



## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH INDIUM 1.38 FLUX VEHICLE

**SDS Number:** SDS-5342

**Revised Date:** 10 OCTOBER 2018

**Product Use:** Industrial Use - Solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder.

#### MANUFACTURER:

##### In America:

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Information: (315) 853-4900  
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##### In Asia:

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Asia-Pacific Operations-Singapore  
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Singapore 628908  
Information: +65 6268-8678

#### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**  
**USA: 1 (800) 424-9300**  
**Outside USA: +1 (703) 527-3887**  
**In China: Emergency 86+ 4008417580**

##### 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    NTP

### Carcinogen listed in

IARC    OSHA    \*Not Listed  
See Section 11

GHS:

Lead free products



Signal Word: Warning

#### Hazard statement(s)

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  
EUH208        Contains rosin. May produce an allergic reaction

#### 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 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    IF IN EYES: Rinse continuously with water for several minutes (15 mins)

Lead containing products



Signal Word: Warning

#### Hazard statement(s)

H303            May be harmful if swallowed  
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  
H351            Suspected of causing cancer  
H361            Suspected of damaging fertility or the unborn child  
H373            May cause damage to organs through prolonged or repeated exposure  
H410            Very toxic to aquatic life with long lasting harmful effects  
EUH201A        Warning! Contains lead. Review listing.  
EUH208        Contains rosin. May produce an allergic reaction

#### 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  
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Classification:

Carcinogenicity (Category 2) (lead)

Reproductive toxicity (Category 2 ) (lead)

Skin sensitizer-Category 1B

Respiratory sensitizer-Category 1B

Eye irritation-Category 2A

Acute aquatic toxicity – Category 1 for lead containing products (H400)

Chronic aquatic toxicity – Category 1 for lead containing products (H410)

**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:** This product may contain lead alloy powder and organic chemicals. Harmful if swallowed. May cause systematic lead poisoning and burns to the digestive tract. Symptoms of lead poisoning include headache, nausea, abdominal pain, muscle and joint pain and damage to the nervous system, blood system and kidneys.
- Inhalation:** Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system. Rosin when heated may cause respiratory sensitization.
- Skin Contact:** May cause mild skin irritation. Antimony may cause dermatitis. Rosin may cause contact dermatitis.
- Chronic:**
- LEAD:** Prolonged exposure to vapors or fumes at higher temperatures may cause respiratory irritation and systematic lead poisoning. Symptoms of lead poisoning include headache, nausea, abdominal pain, muscle and joint pain and damage to the nervous system, blood system and kidneys.
- 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.
- COPPER:** Overexposure to fumes of copper 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 can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and can cause 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.

**WARNING:** This product may contain lead. Lead may be harmful to your health. US Federal law prohibits the use of leaded solders in making joints or fittings in any private or public water supply system. Keep out of the reach of children.

**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>	*	7440-31-5/231-141-8			
		(US)	2	2	-
		(EU)	-	2	4
		(Singapore)	2	-	-
		(Canada)	N.E.	2	4
<b>LEAD</b>	*	7439-92-1/231-100-4			
		(US)	0.05	0.05	-
		(EU)	-	0.15	-
		(Canada)	0.05	0.05	-
		(Singapore)	0.15	-	-
		(China)	-	0.05(dust) 0.03(fume)	-
		(Mexico)	-	0.15	-
<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>ANTIMONY</b>	*	7440-36-0/23-146-5			
		(US)	0.5	0.5	-
		(EU)	0.5	-	-
		(Canada)	-	0.5	1.5
		(Singapore)	0.5	-	-
		(China)	-	0.5	-
<b>SILVER</b>	*	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	-	-
<b>ROSIN</b>	3.0-8.0	65997-05-9 (US)	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitiser)
<b>ORGANIC AMINE</b>	0.08-0.17	(US)	2	2	N.E.
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
		(China)	-	1	2
<b>ORGANIC AMINE</b>	0.15-0.3	(US)	-	5	-
		(Singapore)	5	-	-
<b>PROPRIETARY ACTIVATORS</b>	3.8-8.5		N.E.	N.E.	N.E.

N.E. = Not established      EU = European Union Occupational Exposure Limits

**ALLOY TABLE**

% in Solder Paste

INDALLOY	LEAD %Pb	ANTIMONY %Sb	TIN %Sn	COPPER %Cu	SILVER %Ag	RoHS 2/3 Compliance
106 (Sn63/Pb37)	30.7-34.0	-	52.3-58.0	-	-	No
121 (Sn96.5/Ag3.5)	-	-	80-88.8	-	2.9-3.2	Yes
133 (Sn95/Sb5)	-	4.2-4.6	78.9-87.4	-	-	Yes
151 (Pb92.5/Sn5/Ag2.5)	76.8-85.1	-	4.2-4.6	-	2.1-2.3	Yes^
159 (Pb90/Sn10)	74.7-82.8	-	8.3-9.2	-	-	Yes^
163 (Pb95.5/Ag2.5)	79.3-87.9	-	1.7-1.8	-	2.1-2.3	Yes^
171 (Pb95/Sn5)	78.9-87.4	-	4.2-4.6	-	-	Yes^
228 (Pb88/Sn10/Ag2)	73.0-81.0	-	8.3-9.2	-	1.7-1.8	Yes^
233 (Pb85/Sb10/Sn5)	70.6-78.2	8.3-9.2	4.2-4.6	-	-	Yes^
256 (SAC 305) (96.5Sn/3Ag/0.5Cu)	-	-	80.1-88.8	0.415	2.49-2.76	Yes

\*RoHS 2 = Restriction on Hazardous Substances (2011/65/EU)      \*RoHS 3- products do not contain any listed phthalates  
 ^ Complaint if you are taking the lead exemptions for high melting leads. Otherwise this is not complaint under RoHS. Check your company polices for any exceptions. Please note that above metal % is based on the 83-92% contained in the solder paste. Refer to the original lead content when reviewing compliance.

#### 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

- 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.

#### 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 the 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-low 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. Follow standard lead work practices when applicable.

## 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> | Not applicable.           | <b>pH:</b>                  | Not applicable    |
| <b>Vapor Pressure:</b>   | Not applicable.           | <b>Solubility in Water:</b> | Insoluble (paste) |
| <b>Vapor Density:</b>    | (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:** Yes      Lead and lead compounds are listed as possible carcinogens.
- LD50:** Not established.      **LC50:** Not established.

**Other:** Chronic Toxicity: Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma. Lead can cause potential harm to the developing fetus.

## 12. ECOLOGICAL INFORMATION

Product not tested.

Contains substances that are harmful to the aquatic environment.

Lead – Toxicity to fish – mortality LOEC – rainbow trout – 1.19 mg/l – 96h. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Bioaccumulation – Oncorhynchus kisutch – 2 weeks Bioconcentration factor (BCF): 12. Fresh fish: 0.44 mg/l LC50 96h/ 1.32 mg/l LC50 96h/water Flea: 600 ug/l EC50 = 48h

**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 (Department of Transportation).

North American Emergency Guide Book (2004)– Not classified

**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: D2A-Materials Causing Other Toxic Effects-Very Toxic Material (Chronic).



D2B Materials Causing Other Toxic Effects -irritant

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-2015 and NOM-101-STPS-2014.

In China:

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007. 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 in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS).



**WARNING:** This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and can cause 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

Lead CAS# 7439-92-1 Antimony CAS# 7440-36-0 Silver CAS# 7440-22-4 Organic amine

Copper CAS# 7440-50-8



EPA Genetic Toxicology Program – Lead CAS# 7439-92-1

All ingredients are listed on the EPA TSCA Inventory.

All ingredients are listed on the Canadian Domestic Substance List.

## 16. OTHER INFORMATION

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

**Revised Date:** 10 OCTOBER 2018

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

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

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