



SAFETY DATA SHEET

This safety data sheet covers metal mixtures using tin with no lead. See alloy table for all possible combinations.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: TIN BASED ALLOYS (NO LEAD)

SDS Number: SDS-972

Revised Date: 8 JULY 2019

Product Use: Industrial Use - Alloy Metal Mix with Tin as the base. (See alloy table for product listing of metal Mixes and combinations). Review alloy table for listing of combinations.

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<http://www.indium.com>

2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

⊕Eye ⊕Inhalation ⊕Skin ⊕Ingestion NTP* IARC OSHA ⊕Not Listed

Carcinogen listed in

GHS:



Signal Word: Warning

Hazard statement(s)

H335 May cause respiratory irritation (other metals not tin)

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 + 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)

P501 Dispose of in accordance with applicable local/state and federal regulations. Consider recycling.

Classification:

Respiratory sensitizer-Category 1B

POTENTIAL HEALTH EFFECTS:

Eye Contact: Solid metal does not pose a hazard. Contact with powdered metal alloy or fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Dust may cause irritation.

Ingestion: Not generally considered toxic, but large amounts may cause irritation.

Inhalation: Dust may cause irritation to the respiratory tract. Inhalation of zinc dust may cause a sweet taste, throat dryness, cough nausea and fever.

Skin Contact: Mechanical irritant upon contact. Cannot be absorbed through skin. Hot molten metal may cause burns to the skin. **Antimony, Zinc, Cobalt and Nickel** – have been known to cause dermatitis.

Chronic: Standard metal does not pose a hazard. However, melting, cutting, burning, or grinding may cause hazards: irritation or harm. Prolonged inhalation may cause harm.

Silver – chronic skin contact or ingestion of silver dusts, salts or fume can result in a condition known as Argyria, a condition with bluish pigmentation of the skin and eyes.

Indium – may cause damage to respiratory system if inhaled over long periods of exposure.

Copper – over exposure to fumes may cause metal fume fever (chills, muscle aches, fever, dry throat, cough, weakness, lassitude), metallic or sweet taste, discoloration of skin and hair.

Nickel – poison by ingestion. Can cause pulmonary asthma, and hypersensitivity.

Tin – prolonged inhalation of dust or fume may result in irritation of the lungs.

Aluminum – inhalation of finely divided powder has been reported to cause pulmonary fibrosis.

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



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

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	-	-
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	*	7440-74-6/231-180-0			
		(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

COPPER	*	7440-50-8/231-159-6				
		(US)	0.1	0.2	-	
		(EU)	-	0.2(fume)	2(dust)	
		(Canada)	-	0.2	0.6	
		(Mexico)	-	0.2	2	
		(Singapore)	0.2 (fume)	1 (dust)	-	
		(China)	-	1(dust) 0.2(fume)	2.5(dust) 0.6(fume)	
ANTIMONY	*	7440-36-0/231-146-5				
		(US)	0.5	0.5	-	
		(EU)	0.5	-	-	
		(Canada)	-	0.5	1.5	
		(Mexico)	-	0.5	-	
		(Singapore)	0.5	-	-	
(China)	-	0.5	-			
ZINC	*	7440-66-6/231-175-3		N.E.	N.E.	N.E.
NICKEL	*	7440-02-0/231-111-4				
		(US)	1	1.5	-	
		(Canada)	-	1	2	
		(Mexico)	-	1	-	
		(Singapore)	1	-	-	
		(China)	-	1	2.5	
ALUMINUM	*	7429-90-5	10	10	-	
		(EU)	-	10	-	
		(Canada)	-	10	20	
		(Mexico)	5	-	-	
		(Singapore)	10	-	-	
		(China)	-	3	-	
COBALT	*	7440-48-4	0.1	0.02	-	
		(EU)	-	0.1	-	
		(Canada)	-	0.05	0.1	
		(Singapore)	0.02	-	-	

TITANIUM	(TRACE)	7440-32-6	N.E.	N.E.	N.E.
MANGANESE	(TRACE)	7439-96-5	1(NIOSH)	0.2	3
		(EU)	-	1(fume)	3(fume)
		(Canada)	-	1(fume)	3(fume)
		(Singapore)	5(dust)	1(fume)	3(fume)
		(Mexico)	-	1(fume)	3(fume)
CERIUM	(TRACE)	7440-45-1	N.E.	N.E.	N.E.
BISMUTH	*	7440-69-9/231-177-4	N.E.	N.E.	N.E.
GERMANIUM	*	7440-56-4	N.E.	N.E.	N.E.

* SEE ALLOY TABLE FOR PRODUCT MIX PAGE 9

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 applicable

Flammable Limits: Fine dusts and powders could be a potential explosion hazard.

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Use dry sand, sodium chloride, or dolomite. Water, A/B/C extinguishers and halogenated agents are not recommended.

Special Fire Fighting Procedures: Firefighters wear an approved self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Wear respirator and other personal protective clothing. (See Exposure Controls/Personal Protection Section). Extinguish or remove all sources of ignition. Ventilate area. Clean up spill without generating or dispersing dust into the air. Vacuum solids instead of sweeping using a grounded unit. Reduce airborne dust and prevent scattering by moistening with water. Place spilt material in a container and dispose of in accordance with applicable regulations.

7. HANDLING AND STORAGE

Handling Precautions: Avoid breathing vapors from heated material and dusts from cutting or grinding. Avoid contact with eyes, skin and clothing. Follow routine safe handling procedures. Use with adequate ventilation.

Storage Precautions: Keep away from heat and flame. Store in suitable, tightly capped, and labeled containers in cool dry, well-ventilated area. Empty containers may be hazardous as they contain product residue.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation or point source exhaust ventilation is recommended to control any air contaminants or potential exposure. Keep exposures below regulatory limits.

Personal protection:

Eyes: Chemical safety glasses/goggles. Face shield recommended when handling molten metal.

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated. Warning: Air purifying respirators do not protect the worker in oxygen-deficient atmospheres.

Skin: Wear protective gloves. Hot gloves for handling molten metal.

Other: Eye-wash fountain/shower in work area. Avoid the use of contact lenses in high fume and dust areas.

Work/Hygienic Maintain good housekeeping. Clean up spills immediately. 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:	Solid	Boiling Point:	Not available
Odor:	Odorless	Melting Point:	See Table
Specific Gravity:	See Table	pH:	Not applicable
Vapor Pressure:	Not available	Solubility in Water:	Insoluble
Vapor Density:	(air=1) Not applicable.		

10. STABILITY AND REACTIVITY

General:	Stable.
Conditions to Avoid:	Heat, flame, ignition sources
Incompatible Materials:	Halogens, sulfur and some acids
Hazardous Decomposition / Combustion:	None
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:	NTP (National Toxicity Program):	Yes - Nickel
	OSHA (Occupational Safety & Health Administration):	No
	IARC (International Agency for Research on Cancer):	Yes - Nickel

LD50:	Not established.	LC50:	Not established.
Other:	NICKEL RTECS# QR5950000 TIN RTECS# XP7320000, SILVER RTECS# VW3500000 ANTIMONY RTECS# CC4025000, INDIUM RTECS# NL1050000, COPPER RTECS# GL7900000		
RTECS = NIOSH Registry of Toxic Effects of Chemical Substances			
Product mixture not tested.			

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 for all shipping modes- USDOT/IATA/IMDG.

UN – none

Marine Pollutant: No

North American Emergency Guide Book – Not applicable

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.).

SARA 313 Listing - 40 CFR 372.65 – Silver, Antimony, Nickel, Copper, Zinc, Aluminum, Cobalt



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

Ingredients are listed on the TSCA Inventory.

Contains ingredients that are listed on the New Jersey Right To Know List.

This product has been classified in accordance with the requirements of the Mexican regulations: NOM-018-STPS-2015 and NOM-010-STPS-2014.

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

Canadian WHMIS:

Tin, Silver, Copper, Indium, Aluminum, Antimony: Uncontrolled product according to WHMIS classification criteria.

Nickel: D2A Very Toxic Material Causing Other Toxic Effects carcinogenicity: IARC group 2B

D2B Toxic Material Causing Other Toxic Effects skin sensitization in humans

Cobalt: D2A Very Toxic Material Causing Other Toxic Effects carcinogenicity: IARC group 2B; respiratory tract sensitization in humans



D2B Toxic Material Causing Other Toxic Effects skin sensitization in humans

This product has been classified in accordance with the guidelines set by the Dept. of Industrial Health of the Republic of Singapore.

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, GBZ2-2007.

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).

Ingredients are listed on the China Chemical Inventory.

Ingredients are listed on the Korean Existing Chemical Inventory.

Ingredients are listed on the Philippines Inventory of Chemicals.

Ingredients are listed on the Canadian Domestic Substance List.

16. OTHER INFORMATION

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

Revised Date: 8 JULY 2019

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.

Alloy Table Mixtures

% metal

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn
Sn+	99.9	-	-	-	-	-	-	-	-	0.1	-	-
121	96.5	-	-	-	3.5	-	-	-	-	-	-	-
123	97.5	-	-	-	2.5	-	-	-	-	-	-	-
128	100	-	-	-	-	-	-	-	-	-	-	-
132	95	-	-	-	5	-	-	-	-	-	-	-
133	95	-	-	-	-	5	-	-	-	-	-	-
156	90	-	-	-	10	-	-	--	-	-	-	-
160	97	-	-	-	--	-	-	-	-	3	-	-
173	99	-	1	-	-	-	-	-	-	-	-	-
201	91	-	-	-	-	-	-	9	-	-	-	-
208	8	-	-	-	7	-	-	-	-	85	-	-
209	65	-	-	-	25	10	-	-	-	-	-	-
214	10	-	-	-	60	-	-	-	-	30	-	-
217	5	-	-	-	56	-	-	17	-	22	-	-
221	6	-	-	-	63	-	2.5	-	-	28.5	-	-
226	83.6	8.8	-	-	-	-	-	7.6	-	-	-	-
224	46	52.2	-	-	-	--	-	1.8	-	-	-	-
232	93.6	-	-	-	4.7	-	-	-	-	1.7	-	-
241 (SAC387)	95.5	-	-	-	3.8	-	-	-	-	0.7	-	-

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn	RoHS 2/3* Compliance	Liquidus C/F ⁰	Mass Density
243	99	---	-	-	-	-	-	-	-	1	-	-	YES	227/441	7.31
244	99.3	-	-	-	--	-	-	-	-	0.7	-	-	YES	227/441	7.31
246	95.5	-	-	-	4	-	-	-	-	0.5	-	-	YES	217/423	7.40
249	91.8	-	-	-	3.4	-	-	-	4.8	-	-	-	YES	213	7.45
251	96.2	--	-	-	2.5	0.5	--	-	-	0.8	-	-	YES	217/423	7.37
252	95.5	-	-	-	3.9	-	-	-	-	0.6	-	-	YES	217/423	7.40
256 (SAC305)	96.5	-	-	-	3	-	-	-	-	0.5	-	-	YES	218/424	7.40
258 (SAC105)	98.5	-	-	-	1	-	-	-	-	0.5	-	-	YES	227/441	7.32
259	90					10							YES	248/478	7.25
Non Standard Sn995 (Cobalt 995)	99.5	-	-	-	-	-	-	-	-	0.5	<500 ppm	-	YES	-	7.29
263 (SAC 0307)	99	-	-	-	0.3	-	-	-	-	0.7	-	-	YES	227/441	7.31
270	90.95	-	-	-	3.8	1.4	0.15	-	3	0.7	-	-	YES		
271	88.9	-	-	-	3.8	6	-	-	0.3	1	-	-	YES		
272	90	-	-	-	3.8	3.5	-	-	1.5	1.2	-	-	YES		7.39
276	90.6	-	-	-	3.2	5.5	-	-	-	0.7	-	-	YES		7.32
297	89.3	0.5	-	-	3.8	5.5	-	-	-	0.9	-	-	YES	-	7.34
NON STANDARD/OTHER ALLOY MIXTURES															
Non Standard	27	-	-	-	73	-	-	-	-	-	-	-	YES	-	9.38
Non Standard	30	65	-	-	4.5	-	-	-	-	0.5	-	-	YES	-	7.41
Non Standard	33.7	66.3	-	-	-	-	-	-	-	-	-	=	YES	-	7.29
Non Standard	54	40	-	-	2	-	-	-	-	4	-	=	YES	-	7.39

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn	RoHS 2/3* Compliance	Liquidus C/F ⁰	Mass Density
Non Standard	61	-	-	-	-	-	-	-	-	39	-	=	YES	-	7.85
Non Standard	63.5	-	-	-	25	10	-	-	-	1.5	-	=	YES	-	7.82
Non Standard	64	30	-	-	2	-	-	-	-	4	-	=	YES	-	7.39
Non Standard	65	-	-	-	25	10	-	-	-	-	-	=	YES	-	7.80
Non Standard	74	20	-	-	2	-	-	-	-	4	-	=	YES	-	7.38
Non Standard	78	-	-	-	2.5	-	-	-	19.5	-	-	-	YES	-	7.73
Non Standard	78.4	9.8	-	-	2	-	-	-	9.8	-	-	-	YES	-	7.52
Non Standard	78.5	-	-	-	10	10	-	-	-	1.5	-	-	YES	-	
Non Standard	80	-	-	-	10	10	-	-	-	-	-	-	YES	-	
Non Standard	82	-	-	-	18	-	-	-	-	-	-	-	YES	295/563	7.71
Non Standard	82	-	-	-	18	-	-	-	-	-	-	-	YES	295/563	7.71
Non Standard	84	10	-	-	2	-	-	-	-	4	-	=	YES	-	7.38
Non Standard	85	-	-	-	-	15	-	-	-	-	-	-	YES	300/572	7.31
Non Standard	85.9	10	-	-	3.1	-	-	-	-	1	-	-	YES	200/393	7.37
Non Standard	88	-	-	-	-	-	-	-	-	12	-	-	YES	-	7.45
Non Standard	88	-	-	-	12	-	-	-	-	-	-	-	YES	-	7.56
Non Standard Ribbon	89	-	-	-	-	10.5	-	-	-	0.5	-	-	YES	-	7.21
Non Standard	89	2.5	-	-	3.8	3.5	-	-	0.5	0.7	-	-	Yes	-	7.36
Non Standard	89.1	-	-	-	3.8	5.8	-	-	0.3	1	-	-	YES	-	7.34
Non Standard	90.5	-	-	-	2	-	-	-	7.5	-	-	-	YES	-	7.47
Non Standard	91	-	-	0.06	-	-	-	8.94	-	-	-	-	YES	-	7.26
Non Standard	91.25	-	-	-	-	-	-	8.75	-	-	-	-	YES	199/390	7.27

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn	RoHS 2/3* Compliance	Liquidus C/F ⁰	Mass Density
Non Standard	91.25	-	-	--	2.25	-	-	-	6.0	0.5	-	=	YES	-	7.45
Non Standard	91.5	-	-	-	-	8.5	-	-	-	-	-	=	YES	-	7.22
Non Standard	91.98	-	0.02	-	-	8	-	-	-	-	-	=	YES	-	7.22
Non Standard	92	-	-	-	-	-	-	8	-	-	-	=	YES	-	7.27
Non Standard	92.4	-	-	-	-	7	0.1	-	-	0.5	-	-	YES	-	7.24
Non Standard	92.5	-	-	-	3.5	-	-	-	-	4	-	-	YES	-	7.41
Non Standard	93	-	-	-	-	-	-	--	-	7	-	-	YES	-	7.32
Non Standard	93.5	-	-	-	3.5	-	-	-	3	-	-	-	YES	-	7.42
Non Standard	94	3	-	-	2.5	-	-	-	-	0.5	-	-	YES	-	7.34
Non Standard IPN 52357	94.13	-	-	0.05	1.63	0.61	-	0.75	-	2.87	-	-	YES	-	7.34
Non Standard	94.8	-	-	-	3.8	-	-	0.7	-	0.7	-	-	YES	-	7.37
Non Standard Solder Wire IPN 52361	94.95	-	-	0.05	-	1.35	-	3.65	-	-	-	-	YES	-	7.25
Non Standard	94.98	-	0.02	-	-	5	-	-	-	-	-	-	YES	-	7.24
Non Standard	95	-	-	-	3.8	-	-	0.5	-	0.7	-	-	YES	-	7.37
Non Standard	95	1.5	-	-	3.5	-	-	-	-	-	-	-	YES	-	7.36
Non Standard	95	-	-	0.5	4	-	-	-	-	0.5	-	-	YES	-	7.31

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn	RoHS 2/3* Compliance	Liquidus C/F ⁰	Mass Density
Non Standard	95.4	-	-	-	3.8	-	-	0.1	-	0.7	-	-	YES	-	7.37
Non Standard	95.5	-	-	-	3.5	-	-	-	-	1	-	-	YES	218/424	7.40
Non Standard	95.5	-	-	-	3.65	-	-	-	0.15	0.7	-	-	YES	-	7.38
Non Standard Doped with 0.05% Al	95.5	-	-	-	4.0	-	-	-	-	0.5	-	-	YES	-	7.40
Non Standard	95.7	-	-	-	3.4	-	-	-	-	0.9	-	-	YES	218/424	7.36
SAC357	95.8	-	-	-	3.5	-	-	-	-	0.7	-	-	YES	-	7.37
Non Standard	95.9	-	-	-	3.4	-	-	-	-	0.7	-	-	YES	218/424	7.40
Non Standard	95.9	1	-	-	0.1	-	-	-	-	3	-	-	YES	-	7.32
Non Standard	96	-	-	-	4	-	-	-	-	-	-	-	YES	240/465	7.40
Non Standard	96.3	-	-	-	3	-	-	-	-	0.7	-	-	YES	218/424	7.40
Non Standard	96.3	-	-	-	3.7	-	-	-	-	-	-	-	YES	221/430	7.42

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn	RoHS 2/3* Compliance	Liquidus C/F ⁰	Mass Density
Non Standard	96.3	-	-	-	3.2	-	-	-	-	0.5	-	-	YES	218/424	7.38
Non Standard	96.5	-	-	-	3	-	-	-	-	0.5	-	-	YES	218/424	7.40
Non Standard	97	-	-	-	2.5	-	-	-	-	0.5	-	-	YES	-	7.34
Non Standard (SAC 209)	97.1	-	-	-	2.0	-	-	-	-	0.9	-	-	YES	-	7.34
Non Standard Solder Wire	97.5	-	-	-	1.5	-	-	-	-	0.7	0.3	-	YES	-	7.19
Non Standard Doped with 0.02% Titanium	97.5	-	-	-	1.8	-	-	-	-	0.7	-	=	YES	-	7.33
Non Standard	97.7	-	-	-	2	-	0.3	-	-	-	-	-	YES	-	7.19
Non Standard	97.9	-	-	-	2	-	0.1	-	-	-	-	-	YES	-	7.28
Non Standard	98	-	-	-	2	-	-	-	-	-	-	-	YES	-	7.32
Non Standard	98.13	-	-	-	1.1	-	-	-	-	0.65	-	≤0.15	YES	-	7.26
Non Standard Doped with 0.02% Titanium	98.3	-	-	-	1.0	-	-	-	-	0.7	-	=	YES	-	7.31
Non Standard Doped with 0.04% Mn and 0.01 Ce	98.45	-	-	-	1	-	-	-	-	0.5	-	0.04	YES	-	7.31
Non Standard (SAC 105)	98.5	-	-	-	1	-	-	-	-	0.5	-	-	YES	-	7.31

Indalloy (Metal Mix)	Tin Sn	Indium In	Germanium Ge	Aluminum Al	Silver Ag	Antimony Sb	Nickel Ni	Zinc Zn	Bismuth Bi	Copper Cu	Cobalt Co	Manganese Mn	RoHS 2/3* Compliance	Liquidus C/F ⁰	Mass Density
Non Standard (SAC 105) Doped with 0.05% Manganese	98.5	-	-	-	1	-	-	-	-	0.5	-	Doped 0.05	YES	-	7.31
Non Standard (SACM0510) Doped with .02% - .06% Manganese	98.5	-	-	-	0.5	-	-	-	-	1.0	-	Doped .02 - .06	YES	-	7.31
Non Standard (SAC 105) Doped with 0.05% Manganese and 0.02% Cerium	98.5	-	-	-	1	-	-	-	-	0.5	-	Doped 0.05	YES	-	7.31
Non Standard (SAC# 0307)	99	-	-	-	0.3	-	-	-	-	0.7	-	-	YES	-	7.30
Non Standard	99.1	-	-	-	-	-	-	-	-	0.9	-	-	YES	-	7.29
Non Standard	99.15	-	-	-	-	-	-	-	0.3	0.5	0.05	-	YES	-	7.29
Non Standard Sn992	99.2	-	-	-	-	-	-	-	0.3	0.5	<500 ppm	-	YES	-	7.29
Non Standard	99.3	-	-	-	-	-	-	-	-	0.7	-	-	YES	-	7.29
Non Standard	99.4	-	-	-	0.4	-	-	-	-	0.2	-	-	YES	-	7.29
Non Standard	95	-	-	-	-	-	-	-	-	5	-	-	YES	-	7.35
Non Standard	95	=	=	=	0.5	=	=	-	-	4.5	=	=	YES	-	7.37
Non Standard	90	6	-	-	3.5	-	-	-	0.5	-	-	-	YES	-	7.47

Other mixtures are available that fall under the non- standard mixtures of the above metals.

*RoHS 2 = Restriction on Hazardous Substances (2011/65/EU) RoHS 3- no phthalates