



## 2. HAZARDS IDENTIFICATION

**PRIMARY ROUTES OF ENTRY:**

⊗Eye    ⊗Inhalation    ⊗Skin    ⊗Ingestion

**CARCINOGEN LISTED IN:**

NTP    IARC    OSHA    ⊗Not Listed

GHS



**POTENTIAL HEALTH EFFECTS:**

**Eye Contact:** Contact with material at room temperature or fume from material at typical re-flow temperatures over 100°C may cause eye irritation.

**Ingestion:** Irritating to digestive tract. May cause burns.

**Inhalation:** Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system.

**Skin Contact:** May cause skin irritation.

**Chronic:**

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

**TIN:** Has been shown to increase incidence of sarcoma in animal tests. Chronic exposure to tin dusts and fume may result in “stannosis” a mild form of pneumoconiosis.

**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.

**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, manufacture, 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>
TIN	*	7440-31-5/231-141-8			

			(US)	2	2	-
			(EU)	-	2	4
			(Canada)	-	2	4
			(Singapore)	2	-	-
<b>SILVER</b>	*	7440-22-4/231-131-3				
			(US)	0.01	0.1	-
			(EU)	-	0.1	-
			(Canada)	N.E.	0.1	0.3
			(Singapore)	0.1	-	-
			(Mexico)	0.1	-	-
<b>COPPER</b>	*	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>ORGANIC ACIDS</b>	0 – 4	68937-72-4		N.E.	N.E.	N.E.
<b>POLYGLYCOL ETHER</b>	3.0-7.0	67700-97-4		N.E.	N.E.	N.E.
<b>ETHANOLAMINE</b>	1.0-5.0			N.E.	5	N.E.
			(Singapore)	5	-	-

Symbol: XI

Risk Phrases: R36/37/38

N.E. = Not established

\* See Alloy Table

**PRODUCT DOES NOT CONTAIN ANY LISTED EU SUBSTANCES OF VERY HIGH CONCERN (SVHC)**

**ALLOY TABLE (DATA)****%Metal Mix in Flux**

<b>Indalloy Mixture (%Metal)</b>	<b>%TIN Sn</b>	<b>%SILVER Ag</b>	<b>%COPPER Cu</b>	<b>RoHS* Compliance</b>
<b>241 (SAC 387)</b> 95.5Sn/3.8Ag/0.7Cu)	79.2-87.9	3.2-3.5	0.58-0.64	YES
<b>256 (SAC 305)</b> (96.5Sn/3Ag/0.5 Cu)	80.1-88.8	2.5-2.8	0.42-0.46	YES

**NS = Non standard alloy mixture**

**\*RoHS = Restriction of Hazardous Substances**

- <http://www.pbfree.com>
- [http://europa.eu.int/comm/environment/waste/weee\\_index.tm](http://europa.eu.int/comm/environment/waste/weee_index.tm)

**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.
- 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:** Using a spatula, scoop up paste and place in a plastic or glass jar and tightly cap. Remove traces of paste residue using cloth rags or paper towels moistened with ethyl or isopropyl alcohol. Dispose contaminated cloth rags or paper towels following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Material may have reclaim value.

## 7. HANDLING AND STORAGE

**Handling Precautions:** Keep containers tightly closed when not in use. Use care to avoid spills. Use only with production equipment specifically designed for use with solder paste. Wear appropriate personal protective equipment when working or handling solder paste. Always thoroughly wash your hands after handling this product. DO NOT touch or rub eyes until hands are washed.

**Storage Precautions:** Store product in tightly capped original containers in a cool, dry area. Refer to product label for specific storage temperature requirements. Rotate stock to ensure use before expiration date on the label.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:** Use only with production equipment (stencil printers and re-flow furnaces) with adequate ventilation and other safety features specifically designed for use with solder paste. Control concentration of all components so that exposure levels are not exceeded.

### Personal protection:

**Eyes:** Chemical safety glasses/goggles.

**Respirator:** An authority approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances (i.e. when re-flowing manually on a plate instead of a ventilated re-flow furnace) where airborne concentrations are expected to be elevated or exceed exposure limits.

**Skin:** Compatible chemical resistant gloves.

**Other:** Lab coat, eyewash fountain in work area. Avoid the use of contact lenses in high fume areas.

**Work/Hygienic Practices:** Maintain good housekeeping. Clean up spills immediately. DO NOT allow rags or paper towels contaminated with solder paste to accumulate in the work area. 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:** Grey colored paste.

**Odor:** Mild characteristic odor.

**Specific Gravity:** 1 g/cc

**Vapor Pressure:** Not applicable.

**Vapor Density:** (air=1) Not applicable.

**Boiling Point:** Not applicable.

**Melting Point:** Not applicable

**pH:** 4 -8

**Solubility in Water:** Insoluble (paste)

## 10. STABILITY AND REACTIVITY

**General:** Stable.

**Conditions to Avoid:** Not established.

**Incompatible Materials:** Avoid contact with acids, bases or oxidizing agents.

**Hazardous Decomposition / Combustion:** Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.

**Hazardous Polymerization:** Will not occur.

**11. TOXICOLOGICAL INFORMATION**

**Carcinogenicity:**        **NTP:** No  
                                   **OSHA:** No  
                                   **IARC:** No

**LD50:**                    Not established.                    **LC50:**                    Not established.

**12. ECOLOGICAL INFORMATION**

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

**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. Not regulated (US Department of Transportation). Not hazardous under shipping regulations.

**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.).

The information in this Material Safety Data Sheet meets the requirements of the EU under Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (CHIP 2) Regulation 6.

This product has been classified in accordance with the hazard criteria of the Commission Directive 91/155/EEC and EH40.

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



Canadian WHMIS:                    D2B – Materials Causing Other Toxic Effects (skin irritation)

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 in accordance with Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-

1999.

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

For compliance with EU Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS), see Alloy Table.

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

Silver                  Copper

All ingredients are listed on the EPA TSCA Inventory.

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

S23            Do not breathe fumes

S24/25        Avoid contact with skin and eyes

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

S7             Keep container tightly closed

**16. OTHER INFORMATION**

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

**Revised Date:** 26 FEBRUARY 2010

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