



## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH INDIUM3.1AF FLUX VEHICLE

**SDS Number:** SDS- 4332

**Revised Date:** 3 DECEMBER 2018

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

#### MANUFACTURER:

##### In America:

**The Indium Corporation of America®.**

34 Robinson Rd., Clinton, NY 13323

Information: (315) 853-4900

[nswarts@indium.com](mailto:nswarts@indium.com)

##### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**

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##### In Europe:

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Kingston, Milton Keynes, UK, MK 10 OAG

Information: +44 [0] 1908 580400

##### In China:

Indium Corporation (Suzhou), Co., Ltd.

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Suchun Industrial Square

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##### In Asia:

Indium Corporation of America

Asia-Pacific Operations-Singapore

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Singapore 628908

Information: +65 6268-8678

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

⊗ Eye    ⊗ Inhalation    ⊗ Skin    ⊗ Ingestion    NTP

**Carcinogen listed in**

IARC    OSHA    ⊗ Not Listed  
\*See Section 11

GHS:



Signal Word: Warning

Hazard statement(s)

H319 Causes serious eye 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 + 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)

Classification:

Serious eye irritation- Category 2A

**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 contains metal alloy powder and organic chemicals. May be harmful if swallowed.

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

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

**Chronic:** **TIN:** Has been shown to increase incidence of sarcoma in animal tests.

**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.

**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 such as [trace amounts of lead, propylene oxide, ] which are known to the State of California to cause cancer and [trace amounts of lead] which 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.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #	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 (US)	2	2	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
<b>SILVER</b>	*	7440-22-4 (US)	0.01	0.01	N.E.
		(EU)	-	0.1	-
		(Canada)	-	0.1	0.3
		(Mexico)	-	0.1	-
		(Singapore)	0.1	-	-
<b>COPPER</b>	*	7440-50-8 (US)	0.1	0.2	-
		(EU)	-	0.2	2
		(Canada)	-	0.2	0.6
		(Singapore)	0.2	1(dust)	-
		(Mexico)	-	0.2	2
		(China)	-	0.2(fume)	0.6
		-	-	1(dust)	2.5
<b>ROSIN</b>	0.2-4.0	65997-05-9	N.E.	N.E.	N.E.
		(EU)	0.05	-	0.15
<b>ORGANIC AMINE</b>	2 - 4	(US)	N.E.	5	N.E.
		(Singapore)	5	-	-
<b>PROPRIETARY ACTIVATORS</b>	5.8 – 9.0	-	N.E.	N.E.	N.E.

\* See alloy table

N.E. = Not established

EU = European Union Occupational Exposure Limits

#### 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. Wear proper personal protective equipment during clean up.

#### 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 (such as 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 they're permissible exposure levels are not exceeded.

**Personal protection:**

- Eyes:** Chemical safety glasses/goggles. Face shield for splash hazards.
- Respirator:** 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.

- 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

- |                          |                           |                             |                 |
|--------------------------|---------------------------|-----------------------------|-----------------|
| <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> | Soluble         |
| <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 /** Harmful toxic oxide fumes may form at elevated temperatures. CO/CO<sub>2</sub>
- Hazardous Polymerization:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

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

## 12. ECOLOGICAL INFORMATION

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 international regulations and requirements. Not regulated (Department of Transportation).

Non - hazardous under shipping regulations. DOT/IATA/IMDG

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.).



**WARNING:** This product can expose you to chemicals such as [trace amounts of lead, propylene oxide] which are known to the State of California to cause cancer and [trace amounts of lead] which 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

Silver CAS# 7440-22-4

Copper CAS# 7440-50-8

All ingredients in this product are listed on the EPA TSCA Inventory.

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 (irritant or sensitizer)

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 the Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

Regulatory Information China:

GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products

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

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

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

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)

**16. OTHER INFORMATION**

**HMIS Hazard Rating:**      **Health:**            1  
    **Fire:**                    1  
    **Reactivity:**        0

**Revised Date:**            3 DECEMBER 2018

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

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

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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**

Metal alloy mix with flux

<b>INDALLOY</b> Metal Mix	<b>%TIN</b> Sn	<b>%SILVER</b> Ag	<b>%COPPER</b> Cu	<b>RoHS* 2/3</b> <b>Compliance</b>
256 (SAC305) (Sn96.5/Ag3.0/Cu0.5)	80.1-88.8	2.5-2.8	0.42-0.46	YES
Non Standard (96Sn/4Ag)	79.7-88.3	3.3-3.7	-	YES
Non Standard 99.3Sn/0.7Cu)	82.4-91.4	-	0.58-0.64	YES

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

**\*RoHS 3 = product's do not contain any listed phthalates**