



## SAFETY DATA SHEET

Some of the regulatory information contained within may not be applicable to the customer's individual state or country. Unless otherwise stated the health and safety information provided within is applicable to all.

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH INDIUM 5.8LS-3 (Lead Free)

**SDS Number:** SDS-5671-LF

**Revised Date:** 8 NOVEMBER 2021  
Version 1.1

**Product Use:** Industrial Use - No-clean solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder used for solder applications.

#### MANUFACTURER:

##### In America:

The Indium Corporation of America  
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##### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**  
**USA: 1 (800) 424-9300**  
**Outside USA: +1 (703) 527-3887**  
**China: Emergency 86+ 4001-204937**

##### In China:

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Suchun Industrial Square  
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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

#### Classification:

Skin sensitizer (Category 1B)

Respiratory sensitizer (Category 1B)

Eye irritation (Category 2A)



Signal Word: Danger

#### Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
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+P364	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+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

### 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 serious eye irritation.

**Ingestion:** Contains metal alloys and organic flux materials. May be harmful if swallowed. May cause irritation.

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

**Skin Contact:** May cause skin irritation. Rosin may cause dermatitis.

**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.

**ANTIMONY:** May be harmful if inhaled. May cause respiratory irritation



**WARNING:** This product can expose you to chemicals including [trace lead] which is known to the State of California to cause cancer, and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**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>
<b>TIN</b>	74.5 – 91.5	7440-31-5/231-141-8			
		(US)	2	2	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
<b>SILVER</b>	0 – 3.5	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>	0 – 0.7	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>ANTIMONY</b>	0 – 9.5	7440-36-0/231-146-5			
		(US)	0.5	0.5	-

			INDALLOY WITH INDIUM 5.8LS-3 (Lead Free)		
		(EU)	0.5	-	-
		(Canada)	-	0.5	1.5
		(Mexico)	N.E.	0.5	-
		(Singapore)	0.5	-	-
		(China)	-	0.5	-
<b>BISMUTH</b>	0 – 0.3	7440-74-6/231-180-0			
		(US)	0.1	0.1	N.E.
		(EU)	N.E.	0.1	0.3
		(Canada)	N.E.	0.1	0.3
		( Mexico)	0.1	N.E.	0.3
		(Singapore)	0.1	N.E.	N.E.
		(China)	-	0.1	0.3
<b>ROSIN</b>	4.0 - 7.0	65997-05-9 (US)	N.E.	N.E.	N.E.
		(EU)	0.05	-	0.15 (sensitiser)
<b>POLYGLYCOL ETHER</b>	3.0 - 5.0	9038-95-3	N.E.	N.E.	N.E.
<b>NON HAZARDOUS PROPRIETARY</b>	1.0 - 6.0	68937-72-4	N.E.	N.E.	N.E.
<b>BIS(2-(2-METHOXYETHOXY)ETHYL)ETHER (TETRAETHYLENE GLYCOL DIMETHYL ETHER)</b>	0.58 – 1.2	143-24-8/205-594-7	N.E.	N.E.	N.E.

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.
- 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**

<b>Flash Point:</b>	Not established.	<b>Method:</b>	Not established.
<b>Auto-ignition Temperature:</b>	Not established.		
<b>Flammable Limits:</b>	Limits not established.		
<b>Extinguishing Media:</b>	Use extinguishers appropriate for the surrounding fire conditions.		
<b>Special Fire Fighting Procedures:</b>	Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.		

## **6. ACCIDENTAL RELEASE MEASURES**

<b>Spill or Leak Procedures:</b>	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.
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## **7. HANDLING AND STORAGE**

<b>Handling Precautions:</b>	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.
<b>Storage Precautions:</b>	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**

<b>Engineering Controls:</b>	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.
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### **Personal protection:**

<b>Eyes:</b>	Chemical safety glasses/goggles. Face shield for splash hazards.
<b>Respirator:</b>	An 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.
<b>Skin:</b>	Compatible chemical resistant gloves.
<b>Other:</b>	Lab coat, eyewash 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. 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**

<b>Appearance:</b>	Grey colored paste.	<b>Boiling Point:</b>	Not applicable.
<b>Odor:</b>	Mild characteristic odor.	<b>Melting Point:</b>	Not applicable
<b>Specific Gravity:</b>	1 g/cc	<b>pH:</b>	Not applicable
<b>Vapor Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble (paste)

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

## **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.

**Other:** Chronic Toxicity: Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma.

Copper - LD50 – intraperitoneal mouse 3.5 mg/kg.

Silver – LD50 oral – rat > 5,000 mg/kg

Antimony - LD50 oral – rat 7,000 mg/kg

Contains a substance that may damage fertility or the unborn child.

Tetraethylene glycol dimethyl ether – LD50 Oral- rat-female-3,640-4160 mg/kg

LD50 dermal rat, male>6,900mg/kg

## **12. ECOLOGICAL INFORMATION**

Product not tested.

Contains a substance that may be harmful to aquatic life.

## **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 international regulations and requirements. Not regulated (US Department of Transportation). Not hazardous under shipping regulations.

UN - none

North American Emergency Guide Book – Not applicable

Non- hazardous- ground/IATA/IMDG.

## **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).



Canadian WHMIS:  
sensitization)

D2B – Materials Causing Other Toxic Effects (skin irritation/skin

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

Malaysia:

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS). (GHS)

In China:

Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals

GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS)

GB/T 16483-2008, GB/T 17517-2013

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007.

This product has been classified in accordance with the Mexican guidelines, NOM-018-STPS-2015 and NOM-010-STPS-2014.

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



**WARNING:** This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

SARA 313 Listing - 40 CFR 372.65  
Silver Copper

All ingredients are listed on the EPA TSCA Inventory.

All ingredients are listed on the China Chemical Inventory.

EU REACH - Contains a Substance of Very High Concern (SVHC): Tetraethylene glycol dimethyl ether (143-24-8).

## 16. OTHER INFORMATION

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

**Revised Date:** 8 NOVEMBER 2021

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**Note: This SDS may be translated into an international language. If there is any misinterpretation or misunderstanding of any words or phrases that may occur within any translation the ENGLISH language shall always prevail.**

## 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>%ANTIMONY Sb</b>	<b>%BISMUTH Bi</b>	<b>RoHS* 2/3 Compliance</b>
<b>121 (96.5Sn/3.5Ag)</b>	80-88.8	2.9-3.2	-	-	-	YES
<b>133 (95Sn/5Sb)</b>	79--87	-	-	4.2-4.6	-	YES
<b>241 (SAC 387) (95.5Sn/3.8Ag/0.7Cu)</b>	79.2-87.9	3.2-3.5	0.58-0.64	-	-	YES
<b>256 (SAC 305) (96.5Sn/3Ag/0.5Cu)</b>	80.1-88.8	2.5-2.8	0.42-0.46	-	-	YES
<b>258 (SAC105) (98.5Sn/1Ag/0.5Cu) Doped with Mn 100-500 ppm</b>	81.8-90.6	0.83-0.92	0.42-0.46	-	-	YES
<b>259 90Sn/10Sb</b>	74.7-82.8	-	-	8.3-9.2	-	YES
<b>263 (SAC0307) (99Sn/0.3Ag/0.7Cu)</b>	82-91	0.25-0.28	0.58-0.64	-	-	YES
<b>Non Standard Alloy Mix 99.2Sn/0.5Cu/0.3Bi</b>	82.3-91.3	-	0.42-0.46	-	0.25-0.28	YES

\*RoHS 2 = Restriction of Hazardous Substances (2011/65/EU)

\*RoHS 3 = products do not contain any listed phthalates