



SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH INDIUM6.91 FLUX VEHICLE

SDS Number: SDS-6199AS

Revised Date: 10 AUGUST 2018

Product Use: Industrial use -solder paste consisting of a flux vehicle blended with a 73-90 % pre-alloyed metal powder for soldering applications. Review alloy table for list of mixtures.

MANUFACTURER:

In America:

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2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

⊕ Eye ⊕ Inhalation ⊕ Skin ⊕ Ingestion

Carcinogen listed by agency

NTP IARC OSHA ⊕Not Listed

*See Section 11

GHS:

For Non-lead containing materials

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)

For lead containing materials



Signal Word: Warning

Hazard statement(s)

- H303 May be harmful if swallowed
- 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 effects
- EUH201A Warning! Contains lead. Review listing.

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Classification:

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
 Acute and Chronic Classification is (Category 2)

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: Contains metal alloy and organic chemicals. May be harmful.

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.

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.



WARNING: This product can expose you to chemicals including [lead, trace amounts of propylene oxide] which are known to the State of California to cause cancer and [lead] which 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 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 ³ | TLV-TWA mg/m ³ | TLV-STEL mg/m ³ |
|------------|------|-----------------------------|--------------------------|------------------------------|-------------------------------|
| TIN | * | 7440-31-5/231-141-8 | | | |
| | | (US) | 2 | 2 | - |
| | | (EU) | - | 2 | 4 |
| | | (Canada) | - | 2 | 4 |
| | | (Singapore) | 2 | - | - |
| LEAD | * | 7439-92-1/231-100-4 | | | |
| | | (US) | 0.05 | 0.05 | - |
| | | (EU) | - | 0.15 | - |

| | | | | | |
|-------------------------|-------|---------------------|------|--------------------------|------|
| | | (Canada) | 0.05 | 0.05 | - |
| | | (Singapore) | 0.15 | - | - |
| | | (Mexico) | N.E. | 0.15 | - |
| | | (China) | - | 0.05(dust) 0.03(fume) | - |
| SILVER | * | 7440-22-4/231-131-3 | | | |
| | | (US) | 0.01 | 0.1 | - |
| | | (EU) | - | 0.1 | - |
| | | (Canada) | - | 0.1 | 0.3 |
| | | (Mexico) | - | 0.1 | - |
| | | (Singapore) | 0.1 | - | - |
| ANTIMONY | * | 7440-36-0/231-146-5 | | | |
| | | (US) | 0.5 | 0.5 | - |
| | | (EU) | 0.5 | - | - |
| | | (Canada) | N.E. | 0.5 | 1.5 |
| | | (Singapore) | 0.5 | - | - |
| | | (Mexico) | 0.5 | - | - |
| | | (China) | - | 0.5 | - |
| POLYGLYCOL ETHER | 15-18 | 9038-95-3 | N.E. | N.E. | N.E. |
| PROPRIETARY | 6 -12 | - | N.E. | N.E. | N.E. |

N.E. = Not established * See alloy table

ALLOY TABLE

%Metal Mix in Flux

| Indalloy | %TIN Sn | %LEAD Pb | %SILVER Ag | %COPPER Cu | %ANTIMONY Sb | RoHS 2/3 Compliance |
|---------------------------|-----------|-----------|------------|------------|--------------|---------------------|
| 133 (95Sn/5Sb) | 69.4-85.5 | - | - | - | 3.65-4.5 | Yes |
| 145 (75Pb/25Sn) | 18.3-22.5 | 54.8-67.5 | - | - | - | No |
| 151 (92.5Pb/5Sn/2.5Ag) | 3.65-4.5 | 67.5-83.3 | 1.8-2.25 | - | - | Yes* |
| 171 95Pb/5Sn | 3.65-4.5 | 69.4-85.5 | - | - | - | Yes* |

| Indalloy | %TIN Sn | %LEAD Pb | %SILVER Ag | %COPPER Cu | %ANTIMONY Sb | RoHS 2/3 Compliance |
|---------------------------------------|---------|----------|------------|------------|--------------|---------------------|
| 228 (88Pb/10Sn/2Ag) | 7.3-9.0 | 64-79 | 1.46-1.8 | - | - | Yes* |
| 256 (SAC305) (96.5Sn/3Ag/0.5Cu) | 70-86.9 | - | 2.2-2.7 | 0.37-0.45 | - | Yes |

*RoHS exemption for high melting lead

RoHS 2 = Restriction of Hazardous Substances (EU Directive 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 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. Consult Product Data Sheet for additional information.

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 EU compliant CE 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 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 standards as specified and applicable under Federal standards.

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:** Reasonably anticipated to be a human carcinogen (lead)
 OSHA: 29 CFR 1910.1025 (lead)
 IARC: Yes 2B: Group 2B. Possibly carcinogenic to humans (lead)

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.

RTECS: OF7525000 (lead)

Lead
 reproductive toxicity – rat –inhalation
 reproductive toxicity – rat – oral
 reproductive toxicity – mouse-oral

Teratogenicity
 Developmental toxicity – rat- inhalation
 Developmental toxicity- rat- oral
 Suspected human reproductive toxicant

GHS- Specific target organ toxicity- repeated exposure
 May cause damage to organs through prolonged or repeated exposure

Lead- OSHA Hazards- carcinogen/target organ effect/harmful by ingestion/teratogen.

12. ECOLOGICAL INFORMATION

Product not tested.

Lead:

Toxicity to fish:

Rainbow trout- 1.19mg/l-96h

LC50 micropterus dolomieu- 2.2 mg/l-96h

Mortality NOEC-salvelinus fontinalis-1.7 mg/l-10d

Toxicity to algae

Mortality EC50-skeletonema costatum-7.94mg/l-10d

An environmental hazard cannot be excluded in the event of unprofessional handling, use and or disposal of this product.

Contains a substance (lead) that is very toxic to aquatic life with long lasting effects.

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 waste assessment rules.

14. TRANSPORT INFORMATION

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

Non - hazardous under all INTERNATIONAL shipping regulations. (DOT/IATA/IMDG)

UN – none

Non – hazardous under IATA. Not regulated.

North American Emergency Response Guidebook. 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.).



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

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

All ingredients 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).



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

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 Standards: NOM-010-STPS-2015 and NOM-018-STPS-2014.

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).

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

16. OTHER INFORMATION

| | | |
|----------------------------|-------------------------|---|
| HMIS Hazard Rating: | Health: | 2 |
| | Fire: | 1 |
| | Physical Hazard: | 0 |

Revised Date: 10 AUGUST 2018

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Approved by: Nancy Swarts, Indium Corporation of America

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