



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

This material safety data sheet represents a family grouping of all metal mixes that are blended with the same flux known as NC-SMQ 92H. A table is provided on page 3 that lists all metal groupings. To better serve all of our customers Indium Corporation has generated one MSDS, 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 NC-SMQ92H FLUX VEHICLE

**MSDS Number:** MSDS-IN 688

**Revised Date:** 25 MAY 2012

**Product Use:** Industrial use - No-clean solder paste consisting of a flux vehicle blended with an 83-92 % pre-alloyed metal powder.

#### 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 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

**In Asia:**

Asia-Pacific Operations-Singapore  
29 Kian Teck Avenue  
Singapore 628908  
Information: +65 6268-8678

## 2. HAZARDS IDENTIFICATION

### PRIMARY ROUTES OF ENTRY:

⊕Eye    ⊕Inhalation    ⊕Skin    ⊕Ingestion

### CARCINOGEN LISTED IN:

NTP    IARC    OSHA    ⊕Not Listed  
See Section 11

GHS:



lead containing products

Signal Word: Warning

### Hazard statement(s)

H315            Causes skin irritation  
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  
H410            Toxic to aquatic life with long lasting harmful effects to aquatic life (lead)  
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  
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)

### 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:** 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. Rosin may cause occupational asthma.

**Skin Contact:** May cause skin irritation or 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.

**COPPER:** Overexposure to fumes may cause metal fume fever (chills, muscle aches, nausea, fever; dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair.

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

**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 and 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 <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	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
<b>COPPER</b>	*	7440-50-8/231-159-6			
		(US)	0.1 1(dust)	0.2	-
		(EU)	-	0.2 (fume)	2(dust)
		(Canada)	-	0.2	0.6
		(Singapore)	0.2(fume)	1(dust)	-
		(Mexico)	0.2	-	2
		(China)	-	0.2(fume)	0.6(fume)
				1(dust)	2.5(dust)
<b>LEAD</b>	*	7439-92-1/231-100-4			
		(US)	0.05	0.05	-
		(EU)	-	0.15	-

		(Canada)	0.05	0.05	-
		(Singapore)	0.15	-	-
		(Mexico)	0.15	-	-
		(China)	-	0.05(dust)	-
				0.03(fume)	-
<b>SILVER</b>	*	7440-22-4/231-131-3			
		(US)	0.01	0.1	-
		(EU)	-	0.1	-
		(Canada)	-	0.1	0.3
		(Singapore)	0.1	-	-
		(Mexico)	0.1	-	-
<b>ROSIN</b>	3.0-4.0	65997-05-9	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitiser)
<b>PROPRIETARY</b>	4.0-14.0		N.E.	N.E.	N.E.

**DOES NOT CONTAIN ANY EU REPORTABLE SUBSTANCES OF VERY HIGH CONCERN (SVHC)**

N.E. = Not established

\* See alloy table

## ALLOY TABLE

### % Metal in flux

Indalloy (Metal)	%TIN Sn	%SILVER Ag	%COPPER Cu	%LEAD Pb	RoHS* Compliance
<b>100</b> (Sn62.6/Pb37/Ag 0.4)	52.0-57.6	0.33-0.37	-	30.7-34.0	No
<b>104(Sn62)</b>	51.9-57.5	1.2-1.8	-	29.9-33.2	No
<b>106(Sn63)</b>	52.3-58	-	-	30.7-34	No
<b>121</b> (Sn96.5/Ag3.5)	80.1-88.8	2.9-3.2	-	-	Yes
<b>241</b> (Sn95.5/Ag3.8/ Cu0.7)	79.3-87.9	3.2-3.5	0.58-0.64	-	Yes
<b>252</b> (Sn95.5/Ag3.9/ Cu0.6)	79.3-87.9	3.2-3.6	0.50-0.55	-	Yes
<b>256</b> (Sn96.5/Ag3/Cu	80.1-88.8	2.5-2.8	0.42-0.46	-	Yes

**\*RoHS = Restriction on Hazardous Substances (review for any applicable exemptions)**

#### 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 (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 permissible 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 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. Latex gloves 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. When working with lead containing products follow standard lead work practices.

**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>                  | 4 -8 flux         |
| <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**

- 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:** 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**

. 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 waste assessment rules.

### 14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated ( US Department of Transportation).

Non hazardous under shipping regulations.

North American Emergency Guide Book – Not applicable

UN - None

### 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.).

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).



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 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.

California PROP 65: 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)

SARA 313 Listing - 40 CFR 372.65

Lead CAS# 7439-92-1 Silver CAS# 7440-22-4 Copper CAS# 7440-50-8

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

X<sub>n</sub>**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
- R42/43 May cause sensitization by inhalation and by skin contact
- R33 Danger of cumulative effects (lead)
- R48 Danger of serious damage to health by prolonged exposure (lead)
- R40 Limited evidence of carcinogenic effect (lead)
- R61 May cause harm to the unborn child (lead)
- R50/53 Very toxic to aquatic environment, may cause long term effects in the aquatic environment.(lead)

**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
- S27 Take off immediately all contaminated clothing
- S62 If swallowed do not induce vomiting, seek medical advice immediately and show container or label

**16. OTHER INFORMATION**

**HMIS Hazard Rating:**

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

**Revised Date:** 25 MAY 2012

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

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

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