# SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Identifier:</th>
<th>CHIP PASTE with 280-93-AK Flux Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS Number:</td>
<td>SDS-4291</td>
</tr>
<tr>
<td>Revised Date:</td>
<td>23 JULY 2018</td>
</tr>
</tbody>
</table>

**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:**
The Indium Corporation of America®
34 Robinson Rd., Clinton, NY 13323
Information: (315) 853-4900
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Indium Corporation (Suzhou), Co., Ltd.
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Suzhou Industrial Park
Suchun Industrial Square
Unit No. 14-C
Jiangsu Province, China 215126
Information: (86) 512-6283-4900

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Outside USA: +1 (703) 527-3887

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

www.indium.com
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

- Eye
- Inhalation
- Skin
- Ingestion

Carcinogen listed in:

- NTP
- IARC
- OSHA
- Not Listed

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
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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

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
<table>
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<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry #/EINECS#</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
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N.E. = Not established  EU = European Union Occupational Exposure Limits
CHIP PASTE ALLOY TABLE

<table>
<thead>
<tr>
<th>PRODUCT ID</th>
<th>RoHS 2/3* Compliance</th>
<th>%TIN Sn</th>
<th>%LEAD Pb</th>
<th>%COPPER Cu</th>
<th>%SILVER Ag</th>
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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 contaminate 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:** Not applicable.
- **Vapor Pressure:** Not applicable.
- **Vapor Density:** (air=1) Not applicable.
- **Boiling Point:** Not applicable.
- **Melting Point:** Not applicable
- **pH:** Not applicable
- **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: Yes Lead and lead compounds are listed as possible carcinogens
LD50: Not established. LC50: Not established.
Other: 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

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

HMIS Hazard Rating:
- Health: 2
- Fire: 0
- Reactivity: 0

Revised Date: 23 JULY 2018
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

The information and recommendations contained herein are, to the best of The Indium Corporation of America's knowledge and belief, accurate and reliable as of the date issued. The Indium Corporation of America does not warrant or guarantee their accuracy or reliability, and The Indium Corporation of America shall not be liable for any loss or damage arising out of the user thereof. The information and recommendations are offered for the user’s consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety and other necessary information is included on the container.