



INDIUM CORPORATION OF AMERICA® EUROPE® ASIA-PACIFIC

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY 104 WITH INDIUM 6.1 FLUX VEHICLE

MSDS Number: MSDS- IN 959

Revised Date: 03 MARCH 2003

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

MANUFACTURER:

In America:

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Singapore 628908
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2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #	OSHA PEL mg/m ³	TLV-TWA mg/m ³	TLV-STEL mg/m ³
TIN	51.9-57.5	7440-31-5 (US)	2	2	N.E.
		(EU)	N.E.	2	4
		(Canada)	N.E.	2	4
LEAD	30.0-33.2	7439-92-1 (US)	0.05	0.05	N.E.
		(EU)	N.E.	0.15	N.E.
		(Canada)	N.E.	0.05	N.E.
SILVER	1.2-1.3	7440-22-4 (US)	0.01	0.1	N.E.
		(EU)	N.E.	0.1	N.E.

		(Canada)	N.E.	0.1	0.3
ROSIN	2.0-5.0	65997-05-9 (US)	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitiser)
		(Canada)	N.E.	N.E.	N.E.
PROPRIETARY ADDITIVE	2.0-4.0	(US)	N.E.	5	N.E.
OTHER PROPRIETARY ADDITIVES	4.0-8.0		N.E.	N.E.	N.E.

Symbol: X_n Risk Phrases: R20/21/22, R36/37/38, R42
 N.E. = Not established EU = European Union Occupational Exposure Limits

3. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

Eye
 Inhalation
 Skin
 Ingestion
 Carcinogen listed in
 NTP
 IARC
 OSHA
 Not Listed

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact with material at room temperature or fume from material at typical reflow temperatures over 100°C may cause eye irritation.

Ingestion: This product may contain lead alloy powder and organic chemicals. Harmful if swallowed. May cause systematic lead poisoning and burns to the digestive tract. Symptoms of lead poisoning include headache, nausea, abdominal pain, muscle and joint pain and damage to the nervous system, blood system and kidneys.

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 mild 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 contains chemical (s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm).

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

4. FIRST AID MEASURES

- Eye Contact:** Hold eyelids apart and flush eyes with plenty of 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering Controls:** Use only with production equipment (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 TLVs are not exceeded.
- Personal protection:**
- Eyes:** Chemical safety glasses/goggles.
- Respirator:** A NIOSH 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.
- 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

- | | | | |
|--------------------------|---------------------------|-----------------------------|-----------------|
| 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: | Soluble |
| Vapor Density: | (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 / 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. Lead can cause potential harm to the developing fetus.

12. ECOLOGICAL INFORMATION

- This section is subject to future development.
- Biodegradability:** Data not established.
- Aquatic Toxicity:** Data not established.

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

15. REGULATORY INFORMATION

The information in this Material 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.).

The information in this Material Safety Data Sheet meets the requirements of the EU under Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (CHIP 2) Regulation 6.

This product has been classified in accordance with the hazard criteria of the Commission Directive 91/155/EEC and EH40.

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). Otherwise insufficient information.

This product has been classified in accordance with the guidelines, as set, by the Dept of Industrial Health of the Republic of Singapore.

California PROP 65: WARNING:

This product contains chemical (s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm).

SARA 313 Listing - 40 CFR 372.65

Lead CAS# 7439-92-1

Silver CAS# 7440-22-4

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

All ingredients are listed on the EPA TSCA Inventory.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

X_n

Risk Phrases:

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed

R36/37/38 Irritating to eyes, respiratory system and skin

R42 May cause sensitization by inhalation

Safety Phrases:

S20/21 When using do not eat, drink or smoke

S23 Do not breathe fumes

S24/25 Avoid contact with skin and eyes

S28	After contact with skin wash immediately with plenty of soap and water
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S62	If swallowed, do not induce vomiting seek medical advice immediately and show container or label
S7	Keep container tightly closed

16. OTHER INFORMATION

HMIS Hazard Rating:

Health:	2
Fire:	1
Reactivity:	0

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Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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