



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. A table is provided that lists all metal groupings. To better serve all of our customers Indium Corporation has generated one SDS, for this product, to be used within the United States as well as internationally. 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 SR-6 FLUX VEHICLE

SDS Number: SDS- 5044

Revised Date: 11 APRIL 2015

Product Use: Industrial Use - No-clean solder paste consisting of a flux vehicle blended with a pre-alloyed metal powder.

MANUFACTURER:

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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

POTENTIAL HEALTH EFFECTS:

GHS:



for product containing lead

Signal Word: Warning

Hazard statement(s)

- H303 May be harmful if swallowed (lead)
- 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
- H332 Harmful if inhaled (lead)
- H351 Suspected of causing cancer (lead)
- H361 Suspected of damaging fertility or the unborn child (applicable to lead 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.
- 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 attention/advice 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)

Classification:

Specific target organ toxicity- repeated exposure – Category 2

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
 Respiratory sensitizer (Category 1B)
 Skin sensitizer (Category 1B)
 Eye irritant (Category 2A)

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. Rosin exposure may cause occupational asthma.

Skin Contact: May cause skin irritation. Rosin may cause 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.

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.

BISMUTH: May cause kidney damage.

INDIUM: May cause damage to respiratory system.

WARNING: This product contains a chemical 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.

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	-
			(Mexico)	0.15	-	-
			(Singapore)	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	-	-
INDIUM	*	7440-74-8/231-180-0				
			(US)	0.1	0.1	-
			(EU)	-	0.1	0.3
			(Canada)	-	0.1	0.3
			(Mexico)	0.1	-	0.3
			(Singapore)	0.1	-	-
			(China)	-	0.1	0.3
BISMUTH	*	7440-69-9/231-177-4		N.E.	N.E.	N.E.
ROSIN	4.0-5.0	8052-10-6		N.E.	N.E.	N.E.
			(EU)	0.05	N.E.	0.15 (sensitiser)
PROPRIETARY	3.0-13.0	-		N.E.	N.E.	N.E.

Symbol: Xi

N.E. = Not established

Risk Phrases: R20//22, R36/37/38, R42/43

EU = European Union Occupational Exposure Limits

ALLOY TABLE**% Metal mix with flux**

Indalloy (metal)	RoHS 2 Compliance*	%TIN Sn	%SILVER Ag	%LEAD Pb	%BISMUTH Bi	%INDIUM In
1 (50In/50Sn)	Yes	41.5-46.0	-	-	-	41.5-46.0
1E (52In/48Sn)	Yes	39.8-44.2	-	-	-	43.2-47.8
2 (80In/15Pb/5Ag)	No	-	4.2-4.6	12.5-13.8	-	66.4-73.6
3 (90In/10Ag)	Yes	-	8.3-9.2	-	-	74.7-82.8
4 (100In)	Yes	-	-	-	-	83.0-92.0
5 (37.5Pb/37.5Sn/ 25In)	No	31.1-34.5	-	31.1-34.5	-	20.8-23.0
7 (50In/50Pb)	No	-	-	41.5-46.0	-	41.5-46.0
9 (70Sn/18Pb/12In)	No	58.1-64.4	-	14.9-16.6	-	10.0-11.0
10 (75Pb/25In)	No	-	-	62.3-69.0	-	20.8-23.0
11 (95Pb/5In)	Yes	-	-	78.9-87.4	-	4.2-4.6
40 (50Bi/31Pb/19Sn)	No	15.8-17.5	-	25.7-28.5	41.5-46.0	-
42 (46Bi/34Sn/20Pb)	No	28.0-31.3	-	17.0-18.4	38.0-42.3	-
53 (67Bi/33In)	Yes	-	-	-	54.9-61.6	27.1-30.4
70 (40In/40Sn/20Pb)	No	32.8-36.8	-	16.4-18.4	-	32.8-36.8
97 (43Sn/43Pb/14Bi)	No	36.7-39.6	-	36.7-39.6	11.6-12.9	-
150 (81Pb/19In)	No	-	-	67.2-74.5	-	15.8-17.5
164 (92.5Pb/5In/2.5A g)	Yes	-	2.1-2.3	76.8-85.1	-	4.2-4.6
174 (57Bi/26In/17Sn)	Yes	14.1-15.6	-	-	47.3-52.4	21.6-23.9

Indalloy (metal)	RoHS 2 Compliance*	%TIN Sn	%SILVER Ag	%LEAD Pb	%BISMUTH Bi	%INDIUM In
204 (70In/30Pb)	No	-	-	24.9-27.6	-	58.1-64.4
205 (60In/40Pb)	no	-	-	33.2-36.8	-	49.8-55.2
206 (60Pb/40In)	No	-	-	49.8-55.2	-	33.2-36.8
227 (77.2Sn/20In/2.8 Ag)	Yes	64.1-71.0	2.3-2.6	-	-	16.6-18.4
230 (54Sn/26Pb/20In)	No	44.8-49.7	-	21.6-23.9	-	16.6-18.4
249 (91.8Sn/4.8Bi/ 3.4Ag)	Yes	76.2-84.5	2.8-3.1	-	4.0-4.4	-
254 (86.9Sn/10In/3.1 Ag)	Yes	72.1-79.9	2.6-2.9	-	-	8.3-9.2
281 (58Bi/42Sn)	Yes	34.9-38.6	-	-	48.1-53.4	-
290 (97In/3Ag)	Yes	-	2.5-2.8	-	-	80.5-89.2
NON STANDARD ALLOY (88Sn/10In/2Ag)	Yes	73-81	1.7-1.8	-	-	8.3-9.2

*RoHS 2 = Restriction of Hazardous Substances (review applicable exemption) (2011/65/EU)

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 flammable rated >200F (>93C)
Auto-ignition Temperature:	Not established.
Flammable Limits:	NA
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 of contaminated cloth rags or paper towels following all Federal, State and Local regulations.
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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 the exposure levels are not exceeded.
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.
Other:	Lab coat, eye-wash 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:	(25-45C above alloy melting temp temperature)
Specific Gravity:	Not applicable.	pH:	Not applicable
Vapor Pressure:	Not applicable.	Solubility in Water:	Insoluble (paste)
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 29CFR1910.1025
	IARC: Yes Lead and lead compounds are listed as possible carcinogens.

Solder paste is not classified under any agency {NTP/OSHA/IARC}. Proprietary ingredients are not listed as carcinogens.

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.

12. ECOLOGICAL INFORMATION

This section is subject to future development. 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.
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14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation). Not hazardous under UN shipping regulations.

North American Emergency Guide Book – Not classified

Not regulated for ground/IATA/ocean.

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).

WHMIS: D2B –Materials Causing Other Toxic Effects (irritant or sensitizer)

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



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 in accordance with the guidelines set by the Dept of Industrial Health of the Republic of Singapore.

California PROP 65 (Safe Drinking Water Standard):

This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (Lead CAS# 7439-92-1)

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.

All ingredients are listed on the Canadian Domestic Substance List.

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

Xi

Risk Phrases:

R20/22 Harmful by inhalation and if swallowed (lead)

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

R42/43 May cause sensitization by inhalation and skin contact

R33 Danger of cumulative effects (lead)

R40 Limited evidence of carcinogenic effect (lead)

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)

R61 May cause harm to the unborn child (lead)

Safety Phrases:

S20/21	When using do not eat, drink or smoke
S22	Do not breathe dust
S23	Do not breathe fumes
S24/25	Avoid contact with skin and eyes
S27	Take off immediately all contaminated clothing
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

Revised Date: 11 APRIL 2015

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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