standard): WARNING : This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (trace levels lead)

SARA 313 Listing - 40 CFR 372.65: Silver and Copper

All ingredients are listed on the EPA TSCA Inventory.

EC Classification, Packaging and Labeling Requirements:

Hazard Classification of Product

### Safety Phrases:

S20/21	When using do not eat, drink or smoke
S22	Do not breathe dust
S23	Do not breathe fumes
S24/25	Avoid contact with skin and eyes
S27	Take off immediately all contaminated clothing
S28	After contact with skin wash immediately with plenty of soap and water
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection

**16. OTHER INFORMATION**

**HMIS Hazard Rating:**

<b>Health:</b>	1
<b>Fire:</b>	0
<b>Reactivity:</b>	0

**Revised Date:** 2 AUGUST 2012

**Prepared by:** Nancy Swarts, Indium Corporation of America

**Approved by:** Nancy Swarts, Indium Corporation of America

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