



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

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: SILVER DOUBLE CLAD

SDS Number: SDS-5915

Revised Date: 7 JULY 2014

Product Use: METAL ALLOY SILVER WITH SILVER/TIN CLAD

MANUFACTURER:

In America:

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Singapore 628908
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2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

*Eye *Inhalation *Skin *Ingestion

CARCINOGEN LISTED IN:

NTP IARC OSHA *Not Listed

GHS

Signal Word: None

Hazard statement(s): none

Precautionary statement(s)

- 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
- P301 + P314 IF SWALLOWED: Get Medical advice/attention if you feel unwell
- 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:** Contact may cause eye irritation.
- Ingestion:** Ingestion may be harmful.
- Inhalation:** Heavy exposure of a worker to heated metallic silver vapor may cause lung damage and pulmonary edema.
- Skin Contact:** Contact may cause irritation and discoloration.
- Chronic:** Chronic inhalation may cause Argyria characterized by a permanent blue-gray discoloration of the eyes, skin, mucous membranes and internal organs. Target organ: Kidneys
- 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 of lead)**
- NOTE:** **The Indium Corporation does not recommend, manufacturer, market or endorse any of it's products for human consumption.**

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #/EINECS	PEL mg/m ³	TLV-TWA mg/m ³	TLV-STEL mg/m ³
SILVER	70-99	7440-22-4/231-131-3			
		(US)	0.01	0.1	N.E.

		(EU)	N.E.	0.1	N.E.
		(Canada)	N.E.	0.1	0.3
		(Mexico)	0.1	N.E.	N.E.
		(Singapore)	0.1	N.E.	N.E.
TIN	1-30	7440-31-5/231-141-8			
		(US)	2	2	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-

N.E. = Not established

4. FIRST AID MEASURES

- Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid 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. Contact a poison control center.
- 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.

Note to Physician: Silver deposited in tissues is relatively inert and does not respond well to chelation therapy. There is no known treatment for Argyria. Background serum levels of silver vary widely: 0.004 mcg/g to 0.03 mcg/g of blood. Discoloration of Descemet's membrane is the most sensitive indicator of chronic exposure to silver. Background excretion is 8 to 28 nmol/L. Kidney, liver and neurologic damage has been associated with silver, but these cases are not well documented.

5. FIRE FIGHTING MEASURES

- Flash Point:** Not established. **Method:** Not established.
- Auto-ignition Temperature:** Not established.
- Flammable Limits:** Limits not established. Massive metal is not 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. Vacuum rather than sweep to clean up solids and keep exposure to

airborne silver dusts as low as possible. Provide ventilation. Wear personal protective equipment. Molten metals should be allowed to cool before cleaning up. Dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Metal may have reclaim value.
RQ = 1000 lbs. (454 kg)

7. HANDLING AND STORAGE

Handling Precautions: If working with molten metals, or exposed to fume or dust, use appropriate personal protective equipment. Use with adequate ventilation.

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.

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. Otherwise a positive pressure self-contained breathing apparatus is recommended when exposure to contaminants is expected to be elevated or when ventilation is not available.

Skin: Gloves-leather or other appropriate types to avoid exposure. 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 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 malleable metal	Boiling Point:	2212 C (4013 F) (silver)
Odor:	Odorless	Melting Point:	961 C (1763F) (silver)
Specific Gravity:	10.5 g/cm ³ (silver)	pH:	Not applicable
Vapor Pressure:	100 mm Hg @1865 C (silver)	Solubility in Water:	Insoluble
Vapor Density:	(air=1) Not available	Molecular Weight:	107.8682 (silver)

10. STABILITY AND REACTIVITY

General: Stable.

Conditions to Avoid: Not established.

Incompatible Materials: Strong acids & strong bases

Hazardous Decomposition / Combustion: Toxic gases and fumes, silver fumes

Hazardous Polymerization: Has not been reported.

11. TOXICOLOGICAL INFORMATION

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

LD50:	Not established	LC50:	Not established
RTECS#:	VW3500000 (SILVER)		XP7320000 (TIN)
Irritancy of Product:	Not established	Mutagenicity:	Not established
Sensitization to Product:	Not established	Teratogenicity:	Not established
Reproductive Toxicity:	Not established	Synergistic Products:	Not established

2000 mg/kg (rat) LD 50 oral(silver)

12. ECOLOGICAL INFORMATION

Environmental: Aquatic Fate: Sorption and precipitation processes are effective in reducing the concern of dissolved silver and result in higher concentrations in the bed sediments than in the overlying waters. Sorption by manganese dioxide and precipitation with halides are probably the dominant controls on the mobility of silver in the aquatic environment.

Aquatic Toxicity: Algae, daphnia, fresh water mussels, fathead minnows were all found capable of accumulating silver; but the food chain was not an important route of silver accumulation for animals at higher trophic levels, suggesting no food chain magnification.

Silver:

Fresh water fish: 0.0062 mg/l LC50 96h

0.064 mg/l LC50 96h

0.00155-0.00293 mg/l LC50 96h

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. In Europe follow the Special Waste Regulations.

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

Non - hazardous under shipping

UN - NONE

15. REGULATORY INFORMATION

The information in this 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).

Canada -WHMIS: D2A

Silver appears on the Canadian Ingredient Disclosure List and the DSL List.

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

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

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

SARA 313 Listing - 40 CFR 372.65: silver

Silver is listed on the EPA TSCA Inventory.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

Risk Phrases:

None

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:	Health:	2
	Fire:	1
	Reactivity:	0

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Prepared by: Nancy Swarts, Indium Corporation of America

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