



This safety data sheet represents a family grouping of all metal mixes that are blended with the same flux known as NC-SMQ 81. A table is provided 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-SMQ81 FLUX VEHICLE

SDS Number: SDS-IN 635

Revised Date: 25 SEPTEMBER 2018

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:

XEye

XInhalation

XSkin

XIngestion

NTP

IARC

OSHA

XNot Listed*

*See Section 11

Carcinogen listed in

GHS:

Lead free products



Signal Word: Warning

Hazard statement(s)

H317 May cause an allergic skin reaction

H319 Causes serious eye irritation

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

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 +P364 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)

Lead containing products



Signal Word: Warning

Hazard statement(s)

H303 May be harmful if swallowed

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

H332 Harmful if inhaled

H351 Suspected of causing cancer

H361 Suspected of damaging fertility or the unborn child

H373 May cause damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting harmful effects

EUH201A Warning! Contains 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 +P364	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)
 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)

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 contains alloy powders and organic chemicals. May cause irritation or harm.
- 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. Inhalation of indium may cause additional respiratory issues.
- 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.
- BISMUTH: May cause kidney damage.
- INDIUM: May cause damage to respiratory or kidney system. May be harmful if inhaled.



WARNING: This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

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	-
		(Singapore)	0.15	-	-
		(Mexico)	-	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
		(Singapore)	0.1	-	-
(Mexico)	-	0.1	-		
BISMUTH	*	7440-69-9/231-177-4	N.E.	N.E.	N.E.
INDIUM	*	7440-74-6/231-180-0			
		(US)	0.1	0.1	-

		(EU)	-	0.1	0.3
		(Canada)	-	0.1	0.3
		(Singapore)	0.1	-	-
		(Mexico)	-	0.1	0.3
		(China)	-	0.1	0.3
ROSIN	4.5-5.5	65997-05-9 (US)	N.E.	N.E.	N.E.
		(EU)	0.05	N.E.	0.15 (sensitiser)
PROPRIETARY	2.5-12.5		N.E.	N.E.	N.E.

N.E. = Not established EU = European Union Occupational Exposure Limits

ALLOY TABLE

%Metal mix with flux

Indalloy (metal)	*RoHS 2/3 Compliance	%TIN Sn	%SILVER Ag	%LEAD Pb	%BISMUTH Bi	%INDIUM In
41 (50Bi/28Pb/22Sn)	No	18.3-20.2	-	23.2-25.8	41.5-46.0	-
42 (46Bi/34Sn/20Pb)	No	28.2-31.3	-	16.6-18.4	38.2-42.3	-
53 (67Bi/33In)	Yes	-	-	-	55.6-61.6	27.4-30.4
97 (43Sn/43Pb/14Bi)	No	36.7-39.6	-	36.7-39.6	11.6-12.9	-
106 (Sn63/Pb37)	No	52.3-58.0	-	30.7-34.0	-	-
128 (100Sn)	Yes	83.0-92.0	-	-	-	-
249 (91.8Sn/4.8Bi/3.4Ag)	Yes	76.2-84.5	2.8-3.1	-	4.0-4.4	-
255 (55.5Bi/44.5Pb)	No	-	-	36.9-40.9	46.1-51.1	-
281 (58Bi/42Sn)	Yes	34.9-38.6	-	-	48.1-53.4	-
282 (57Bi/42Sn/1Ag)	Yes	34.9-38.6	0.83-0.92	-	47.3-52.4	-
281- 338 (60Sn/40Bi)	Yes	49.8-55.2	-	-	33.2-36.8	-

Indalloy (metal)	*RoHS 2/3 Compliance	%TIN Sn	%SILVER Ag	%LEAD Pb	%BISMUTH Bi	%INDIUM In
NS (57Sn/42Bi/1Ag)	Yes	47.3-52.4	0.83-0.92	-	34.9-38.6	-
NS (57Bi/42Sn/1Ag/ 0.02Pb)	No	34.9-38.6	0.83-0.92	0.017-0.018	47.3-52.4	-
NS (57Bi/42Sn/1Ag)	Yes	34.9-38.6	0.83-0.92	-	47.3-52.4	-
NS (60Sn/39Bi/1Ag)	Yes	49.8-55.2	0.83-0.92	-	32.4-35.9	-
NS* (99.2Sn/0.38Pb)	No	82.7-91.7	-	0.31-0.34	-	-
NS* (98.9Sn/1.1Pb)	No	82.1-91.0	-	0.9-1.02	-	-
NS* (96.6Sn/3.4Pb)	No	80.2-88.9	-	2.76-3.06	-	-
NS* (90Sn/10Pb)	No	74.7-82.8	-	8.3-9.2	-	-

NS = Non Standard Alloy

* product is doped with Indalloy 128 and Indalloy 106

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

RoHS 3 = products do not contain any listed phthalates

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 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 of 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 exposure levels are not exceeded.

Personal protection:

Eyes: Chemical safety glasses/goggles. Face shield for splash hazards.

Respirator: An 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:	Not applicable
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.	
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 Special Waste Regulations.

14. TRANSPORT INFORMATION

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

UN- none

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) (lead). 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 guidelines, NOM-018-STPS-2015 and NOM-010-STPS-2014.

Regulatory Information China:

GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products

GB 30000.2-29-2013, Rules for classification and labeling of chemicals (GHS)

Decree No. 591: Regulations on the Control Over Safety of Hazardous Chemicals.

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007.

This product has been classified in accordance with: Malaysian – OCCUPATIONAL SAFETY AND HEALTH (CLASSIFICATION, LABELING AND SAFETY DATA SHEET OF HAZARDOUS CHEMICALS) REGULATION OCTOBER 2013 – (CLASS).



WARNING: This product can expose you to chemicals including [lead] which is known to the State of California to cause cancer, and can cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

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.

16. OTHER INFORMATION

HMIS Hazard Rating:

Health:	2
Fire:	1
Reactivity:	0

Revised Date: 25 SEPTEMBER 2018

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Approved by: Nancy Swarts, Indium Corporation of America

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