

2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

⊗Eye ⊗Inhalation ⊗Skin ⊗Ingestion

CARCINOGEN LISTED IN:

NTP IARC OSHA ⊗Not Listed

GHS

Classification:

Skin sensitizer (Category 1B)
Respiratory sensitizer (Category 1B)
Eye irritation (Category 2A)
Reproductive toxicity (Category 1B)



Signal Word: Danger

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
H360FD May damage fertility; May damage the unborn child

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 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+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

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: Contains metal 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 fume may cause occupational asthma.

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

Chronic: **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. Chronic exposure to tin dusts and fume may result in "stannosis" a mild form of pneumoconiosis.

BISMUTH: May cause kidney damage.

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.

ANTIMONY: May be harmful if inhaled. May cause respiratory irritation.

INDIUM: May cause damage to respiratory system if inhaled over long exposure.



WARNING: This product can expose you to chemicals including [trace lead] which is known to the State of California to cause cancer, and 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.

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	64 - 100	7440-31-5/231-141-8			
		(US)	2	2	-
		(EU)	-	2	4
		(Canada)	-	2	4
		(Singapore)	2	-	-
SILVER	0 - 5	7440-22-4/231-131-3			
		(US)	0.01	0.1	-
		(EU)	-	0.1	-
		(Canada)	N.E.	0.1	0.3
		(Singapore)	0.1	-	-
		(Mexico)	0.1	-	-
BISMUTH	0 – 6.0	7440-69-9/231-177-4	N.E.	N.E.	N.E.
COPPER	0 – 2.0	7440-50-8/231-159-6			
		(US)	0.1	0.2	-
		(EU)	-	0.2 (fume)	2(dust)
		(Canada)	-	0.2	0.6
		(Singapore)	0.2(fume)	1(dust)	-
		(Mexico)	0.2	-	2
		(China)	-	1 (dust) 0.2(fume)	-

ANTIMONY	0 – 9.5	7440-36-0/231-146-5	(US)	0.5	0.5	-
			(EU)	0.5	-	-
			(Canada)	-	0.5	1.5
			(Mexico)	N.E.	0.5	-
			(Singapore)	0.5	-	-
			(China)	-	0.5	-
ROSIN	4.0-6.0	65997-05-9 (US)	N.E.	N.E.	N.E.	
			(EU)	0.05	-	0.15 (sensitiser)
POLYGLYCOL ETHER	2.5-4.0	9038-95-3	N.E.	N.E.	N.E.	
CARBOXYLIC ACID	1.0-6.0	68937-72-4	N.E.	N.E.	N.E.	
MANGANESE	0.05(dopent)	7439-96-5/231-105-1	N.E.	N.E.	N.E.	
CESIUM	0.05(dopent)	7440-46-2/231-155-4	N.E.	N.E.	N.E.	
INDIUM	0 – 19.0	7440-74-6/231-180-0	(US)	0.1	0.1	N.E.
			(EU)	N.E.	0.1	0.3
			(Canada)	N.E.	0.1	0.3
			(Mexico)	0.1	N.E.	0.3
			(Singapore)	0.1	N.E.	N.E.
			(China)	-	0.1	0.3
BIS(2-(2-METHOXYETHOXY)ETHYL)ETHER (TETRAETHYLENE GLYCOL DIMETHYL ETHER)	0.58 – 1.2	143-24-8/205-594-7	N.E.	N.E.	N.E.	

N.E. = Not established

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 contaminated cloth rags or paper towels following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Material may have reclaim value.

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 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, 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.

14. TRANSPORT INFORMATION

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

Not hazardous under shipping regulations. (ground/air/ocean) (USDOT/IATA/IMDG)

UN – none

North American Emergency Guide Book – Not applicable

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.).



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

SARA 313 Listing - 40 CFR 372.65
Silver Copper

All ingredients are listed on the EPA TSCA Inventory.

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation (CPR).



Canadian WHMIS:

D2B – Materials Causing Other Toxic Effects (skin irritation/skin sensitization)

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-2015 and NOM-010-STPS-2014.

EU:

For compliance with EU Directive 2011/65/EU, Restriction of Hazardous Substances (RoHS), see Alloy Table.

Product contains a REACH Substance of Very High Concern (SVHC)- Tetraethylene glycol dimethyl ether (CAS# 143-24-8).

Japan:

Poisonous and Deleterious Substance Control Law (PDSCL): No ingredients are listed.

Fire Service Law (FSL): Not regulated/not dangerous.

Industrial Safety and Health Law (ISHL): ingredients are listed

PRTR and Promotion of Chemical Management law, Class I Substance: Not applicable.

Waste Disposal and Public Cleaning Law: Specific Harmful Industrial Wastes: Some contents of the family grouping may contain lead within the solder paste. Review alloy table and product label/ purchased and used.

Class II Designated Chemical Substances: No ingredients are listed.

Ingredients are listed on the Japanese Inventory Chemical Substance List/Industrial Safety and Health Law Substance List.

Review SDS and apply regulations where applicable.

Malaysia:

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). (GHS)

In China:

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

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

GB/T 16483-2008, GB/T 17517-2013

This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2.1-2019.

All ingredients are listed on the China Chemical Inventory.

Philippines:

Product does not contain any substance that is listed under CPECs (Controlled Precursor and Essential Chemicals).

Product does not contain any substances listed under the Dangerous Drugs Board (DDB).

16. OTHER INFORMATION

HMIS Hazard Rating:	Health:	1
	Fire:	1
	Reactivity:	0

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ALLOY TABLE (DATA)**%Metal Mix in Flux**

Indalloy Mixture (%Metal)	% Tin Sn	% Silver Ag	% Copper Cu	% Indium In	% Bismuth Bi	% Antimony Sb	% Cesium Ce	% Manganese Mn	RoHS 2/3* Compliance
121 (96.5Sn/3.5Ag)	80.1-88.8	2.9-3.2	-	-	-	-	-	-	YES
128 (100Sn)	100	-	-	-	-	-	-	-	YES
132 (95Sn/5Ag)	78.9-87	4.2-4.6	-	-	-	-	-	-	YES
133 (95Sn/5Sb)	78.9-87	-	-	-	-	4.2-4.6	-	-	YES
156 (90Sn/10Ag)	74.7-82.8	8.3-9.2	-	-	-	-	-	-	YES
227 (77.2Sn/20In/2.8Ag)	64-71	2.3-2.6	-	16.6-18.4	-	-	-	-	YES
241 (SAC 387) (95.5Sn/3.8Ag/0.7Cu)	79.2-87.9	3.2-3.5	0.58-0.64	-	-	-	-	-	YES
244 (99.3Sn/0.7Cu)	82-91.3	-	0.58-0.64	-	-	-	-	-	YES
246 (SAC 405) (95.5Sn/4Ag/0.5Cu)	79.2-87.9	3.3-3.7	0.42-0.46	-	-	-	-	-	YES
254 (86.9Sn/10In/3.1Ag)	72-80	2.6-2.85	-	8.3-9.2	-	-	-	-	YES
256 (SAC 305) (96.5Sn/3Ag/0.5Cu)	80.1-88.8	2.5-2.8	0.42-0.46	-	-	-	-	-	YES
Modified 256 (SAC 305) (96.45Sn/3Ag/0.5Cu +doped 0.05 Mn)	80-88.7	2.5-2.8	0.42-0.46	-	-	-	-	0.042-0.046 doped	YES
Modified 256 (SAC 305) (96.45Sn/3Ag/0.5Cu +0.05 Cs)	80-88.7	2.5-2.8	0.42-0.46	-	-	-	0.042-0.046	-	YES

Indalloy Mixture (%Metal)	% Tin Sn	% Silver Ag	% Copper Cu	% Indium In	% Bismuth Bi	% Antimony Sb	% Cesium Ce	% Manganese Mn	RoHS 2/3* Compliance
258 (SAC105) (98.5Sn/1Ag/0.5Cu)	81.8-90.6	0.83-0.92	0.42-0.46	-	-	-	-	-	YES
259 (90Sn/10Sb)	74.7-82.8	-	-	-	-	8.3-9.2	-	-	YES
264 (91.5Sn/8.5Sb)	75.9-84.2	-	-	-	-	7.06-7.82	-	-	YES
268 (SACm ® 0510) (98.5Sn/0.5Ag/1Cu/0.05Mn)	81.7-90.6	0.42-0.46	0.83-0.92	-	-	-	-	0.042-0.046 doped	YES
270 (90.95Sn/3.8Ag/0.7Cu/3Bi/1.4Sb/0.15Ni)	75.5-83.7	3.2-3.5	0.58-0.46	-	-	1.16-1.2	-	-	YES
272 (90Sn/3.8Ag/1.2Cu/1.5Bi/3.5Sb)	74.7-82.8	3.2-3.5	1-1.1	-	-	2.9-3.2	-	-	YES
276 (90.6Sn/3.2Ag/0.7Cu/5.5Sb)	75.2-83.4	2.7-2.9	0.58-0.64	-	-	4.6-5.1	-	-	YES
277 (89Sn/3.8Ag/0.7Cu/3.5Sb/0.5Bi/2.5In)	73.9-81.9	3.2-3.5	0.58-0.64	2.08-2.3	-	2.9-3.2	-	-	YES
279 (89.3Sn/3.8Ag/0.9Cu/5.5Sb/0.5In)	74-82	3.2-3.5	0.7-0.8	0.42-0.46	-	4.6-5.1	-	-	YES
302 (91.25Sn/2.25Ag/0.5Cu/6.0Bi)	87.3 – 95.2	2.0 – 2.4	0.4 – 0.6	-	5.4 – 6.6	-	-	-	YES
284 (89.7Sn/3.4Ag/3.2Bi/3.0Sb/0.7Cu)	74.5-82.5	2.8-3.1	0.58-0.64	-	5.4 – 6.6	2.5-2.8	-	-	YES
845-27-3 (80-90Sn/2-5Ag/0.1-2Cu/3-8Sb/3-6Bi/0.1-2In/0.1-1Ni)	66-82.8	1.7-4.6	0.08-1.8	0.08-4.6	-	2.5-7.4	-	-	YES
291 (99.24Sn/0.7Cu/0.05Ni/0.01Ge)	82.4-91.3	-	0.58-0.64	-	-	-	-	-	YES
292	66-82.8	1.7-4.6	0.08-1.8	0.1-2.0	-	3.1-8.0	-	-	YES

Indalloy Mixture (%Metal)	% Tin Sn	% Silver Ag	% Copper Cu	% Indium In	% Bismuth Bi	% Antimony Sb	% Cesium Ce	% Manganese Mn	RoHS 2/3* Compliance
845-27-5 (80-90Sn/2-5 Ag/0.1-2Cu/3-8Sb/3-6Bi/0.1-1Ni)	66-82.8	1.7-4.6	0.08-1.8	-	-	2.5-7.4	-	-	YES
NS (98.5Sn/1Ag/0.5Cu)	81.8-90.6	0.83-0.92	0.42-0.46	-	-	-	-	-	YES
NS (98.3Sn/1.2Ag/0.5Cu +0.05 Ni)	81.6-90	0.1-1.1	0.42-0.46	-	-	-	-	-	YES
NS (99Sn/0.3Ag/0.7 Cu)	82-91.1	0.25-0.28	0.58-0.6	-	-	-	-	-	YES
NS (99.2Sn/0.5Cu/0.3Bi/doped 0.05Co)	82.3-91.3	-	0.42-0.46	-	-	-	-	-	YES

NS = Non - standard alloy mixture

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

***RoHS 3 = Products do not contain any listed phthalates**