



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

## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** INDALLOY WITH NC-SMQ57 FLUX VEHICLE

**SDS Number:** SDS-IN 432

**Revised Date:** 6 MARCH 2015

**Product Use:** Industrial Use - No-clean solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder. See alloy table for metal mixtures with the same flux.

#### MANUFACTURER:

##### In America:

The Indium Corporation of America  
1676 Lincoln Ave., Utica NY 13502  
Information: (315) 853-4900  
nswarts@indium.com

##### EMERGENCY PHONE:

**CHEMTREC 24 hrs.**  
**USA: 1 (800) 424-9300**  
**Outside USA: +1 (703) 527-3887**

##### In Europe:

Indium Corporation of Europe  
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

##### In China:

Indium Corporation (Suzhou) Co., Ltd.  
No. 428 Xinglong Street  
Suzhou Industrial Park  
Suchun Industrial Square  
Unit No. 14-C  
Jiangsu Province, China 215126  
Information: 86-512-6283-4900

## 2. HAZARDS IDENTIFICATION

**PRIMARY ROUTES OF ENTRY:**

X Eye    X Inhalation    X Skin    X Ingestion

**CARCINOGEN LISTED IN:**

NTP    IARC    OSHA    X Not Listed

**GHS:**



applicable to lead containing products

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
- 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 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 advice/attention if you feel unwell
- P302 + P352    IF ON SKIN: Wash with plenty of soap and water
- P304 + P341    IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
- P305 + P351    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)
- Skin sensitization- Category 1B
- Respiratory sensitization- Category 1B
- Acute aquatic toxicity – Category 1 for lead containing products
- Chronic aquatic toxicity – Category 1 for lead containing products

**POTENTIAL HEALTH EFFECTS:**

<b>Eye Contact:</b>	Contact with material at room temperature or fume from material at typical re-flow temperatures over 100°C may cause eye irritation.
<b>Ingestion:</b>	This product contains metal alloy powder and organic chemicals. May be harmful if swallowed.
<b>Inhalation:</b>	Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system. Contains rosin that has been known to cause occupational asthma.
<b>Skin Contact:</b>	May cause skin irritation or dermatitis.
<b>Chronic:</b>	<p><b>LEAD:</b> 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.</p> <p><b>SILVER:</b> 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.</p> <p><b>TIN:</b> Has been shown to increase incidence of sarcoma in animal tests.</p>
<b>WARNING:</b>	<b>This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (lead)</b>
<b>NOTE:</b>	<b>The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.</b>
<b>WARNING:</b>	<b>This product may contain lead. Lead may be harmful to your health. US Federal law prohibits the use of leaded solder in making joints or fittings of any private or public water supply system. Keep out of the reach of children. Not intended for household use.</b>

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #/EINECS#	PEL mg/m <sup>3</sup>	TLV-TWA mg/m <sup>3</sup>	TLV-STEL mg/m <sup>3</sup>
<b>TIN</b>	*	7440-31-5/231-141-8 (US)	2	2	N.E.
		(EU)	N.E.	2	4
		(Canada)	N.E.	2	4
<b>LEAD</b>	*	7439-92-1/231-100-4 (US)	0.05	0.05	N.E.
		(EU)	N.E.	0.15	N.E.
		(Canada)	0.05	0.05	N.E.
<b>SILVER</b>	*	7440-22-4/231-131-3 (US)	0.01	0.1	N.E.
		(EU)	N.E.	0.1	N.E.
		(Canada)	N.E.	0.1	0.3
<b>ROSIN</b>	3.3-7.0	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.
<b>POLYGLYCOL ETHER</b>	1.6-3.4	9038-95-3	N.E.	N.E.	N.E.
<b>PROPRIETARY</b>	3.1-6.6	-	N.E.	N.E.	N.E.

Symbol: X<sub>n</sub>

N.E. = Not established

Risk Phrases: R20/21/22, R36/37/38, R42/43

EU = European Union Occupational Exposure Limits

## ALLOY TABLE

INDALLOY (METAL MIXTURE)	%TIN Sn	%SILVER Ag	%LEAD Pb	RoHS 2 Compliance
<b>104(Sn62)</b> (Sn62/Pb36/Ag2)	51.9-57.5	1.2-1.8	29.9-33.2	No
<b>106(Sn63)</b> (Sn63/Pb37)	52.3-58	-	30.7-34	No
<b>132</b> (95Sn/5Ag)	78.8-87.4	4.2-4.6	-	Yes
<b>155</b> (90Pb/5Ag/5Sn)	4.2-4.6	4.2-4.6	74.7-82.8	Yes with exemption
<b>228</b> (88Pb/10Sn/5Ag)	8.3-9.2	1.7-1.8	73.0-81.0	Yes with exemption

RoHS 2 = (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

<b>Flash Point:</b>	Not established.	<b>Method:</b>	Not established.
<b>Auto-ignition Temperature:</b>	Not established.		
<b>Flammable Limits:</b>	Limits not established.		
<b>Extinguishing Media:</b>	Use extinguishers appropriate for the surrounding fire conditions.		
<b>Special Fire Fighting Procedures:</b>	Firefighters must wear NIOSH approved self-contained breathing apparatus and full protective clothing.		

## 6. ACCIDENTAL RELEASE MEASURES

<b>Spill or Leak Procedures:</b>	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.
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## 7. HANDLING AND STORAGE

<b>Handling Precautions:</b>	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.
<b>Storage Precautions:</b>	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

<b>Engineering Controls:</b>	Use only with production equipment (stencil printers and reflow 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.
<b>Personal protection:</b>	
<b>Eyes:</b>	Chemical safety glasses/goggles. Face shield for splash hazards.
<b>Respirator:</b>	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.
<b>Skin:</b>	Compatible chemical resistant gloves.
<b>Other:</b>	Lab coat, eyewash fountain in work area. Avoid the use of contact lenses in high fume areas.
<b>Work/Hygienic Practices:</b>	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**

<b>Appearance:</b>	Grey colored paste.	<b>Boiling Point:</b>	Not applicable.
<b>Odor:</b>	Mild characteristic odor.	<b>Melting Point:</b>	Not applicable
<b>Specific Gravity:</b>	Not applicable.	<b>pH:</b>	Not applicable
<b>Vapor Pressure:</b>	Not applicable.	<b>Solubility in Water:</b>	Insoluble (paste)
<b>Vapor Density:</b>	(air=1) Not applicable.		

**10. STABILITY AND REACTIVITY**

<b>General:</b>	Stable.
<b>Conditions to Avoid:</b>	Not established.
<b>Incompatible Materials:</b>	Avoid contact with acids, bases or oxidizing agents.
<b>Hazardous Decomposition / Combustion:</b>	Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.
<b>Hazardous Polymerization:</b>	Will not occur.

**11. TOXICOLOGICAL INFORMATION**

**Carcinogenicity:**      **NTP:** Yes- 2B reasonably anticipated to cause cancer  
    **OSHA:** 1910-1025  
    **IARC:** Yes      Lead and lead compounds are listed as possible carcinogens.

**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 mixture 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 Special Waste Regulations.

## 14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

Not regulated (US Department of Transportation).

UN – NONE

MARINE POLLUTANT: NO

Not regulated for ground, IATA, IMDG- non hazardous

## 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: 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 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 Proprietary Ingredient <1% listed

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<sub>n</sub>

**Risk Phrases:**

R20/22 Harmful by inhalation 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  
 S7 Keep container tightly closed

## 16. OTHER INFORMATION

**HMIS Hazard Rating:**

<b>Health:</b>	2
<b>Fire:</b>	1
<b>Reactivity:</b>	0

**Revised Date:** 6 MARCH 2015

**Prepared by:** Nancy Swarts, Indium Corporation of America

**Approved by:** Nancy Swarts, Indium Corporation of America

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