



**INDIUM CORPORATION OF AMERICA ®\EUROPE®\ASIA-PACIFIC®
INDIUM CORPORATION (SUZHOU) ®**

This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux coating. A table is provided that lists all metal groupings. Review the information and compare to the product purchased. To better serve all of our customers Indium Corporation has generated one MSDS, for this product.

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: INDALLOY WITH NC-9 - TCI-2 FLUX COATING

SDS Number: SDS- 5910

Revised Date: 26 MAY 2015

Product Use: Industrial Use (mixture) - Flux Coated Metal Preform for soldering applications with dye coating - orange. Review alloy table for metal mixtures with the same colored flux.

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2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

⊕Eye ⊕ Inhalation ⊕ Skin ⊕ Ingestion NTP

Carcinogen listed in

IARC OSHA ⊕Not Listed
 *****See Section 11

General GHS Information



(lead, cadmium containing)

Signal Word: Warning

Hazard statement(s)

- H303 May be harmful if swallowed
- H317 May cause an allergic skin reaction
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H332 Harmful if inhaled (lead/cadmium)
- H351 Suspected of causing cancer (lead) (cadmium)
- H361 Suspected of damaging fertility or the unborn child (applicable to lead/cadmium containing product)
- H373 May cause damage to organs through prolonged or repeated exposure (applicable to lead containing product)
- H410 Very toxic to aquatic life, with long lasting harmful effects (lead)
- EUH201A Warning! Contains lead (applicable only to the products listed that contain lead) Review listing.
- EUH207: Warning! Contains cadmium. Dangerous fumes are formed during use. Comply with the safety instructions. (applicable only to the products listed that contain cadmium) 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 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 in accordance with applicable local/state and federal regulations. Consider recycling metal.

Review alloy table for product used. Review applicable health, safety and environmental information.

POTENTIAL HEALTH EFFECTS:

- Eye Contact:** Contact with fume from molten metal may cause irritation.
- Ingestion:** May be harmful if swallowed.
- Inhalation:** Inhalation of fume or dust may cause local irritation to the respiratory system. Rosin may cause occupational asthma. Product may contain lead or cadmium which may cause harm if inhaled.
- Skin Contact:** Normal handling should not cause any adverse health effects. May cause skin irritation. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal. Rosin may cause irritation or dermatitis.

- Chronic:** **TIN:** Has been shown to increase incidence of sarcoma in animal tests.
- 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.
- CADMIUM:** Overexposure can cause damage to the lungs and kidneys. Cadmium is a toxic metal and ingestion or inhalation of fumes and dust can be harmful. Included effects may be obstructive lung disease such as emphysema, bone demineralization, micro-fractures and osteomalacia, gastrointestinal symptoms, rhinitis and discoloration of the teeth.
- 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.
- Warning:** This product contains a chemical (s) known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (lead) Applicable in the State of California. (lead) cadmium)
- 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. 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
TIN	*	7440-31-5 /231-141-8
LEAD	*	7439-92-1/231-100-4
CADMIUM	*	7440-43-9 /231-152-8
SILVER	*	7440-22-4/231-131-3
ROSIN	1 - 4	65997-05-9
PROPRIETARY	0.1 - 2	-

Symbol: X_n
N.E. = Not established

Risk Phrases: R20/22, R36/37/38, R42/43 See Section 15.
* See alloy table for metal mixtures

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 applicable

Flammable Limits: Flammable in the form of dust when exposed to heat or flame.

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Use water spray, carbon dioxide, or foam. Do not allow water run-off to enter sewers or waterways.

Special Fire Fighting Procedures: Firefighters wear an approved self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Wear HEPA (high efficiency particulate filter) filter respirator and other personal protective clothing. (See Exposure Controls/Personal Protection Section).
Clean up spill without generating or dispersing dust into the air. Vacuum solids instead of sweeping. Reduce airborne dust and prevent scattering by moistening with water. Place spilt material in a container and dispose of in accordance with applicable regulations.

7. HANDLING AND STORAGE

Handling Precautions: Avoid breathing vapors from heated material and dusts from powder form. Avoid contact with eyes, skin and clothing. Follow routine safe handling procedures. Use with adequate ventilation.

Storage Precautions: Keep away from heat and flame. Store in suitable, tightly capped, and labeled containers in cool dry, well-ventilated area. Empty containers may be hazardous as they contain product residue.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components	% wt	CAS Registry #	PEL mg/m ³	TLV-TWA mg/m ³	TLV-STEL mg/m ³
TIN	*	7440-31-5 (US)	2	2	-

		(EU)	-	2	4
		(Singapore)	2	-	-
		(Canada)	-	2	4
LEAD	*	7439-92-1 (US)	0.05	0.05	-
		(EU)	-	0.15	-
		(Canada)	-	0.05	-
		(Singapore)	0.15	-	-
		(Mexico)	-	0.15	-
		(China)	-	0.05(dust) 0.03(fume)	-
CADMIUM	*	7440-43-9 (US)	0.005	0.01	-
		(EU)	0.025	-	-
		(Singapore)	0.05	-	-
		(China)	-	0.01	0.02
		(Canada)	-	0.05	0.2
SILVER	*	7440-22-4 (US)	0.01	0.1	-
		(EU)	-	0.1	-
		(Canada)	-	0.1	0.3
		(Mexico)	-	0.1	-
		(Singapore)	0.1	-	-
ROSIN	1 - 4	65997-05-9	N.E.	N.E.	N.E.
		(EU)	0.05	-	0.15
PROPRIETARY	0.1 - 2		N.E.	N.E.	N.E.

* Review alloy table for list of metal mixtures.

Engineering Controls: Local exhaust ventilation is recommended to control any fume or dust air contaminants. Keep exposures as low as possible. Avoid exposure to dust and fume containing lead and/or cadmium.

Personal protection:

Eyes: Chemical safety glasses/goggles and face shield with molten metal. Safety glasses should be worn at all times.

Respirator: An approved or compliant marked air-purifying respirator with a fume/dust HEPA type chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Warning: Air purifying respirators do not protect the worker in oxygen-deficient atmospheres.

Skin: Wear protective gloves, clothing such as lab coat, coveralls, apron and boots.

Other: Eye-wash fountain/shower in work area. Avoid the use of contact lenses in high fume and dust areas. Regular shower facilities and industry laundry service may be required. Review regulations

regarding lead and cadmium proper work practices, if applicable.

Work/Hygienic Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential especially when working with lead and cadmium products.
 Avoid eating, smoking or drinking in the lead/cadmium work areas. Wash hands and face thoroughly with soap and water immediately upon leaving the work area and before eating.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid, gray metal with orange colored coating		
Boiling Point:	Not available		
Odor:	Odorless	Melting Point:	See Table
Specific Gravity:	See Table	pH:	Not applicable
Vapor Pressure:	Not established	Solubility in Water:	Insoluble
Vapor Density:	(air=1) Not applicable.		

10. STABILITY AND REACTIVITY

General:	Stable.
Conditions to Avoid:	Not established
Incompatible Materials:	Not established
Hazardous Decomposition / Combustion:	Toxic fumes are emitted at elevated temperatures.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:	NTP(National Toxicity Program):	No
	OSHA (Occupational Safety & Health Administration):	Yes, Cadmium is listed as a possible carcinogen.
	IARC (International Agency for Research on Cancer):	Yes – lead and lead compounds and cadmium and cadmium 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 and cadmium can cause potential harm to the developing fetus.

NIOSH RTECS# EU9800000 Cadmium	
NIOSH RTECS# OF7525000 Lead	NIOSH RTECS# VM3500000 Silver
NIOSH RTECS# XP7320000 Tin	Product mixtures not tested.

12. ECOLOGICAL INFORMATION

Product mixtures not tested.
 Lead – Toxicity to fish – mortality LOEC – rainbow trout – 1.19 mg/l – 96h. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Bioaccumulation – Oncorhynchus kisutch – 2 weeks

Bioconcentration factor (BCF): 12. Fresh fish: 0.44 mg/l LC50 96h/ 1.32 mg/l LC50 96h/water Flea: 600 ug/l EC50 = 48h

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. Do not dispose of down any drain or waterway.

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation. Non hazardous under shipping modes (Ground/IATA/Ocean).

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.).

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).
D1A – Materials causing immediate and serious toxic effects –Very Toxic Material (cadmium)

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-2000 and NOM-010-STPS-1999.

This product has been classified using the Chinese Occupational Exposure Limit for Hazardous Agents in the Workplace, GBZ2-2002.

New Jersey Right To Know – Tin #1858, Silver #1669, Lead #1096, Copper #0528, Cadmium #0305 and Indium #1025

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

SARA 313 Listing - 40 CFR 372.65 – Lead, Silver, Cadmium

EPA Genetic Toxicology Program – Lead CAS# 7439-92-1, Cadmium CAS# 7440-43-9

Ingredient is listed on the USEPA TSCA Inventory.

Ingredients are listed on the Canadian Domestic Substance List.

Ingredients are listed on the Philippines Inventory of Chemicals

Ingredients are listed on the Korean Existing Inventory of Chemicals.

Ingredients are listed on the China Inventory of Chemicals.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

X_n

Risk Phrases:

R20/22	Harmful by inhalation and if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin
R42/43	May cause sensitization by inhalation and skin contact
R26	Very toxic by inhalation (cadmium)
R33	Danger of cumulative effects (lead)
R40	Limited evidence of carcinogenic effect (lead)
R45	May cause cancer (cadmium)
R48	Danger of serious damage to health by prolonged exposure (lead)
R50/53	Very toxic to aquatic organisms and may cause long-term effects in the aquatic environment (lead) (cadmium)
R61	May cause harm to the unborn child (lead) (cadmium)

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
S36/37/39	Wear suitable protective clothing, gloves and eye/face protection

16. OTHER INFORMATION

HMIS Hazard Rating:

Health:	2
Fire:	1
Reactivity:	0

Revised Date: 26 MAY 2015

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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.

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ALLOY TABLE

% Metal Alloy Content Only

INDALLOY/METAL MIXTURE	RoHS 2** Compliance	%TIN Sn	%SILVER Ag	%LEAD Pb	%CADMIUM Cd	SPECIFIC GRAVITY
106 (Sn63/Pb37)	No	59-62.3	-	34.8-36.6	-	8.417
(Sn50/Cd18/Pb32)	No	47-49.5	-	30-31.6	16.9-17.8	8.515
(Sn96/Ag4)	Yes	90-94.9	3.8-3.96	-	-	7.4

RoHS 2 (2011/65/EU)