



## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** CHIP PASTE with 280-93-AK Flux Vehicle

**SDS Number:** SDS-4291 **Revised Date:** 23 JULY 2018

**Product Use:** Industrial Use - Solder paste consisting of a flux vehicle blended with 83-92 weight percent pre-alloyed metal powder mix. Chip paste (CP) alloy table provided on page 4.

#### MANUFACTURER:

##### In America:

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**2. HAZARDS IDENTIFICATION**

**PRIMARY ROUTES OF ENTRY:**

⊗Eye    ⊗Inhalation    ⊗Skin    ⊗Ingestion    NTP    IARC    OSHA    ⊗Not Listed

**Carcinogen listed in**

GHS:

Lead free products



Signal Word: Warning

Hazard statement(s)

- H317            May cause an allergic skin reaction
- H319            Causes serious eye irritation
- 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/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)
- P501            Dispose of content/containers in accordance with applicable regulations. Do not use containers for food stuffs. Recycle containers and content if possible.

Lead containing products



Signal Word: Warning

Hazard statement(s)

- H303            May be harmful if swallowed
- H316            Causes mild 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
- H360            May damage fertility or the unborn child
- H373            May cause damage to organs through prolonged or repeated exposure
- H400+H413    Very toxic to aquatic life, may cause long lasting harmful effects to aquatic life
- 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
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)
P501	Dispose of content/containers in accordance with applicable regulations. Do not use containers for food stuffs. Recycle containers and content if possible.

#### Classification

Eye irritation-Category 2A

Skin irritation-Category 3

Carcinogenicity (Category 2) (lead)

Reproductive toxicity (Category 2 ) (lead)

Acute aquatic toxicity – Category 1 for lead containing products

Chronic aquatic toxicity – Category 1 for lead containing products

#### 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 contains metal alloy powder and organic chemicals. May be harmful if swallowed. May cause burns to the digestive tract and systematic effects.

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

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

**Chronic:** 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.

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

LEAD: Prolonged exposure to lead fume or dust by inhalation may cause fatigue, gastrointestinal pain, anemia, possible central nervous system damage, possible kidney dysfunction and 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.

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.

**Note:** The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.



**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)

**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
			(Canada)	-	2	4
			(Singapore)	2	-	-
			(Mexico)	-	0.1	-
<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	-
			(China)	-	0.05(dust) 0.03(fume)	-
<b>LEAD</b>	*	7439-92-1/231-100-4	(US)	0.05	0.05	-
			(EU)	-	0.15	-
			(Canada)	-	0.05	-
			(Singapore)	0.15	-	-
			(Mexico)	-	0.15	-
			(China)	-	0.05(dust) 0.03(fume)	-
			(China)	-	0.05(dust) 0.03(fume)	-
<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(fume)	2
			(China)	-	1(dust) 0.2(fume)	2.5 0.6
			(China)	-	1(dust) 0.2(fume)	2.5 0.6
<b>ROSIN</b>	3.0-8.0	65997-05-9	N.E.	N.E.	N.E.	
			(EU)	0.05	N.E.	0.15 (sensitizer)
<b>PROPRIETARY</b>	5.0-9.0		N.E.	N.E.	N.E.	

N.E. = Not established

EU = European Union Occupational Exposure Limits

**CHIP PASTE ALLOY TABLE**

## Metal in flux mix

PRODUCT ID	RoHS 2/3* Compliance	%TIN Sn	%LEAD Pb	%COPPER Cu	%SILVER Ag
CP-5104 CP-6104	No	51.9-57.5	30-33	-	1.2-1.3
CP-5106 CP-6106	No	52.3 – 58	30.7-34	-	-
CP-6121	Yes	80.1-88.8	-	-	2.8-3.2
CP-5241 CP-6241	Yes	79.3-87.9	-	0.58-0.64	3.2-3.5
CP-6244	Yes	82.4-91	-	0.58-0.64	-
CP-5246 CP- 6246	Yes	79.3-87.9	-	0.42-0.46	3.3-3.7
CP-5256 CP-6256	Yes	80.1-88.8	-	0.42-0.46	2.5-2.8

RoHS 2 (2011/65/EU) = Restriction of Hazardous Substances (review any applicable exemptions)

RoHS 3 – products do not contain any listed phthalates

<http://www.indium.com>

**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.

## 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 the exposure levels are not exceeded. Use exhaust ventilation.

### Personal protection:

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

**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. Latex not recommended.

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

**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.

**Boiling Point:** Not applicable.

**Odor:** Mild characteristic odor.

**Melting Point:** Not applicable

**Specific Gravity:** Not applicable.

**pH:** Not applicable

**Vapor Pressure:** Not applicable.

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

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

## 10. STABILITY AND REACTIVITY

<b>General:</b>	Stable.
<b>Conditions to Avoid:</b>	Not established.
<b>Incompatible Materials:</b>	Avoid contact with acids, bases or oxidizing agents.
<b>Hazardous Decomposition / Combustion:</b>	Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.
<b>Hazardous Polymerization:</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>Carcinogenicity:</b>	<b>NTP:</b> No	<b>OSHA:</b> No	<b>IARC:</b> Yes	Lead and lead compounds are listed as possible carcinogens
<b>LD50:</b>	Not established.	<b>LC50:</b>	Not established.	
<b>Other:</b>	Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma.			

## 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 under US DOT (United States Department of Transportation). Non hazardous under shipping regulations, all modes.

North American Emergency Guide Book – Not applicable

UN – none

Marine Pollutant: No

## 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 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)

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



WHMIS: D2A- Materials Causing Other Toxic Effects-Very Toxic Material (Chronic). Otherwise may not be classified.  
D2B – Materials Causing Other Toxic Effects (skin irritant/sensitizer)

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

SARA 313 Listing - 40 CFR 372.65

Silver CAS# 7440-22-4

Lead CAS# 7439-92-1

Copper CAS# 7440-50-8

All ingredients are listed on the EPA TSCA Inventory.

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

Most of the ingredients are listed on the Canadian Domestic Substance List.

## 16. OTHER INFORMATION

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

**Revised Date:** 23 JULY 2018

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

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

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