



INDIUM CORPORATION OF AMERICA ®\EUROPE®\ASIA-PACIFIC®  
INDIUM CORPORATION (SUZHOU) ®  
**SAFETY DATA SHEET**

To better serve all of our customers Indium Corporation has generated one MSDS for this single product to be used within the United States as well as internationally. Some of the regulatory information contained within may not be applicable to the customer's individual state or country.

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY 193 (72 SILVER / 28 COPPER)

**MSDS Number:** MSDS-4389

**Revised Date:** 25 APRIL 2011

**Product :** METAL ALLOY CONSISTING OF COPPER AND SILVER

### MANUFACTURER:

#### In America:

The Indium Corporation of America  
1676 Lincoln Ave., Utica NY 13502  
Information: (315) 853-4900

#### In Europe:

Indium Corporation of Europe  
7 Newmarket Ct.  
Kingston, Milton Keynes, UK, MK 10 OAG  
Information: +44 [0] 1908 580400

#### In Asia:

Asia-Pacific Operations-Singapore  
29 Kian Teck Avenue  
Singapore 628908  
Information: +65 6268-8678

#### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**

**USA: 1 (800) 424-9300**

**Outside USA: +1 (703) 527-3887**

#### In China:

Indium Corporation (Suzhou) Co., Ltd.  
No. 428 Xinglong Street  
Suzhou Industrial Park  
Suchun Industrial Square  
Unit No. 14C  
Jiangsu Province, China 215126  
Information: 86-512-6283-4900

**2. HAZARDS IDENTIFICATION****PRIMARY ROUTES OF ENTRY:**

⊕Eye ⊕Inhalation ⊕Skin ⊕Ingestion

**CARCINOGEN LISTED IN:**

NTP IARC OSHA ⊕Not Listed

GHS



Signal Word: Warning

**Hazard statement(s)**

H303 May be harmful if swallowed

H333 May be harmful if inhaled

H400+H413 Very toxic to aquatic life, may cause long lasting harmful effects to aquatic life (copper)

**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

**POTENTIAL HEALTH EFFECTS:**

**Eye Contact:** Contact with powdered metal alloy or fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal. Dusts are irritating to eyes.

**Ingestion:** Ingestion of dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. May be harmful.

**Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system. Inhalation of fume or dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse.

**Skin Contact:** Normal handling should not cause any adverse health effects. May cause skin irritation. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal.

**Chronic:** COPPER: Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever, dry throat, cough weakness, lassitude); metallic or sweet taste; discoloration of skin and hair.

Tissue damage of mucous membranes may follow chronic dust exposure

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.

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

**NOTE:** 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 (Cu)</b>	28	7440-50-8/231-159-6	(US)	0.1 (fume) 1(dust)	0.2 (fume)	-
			(EU)	-	0.2 (fume)	-
			(Singapore)	0.2(fume)	1(dust)	-
			(Mexico)	-	0.2	2
			(Canada)	N.E.	0.2 (fume)	0.6 (fume)
<b>SILVER(Ag)</b>	72	7440-22-4/231-131-3	(US)	0.01	0.1	-
			(EU)	-	0.1	-
			(Canada)	-	0.1	0.3
			(Mexico)	-	0.1	-
			(Singapore)	0.1	-	-

IDLH – 10 mg/m<sup>3</sup> - Silver

IDLH – 100 mg/m<sup>3</sup> - Copper

Symbol: Xi

Risk Phrases: R36/37/38

N.E. = Not established

EU = European Union Occupational Exposure Limits

DOES NOT CONTAIN ANY EU REPORTABLE 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:** Do not induce vomiting. 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.

**Skin Contact:** Seek immediate medical attention.  
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 combustible, except as a powder.      **Method:** Not established.  
**Auto-ignition Temperature:** Not applicable.  
**Flammable Limits:** Limits not established. Massive metal is not flammable; however dust or powder may be flammable.  
**Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Use water spray, alcohol resistant foam, dry chemical or carbon dioxide.  
**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 including respiratory protection. DO NOT SWEEP. Use a vacuum, place in barrels and return to process if applicable. Use proper ventilation. Do not allow to enter drains, sewers or waterways.  
 Otherwise, dispose of following all Federal, State and Local regulations.  
 Metal may have reclaim value.

## 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. Do not eat, drink or smoke.  
**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. Use ventilation.

**Personal protection:**

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

**Respirator:** A NIOSH approved or EU compliant CE marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Additional respiratory protection may be required based on the work performed and the area in which the work is performed.

**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. PVC or other gloves

<b>Other:</b>	Lab coat, safety shower and eye-wash fountain in work area. Avoid the use of contact lenses in high fume areas.
<b>Work/Hygienic Practices:</b>	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

<b>Appearance:</b>	Reddish metallic solid	<b>Boiling Point:</b>	Not available
<b>Odor:</b>	Odorless	<b>Melting Point:</b>	780C/1,436 F
<b>Specific Gravity:</b>	10.01	<b>Ph:</b>	Not applicable
<b>Vapor Pressure:</b>	Not available	<b>Solubility in Water:</b>	Insoluble
<b>Vapor Density:</b>	(air=1) Not applicable.		

## 10. STABILITY AND REACTIVITY

<b>General:</b>	Stable.
<b>Conditions to Avoid:</b>	Storage with acetylene, chlorates, chlorine, hydrogen peroxide
<b>Hazardous Decomposition /</b>	Toxic copper/silver 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

RTECS# GL 5325000 (copper), for additional information  
RTECS# VW3500000, for additional information

LD50 Oral – rat – male – 5000 mg/kg (silver)

LD50 Intraperitoneal – mouse – 3.5 mg/kg

## 12. ECOLOGICAL INFORMATION

This section is subject to future development. Product not tested.

Copper - Toxicity to daphnia and other aquatic invertebrates: mortality NOEC – Daphnia – 0.004 mg/l – 24h

Copper - Bioaccumulation – Cyprinus carpio (Carp) – 40d

Bioconcentration factor ( BCF ) : 108

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Copper – very toxic to aquatic life with long lasting effects.

Avoid release to the environment.

### 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. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

### 14. TRANSPORT INFORMATION

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

UN - NONE

### 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).

WHMIS: not classified.

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 Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-1999.

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

SARA 313 Listing – 40 CFR 372.65: Copper, Silver

Silver is listed on the State of Massachusetts, New Jersey and Pennsylvania as a Right To Know Component. Copper is listed on the State of New Jersey and Pennsylvania as a Right To Know Component.

All ingredients are listed on the EPA TSCA Inventory.

All ingredients are listed on the Canadian Domestic Substance List.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

Xi

**Risk Phrases:**

R36/37/38 Irritating to eyes, respiratory system and skin

**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
S62	If swallowed, do not induce vomiting seek medical advice immediately and show container or label

**16. OTHER INFORMATION**

<b>HMIS Hazard Rating:</b>	<b>Health:</b>	2
	<b>Fire:</b>	1
	<b>Reactivity:</b>	0

**Revised Date:** 25 APRIL 2011

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

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

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