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 products.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH MD064R
SDS Number: SDS-6190
Revised Date: 17 OCTOBER 2018
Product Use: Industrial use - solder paste consisting of a flux vehicle blended with an 77-79% pre-alloyed metal powder. Review product metal alloy table mixtures with the same flux.

MANUFACTURER:

In America:
The Indium Corporation of America®,
34 Robinson Rd., Clinton, New York 13323
Information: (315) 853-4900
nswarts@indium.com

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

In China:
The Indium Corporation of America® (European Operations)
7 Newmarket Ct.
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

In Europe:
The Indium Corporation of America® (European Operations)
7 Newmarket Ct.
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

In Asia:
Indium Corporation of America
Asia-Pacific Operations-Singapore
29 Kian Teck Avenue
Singapore 628908
Information: +65 6268-8678

http://www.indium.com
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

- Eye
- Inhalation
- Skin
- Ingestion

CARCINOGEN LISTED IN:

- NTP
- 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
- 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)

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
- 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
- P362 +P364  Take off contaminated clothing and wash before reuse
- P301 + P314  IF SWALLOWED: Get Medical advice/attention if you feel unwell.
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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:
Eye Irritant (Category 2)
Acute toxicity, Oral (Category 4) (lead)
Carcinogenicity (Category 2) (lead)
Reproductive toxicity (Category 2) (lead)
Acute aquatic toxicity (Category 1) (lead)
Chronic aquatic toxicity (Category 1) (lead)

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 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 the respiratory system.

Skin Contact: May cause skin irritation or 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.
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 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

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 and fittings in any private or public water supply system. Keep out of the reach of children.
3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<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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<td>OTHER NON-HAZARDOUS INGREDIENTS</td>
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</table>

N.E. = Not established      * See Alloy Table.
ALLOY TABLE

% Metal mix with flux

<table>
<thead>
<tr>
<th>INDALLOY (METAL MIX )</th>
<th>%TIN Sn</th>
<th>%SILVER Ag</th>
<th>%LEAD Pb</th>
<th>%COPPER Cu</th>
<th>^RoHS 2/3 Compliance</th>
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<tr>
<td>106</td>
<td>48.5-50</td>
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<td>28.5-29</td>
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<td>(63Sn/37Pb)</td>
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<td>74.3-76.2</td>
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<td>0.385-0.395</td>
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<td>(SAC305)</td>
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<td>(96.5Sn/3Ag/0.5Cu)</td>
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</tbody>
</table>

RoHS 2- (2011/65/EU) *RoHS 3- products do not contain any listed phthalates

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: 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
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use only with adequate ventilation and other safety features specifically designed for use with solder paste. Control concentration of all components so that the permissible 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 gloves not recommended for chemical handling.
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. When working with lead containing products follow standard lead work practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Grey colored paste.</td>
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<tr>
<td>Odor</td>
<td>Mild characteristic odor.</td>
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<tr>
<td>Specific Gravity</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable.</td>
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<tr>
<td>Vapor Density</td>
<td>(air=1) Not applicable.</td>
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<tr>
<td>Boiling Point</td>
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<tr>
<td>Melting Point</td>
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<tr>
<td>pH</td>
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<tr>
<td>Solubility in Water</td>
<td>Insoluble (paste)</td>
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</table>

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: Lead can cause potential harm to the developing fetus.

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 in accordance with all Federal, State and Local environmental regulations. In Europe follow the rules for hazard assessment of wastes.

14. **TRANSPORT INFORMATION**

   Transport in accordance with applicable international regulations and requirements. Not regulated (US Department of Transportation).

   Non-hazardous under shipping regulations (UN regulations).

   Non-hazardous under IATA.

   UN – none

   Marine pollutant: No

   North American Emergency Guide Book – Not applicable

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

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

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

SARA 313 Listing - 40 CFR 372.65
Lead CAS# 7439-92-1
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

HMIS Hazard Rating:  
Health: 2  
Fire: 1  
Reactivity: 0

Revised Date: 17 OCTOBER 2018
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

The information and recommendations contained herein, 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. The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.