SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier: INDALLOY WITH RA FLUX COATING

SDS Number: SDS CP038 **Revised Date**: 6 APRIL 2020

1.2 Relevant identified uses of the substance or mixture and uses advised against

PRODUCT USE: Industrial Use (mixture)- Metal blend with flux coating for soldering applications. See alloy table for the list of products available. Some health and safety information may not be applicable to the specific product used. Review applicable data.

1.3 Details of the supplier of the safety data sheet

MANUFACTURER/SUPPLIER/IMPORTER:

In America:
The Indium Corporation of America®.
34 Robinson Rd, Clinton NY 13323
Technical & Safety Information: (315) 853-4900
Safety & SDS Information: nswarts@indium.com
Corporation web page: http://www.indium.com

In Europe:
The Indium Corporation of America® (European Operations)
7 Newmarket Ct.
Kingston, Milton Keynes, UK, MK 10 OAG
Information: (normal business hours) +44 [0] 1908 580400
EU Contact: aday@indium.com

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:
The Indium Corporation of America®
Asia-Pacific Operations-Singapore
29 Kian Teck Avenue
Singapore 628908
Information: +65 6268-8678

1.4 Emergency Telephone Number

FOR CHEMICAL EMERGENCY ONLY PHONE *:
CHEMTREC 24 hrs.
USA: 1 (800) 424-9300
Outside USA: +1 (703) 527-3887
*** Used only for spill/leak/fire/exposure/accident**
In China: Emergency 86+ 4008417580

ALL OTHER INQUIRIES: TOLL FREE: +1-800-448-9240 Indium Corporation

SECTION 2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY: **CARCINOGEN LISTED IN:**

✳Eye ✳Inhalation ✳Skin ✳Ingestion NTP IARC OSHA ✳Not Listed

2.1 Classification of the substance or mixture

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Lead/cadmium free products

Warning Word: Warning

Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H335	May cause respiratory irritation
EUH208	Contains rosin. May produce an allergic reaction

Precautionary statement(s)

P233	Keep container tightly closed
P261	Avoid breathing dust/fume/gas/mist/vapours/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)

Lead containing products

Warning Word: Warning

Hazard statement(s)

H303	May be harmful if swallowed (lead)
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H332	Harmful if inhaled (lead)
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 harmful 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/vapours/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)

Cadmium/lead containing products

Warning Word: Danger

Hazard statement(s)

H303	May be harmful if swallowed (lead/cadmium)
H330	Fatal if inhaled
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H332	Harmful if inhaled (lead and cadmium containing)
H341	Suspected of causing genetic defects (cadmium)
H350	May cause cancer (cadmium)

H351	Suspected of causing cancer (lead)
H361	Suspected of damaging fertility or the unborn child (applicable to lead containing product)
H372	Causes damage to organs through prolonged or repeated exposure (cadmium)
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 harmful effects (lead) (cadmium)
EUH201A	Warning! Contains lead (applicable only to the products listed that contain lead) Review listing.
EUH207:	Warning! Contains cadmium. Dangerous fumes are formed during use.
EUH208	Contains rosin. May produce an allergic reaction

Precautionary statement(s)

P233	Keep container tightly closed
P261	Avoid breathing dust/fume/gas/mist/vapours/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)

Classification:
Carcinogenicity (Category 2) (lead)
Carcinogenicity (Category 1B)
Acute toxicity, Inhalation (Category 2)
Reproductive toxicity (Category 2) (lead) (cadmium)
Specific target organ toxicity-repeated exposure (Category 1)
Skin sensitizer-Category 1B
Respiratory sensitizer-Category 1B
Eye irritation-Category 2A
Germ cell mutagenicity (Category 2) (cadmium)
Acute aquatic toxicity – Category 1 for lead / cadmium containing products (H400)
Chronic aquatic toxicity – Category 1 for lead containing products (H410)

2.3 OTHER HAZARDS:

POTENTIAL HEALTH EFFECTS:

Eye Contact: Fume from molten metal may cause irritation. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear safety glasses and face shield when working with molten metal.

Ingestion: Ingestion of dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. May be harmful.

Inhalation: Inhalation of fume or dust may cause local irritation to the respiratory system. Inhalation of fume or dust may cause headache, nausea, abdominal pain, fatigue and pain in the legs, arms and joints. Inhalation can cause shortness of breath and sore throat. Inhalation of cadmium fume or dust can cause metal fume fever. Inhalation of cadmium may be fatal. Inhalation may be harmful.

Skin Contact: Normal handling should not cause any adverse health effects. May cause skin irritation. Hot molten metal may cause burns to the skin. Wear protective equipment when handling molten metal.

Chronic: Indium may cause damage to respiratory system. Kidney and liver damage from injection of indium compounds has been reported based on limited animal testing.

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 and muscle and joint pain and damage to the nervous system, blood system and kidneys.

Tin: has been shown to increase incidence of sarcoma in animal tests.

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.

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.

Cadmium: Overexposure can cause damage to the lungs and kidneys. Cadmium is a toxic metal and ingestion or inhalation of fumes and dust can be harmful. Included effects may be obstructive lung disease such as emphysema, bone demineralization, micro fractures and osteomalacia, gastrointestinal symptoms, rhinitis and discoloration of the teeth.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixture:

Components	% wt	CAS Registry #
INDIUM	*	7440-74-6/231-180-0
TIN	*	7440-31-5/231-141-8
LEAD	*	7439-92-1/231-100-4
SILVER	*	7440-22-4/231-131-3
BISMUTH	*	7440-69-9/231-177-4
ANTIMONY	*	7440-36-0/231-146-5
CADMIUM	*	7440-43-9
ROSIN MIXTURE	1.0-4.0	65997-05-9

* See Alloy Table at end of document

SECTION 4. FIRST AID MEASURES

4.1 Description of 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.

4.2 Most important symptoms and effects, both acute and delayed:

Skin contact may cause irritation. Long term contact may cause dermatitis. Inhalation of decomposed rosin fume may cause irritation or occupational asthma. Exposure to metal fumes may cause irritation to the respiratory system. Long term exposure by inhalation to metal fumes may cause illness such as metal fume fever. Exposure to lead or cadmium fume may cause harm. Sign of overexposure is anemia. Exposure can cause eye irritation and can cause serious irritation especially during fuming.

4.3 Indication of any immediate medical attention and special treatment needed:

No specific special treatment information is available on this mixture. Review data provided in this document to understand the hazards when working with the product. No other information is available at this time.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media:

Use extinguishers appropriate for the surrounding fire conditions. Water, CO2 or foam media.

5.2 Special hazards arising from the substance or mixture:

May produce toxic fumes of carbon monoxide if burning or metal oxide fumes.

5.3 Advice for Firefighters

Fire fighters must wear approved self-contained breathing apparatus and full protective clothing.

Material product is not classified as flammable.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Keep away from the spill. Remove sources of ignition. Keep exhaust ventilation system running. In the event of a fire evacuate area.

For emergency responders:

Wear safety glasses, gloves when cleaning up any spill. Other equipment may be necessary based on the immediate area and other chemicals unrelated to the product that may be in use. Adequate ventilation should be available. Keep unnecessary personnel away from area during clean up.

Environmental Precautions: Dispose contaminated cloth rags or paper towels following all applicable governmental regulations. Material may have reclaim value. Material may contain lead or cadmium which is not suited for direct disposal to the environment. Product contains metals and organic chemicals which may not be suited for release to any body of water including drains. Dispose of in accordance with governmental regulations.

Methods and material for containment and cleaning up:

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.

6.2 Reference to other sections: See Section 8 for exposure levels.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions For Safe Handling:

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. Do not eat, drink or smoke when handling this product. Utilize exhaust ventilation when heating product. Emissions may contain metal fumes, rosin and organic compounds.

7.2 Conditions for Safe Storage, including any incompatibilities:

Storage Precautions: Store product in tightly capped original containers in a cool, dry area. Refer to product label and product data sheet for specific storage temperature requirements. Rotate stock to ensure use before expiration date.

7.3 Specific End Use(s): Soldering applications

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters:

Components	% wt	CAS#/EINECS#	TLV-TWA	TLV-STEL
			mg/m³	mg/m³
INDIUM	*	7440-74-6/231-180-0		
		(UK)	0.1	0.3
		(Belgium)	0.1	-
		(Spain)	0.1	-
		(Portugal)	0.1	-
		(Finland)	0.1	-
		(Denmark)	0.1	-
		(Austria)	0.1	0.2
		(Switzerland)	0.1	-
		(Norway)	0.1	-
		(Ireland)	0.1	0.3
TIN	*	7440-31-5/231-141-8		
		(UK)	2	4
		(Belgium)	2	-
		(Germany)	2	-
		(Netherlands)	2	-

		(Spain)	2	-
		(Poland)	2	
LEAD	*	7439-92-1/231-100-4		
		(UK)	0.15	-
		(France)	0.1	-
		(Spain)	0.15	-
		(Italy)	0.15	-
		(Portugal)	0.05	-
		(Finland)	0.1	-
		(Denmark)	0.05	-
		(Austria)	0.1	0.4
		(Switzerland)	0.1	0.8
		(Poland)	0.05	-
		(Norway)	0.05	-
		(Ireland)	0.15	-
SILVER	*	7440-22-4/231-131-3		
		(UK)	0.1	0.3
		(Belgium)	0.1	-
		(France)	0.1	-
		(Germany)	0.1	-
		(Netherlands)	0.1	-
		(Spain)	0.1	-
		(Poland)	0.05	-
BISMUTH	*	7440-69-9/231-177-4	N.E.	N.E.
ANTIMONY	*	7440-36-0/231-146-5		
		(UK)	0.5	-
		(France)	0.5	-
		(Belgium)	0.5	-
		(Spain)	0.5	-
		(Portugal)	0.5	-
		(The Netherlands)	0.5	-
		(Finland)	0.5	-

		(Denmark)	0.5	-
		(Austria)	0.5	5
		(Switzerland)	0.5	-
		(Poland)	0.5	-
		(Norway)	0.5	-
		(Ireland)	0.5	-
CADMIUM	*	7440-43-9/231-152-8		
		(UK)	0.025	0.075
		(Belgium)	0.01	-
		(Spain)	0.002	-
		(Portugal)	0.01	-
		(Finland)	0.02	-
		(Austria)	0.03	-
		(Denmark)	0.05	-
		(Poland)	0,01	-
		(Norway)	0.05	0.15
		(Bulgaria)	0.05	-
		(Ireland)	0.025	-
		(Estonia)	0.05	-
		(Greece0	0.025	0.1
		(Hungary)	-	0.015 ceiling
		(Latvia)	0.01	0.05
		(Romania)	0.05	-
		(Russia)	0.01	0.05
		(Slovak Republic)	0.15	0.1
ROSIN MIXTURE	1.0-4.0	65997-05-9		
		(EU)	N.E.	0.15

N.E. = Not established TWA = time weighted average STEL = short term exposure limit

8.2 <u>Exposure Controls:</u>

Engineering Controls: Exhaust ventilation is necessary to control any air contaminants and keep exposures as low as possible. Use ventilation for worker protection.

Personal protection:

Eyes:	Chemical safety glasses/goggles and face shield with molten metal. Face shield for splash hazards.
Respirator:	An authority approved or compliant marked air-purifying respirator with a HEPA particulate/fume cartridge is recommended when contaminants are elevated or during cutting or melting. Certain conditions may require monitoring to determine the correct respiratory protection. Adhere to requirements when working with lead or cadmium containing materials.
Skin:	Rubber or heat resistant gloves. Apron, boots, sleeve protectors may be necessary depending on the type of work performed.
Other:	Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume/dust areas.
Work/Hygienic	Maintain good housekeeping. Clean up spills immediately. Wash hands thoroughly with soap and water immediately upon leaving the work area and before eating. Refrain from eating or smoking in work areas. When applicable in US, review, OSHA lead and cadmium worker requirements. Certain work practice and medical monitoring may be required. Adhere to EU regulations for lead and cadmium workers.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:	Metal preform/shape	**Boiling Point/Range:**	Not determined
Odor:	Odorless.	**Melting Point/Freezing Point:**	See table
Odor Threshold:	Not established	**Evaporation Rate:**	Not applicable
Specific Gravity:	See Table	**pH:**	Not applicable
Vapour Pressure:	Not applicable.	**Solubility in Water:**	Insoluble
Vapour Density:	(air=1) Not applicable.	**Partition coefficient:**	Not established
Relative Density:	Not established	**Flammability:**	Not applicable, not flammable
Flash Point:	Not established	**Method:**	Not established
Auto-ignition Temperature:	Not established	**Flammable Limits:**	Limits not established
UEL/LEL Limits:	Not applicable	**Decomposition Temp:**	Not applicable
Viscosity:	Not established	**Explosive properties:**	Not applicable
Oxidizing Properties:	Not established		

9.2 Other Information: Above data for the whole mixture.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: Stable.

10.2 Chemical Stability: Stable

10.3 Possibility of Hazardous Reactions: Not established

10.4 Conditions To Avoid: Not established

10.5 Incompatible Materials: Avoid contact with acids, bases or oxidizing agents. Ignites and incandesces on heating with sulfur.

10.6 Hazardous Decomposition / Combustion: Harmful organic fumes and toxic oxide fumes may form at elevated temperatures. Metal oxide fumes.

10.7 Hazardous Polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects of the solder paste:

Acute toxicity: Not established
Irritation: Not established
Corrosivity: Not applicable
Sensitization: Not available
Repeated dose toxicity: Not established
Carcinogenicity: Not established
Mutagencity: Not established
Toxicity for Reproduction: Not Established
Absence of specific data: None available (not tested)

Likely Routes of Entry: eyes (irritation) /skin (irritation or sensitization) /inhalation (irritation/sensitization) ingestion (may be harmful)

Interactive effects: None known

11.2 Symptoms related to the physical, chemical and toxicological characteristics:

May cause irritation or sensitization by skin and inhalation. May be harmful if inhaled.

11.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Exposure to rosin fume has been known to cause occupational asthma. Exposure to lead fume, if applicable, may cause harm by inhalation and ingestion. Chronic exposures to lead fume, if applicable, can cause potential harm to the developing fetus. Lead exposure can be toxic.

Exposure to cadmium fume is harmful. May cause cancer. Causes damage to organs through prolonged or repeated exposures. Can cause harm if inhaled and may be fatal if inhaled.

Mixture verses substance information: None known

Other Information:

Carcinogenicity Listing:

NTP: Yes, Cadmium is listed as a possible carcinogen (National Toxicity Program),

OSHA: Yes, Cadmium is listed as a possible carcinogen (US Occupational Safety & Health Administration)
IARC: Yes - Cadmium is listed as a possible carcinogen and lead and lead compounds are listed. (International Agency for Research on Cancer).

Copper - LD50 – intraperitoneal mouse 3.5 mg/kg.

Silver – LD50 oral – rat > 5,000 mg/kg

Lead – Suspected human reproductive toxicant. May cause damage to organs through prolonged or repeated exposure. Reproductive toxicity – rat –inhalation, oral/ effects on newborn.

Antimony- LD50 oral-rat 7,000 mg/kg

Cadmium- Inhalation, human, 39 mg/m3, LCLO, Oral, rat, 2330 mg/kg, LD50

RTECS# NL1050000 (indium), VM3500000 (silver), XP7320000 (tin), GL7900000 (fume/copper), CC4025000 (antimony), EU9800000 (cadmium)

SECTION 12. ECOLOGICAL INFORMATION

Product mixtures not tested.

12.1 Toxicity: No information available

12.2 Persistence and degradability: No information available

12.3 Bioaccumulative potential: No information available

12.4 Mobility in soil: No information available

12.5 Results of PBT and vPvB assessments: No data is available

12.6 Other adverse effects: No information is available for mixture. Avoid release to environment.

Copper – Toxicity to daphia and other aquatic invertibrates mortality NOEC – Daphnia 0.004 mg/l – 24h.

Lead – Toxicity to fish – mortality LOEC – rainbow trout – 1.19 mg/l – 96h. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Bioaccumulation – Oncorhynchus kisutch – 2 weeks Bioconcentration factor (BCF): 12

Cadmium: 4.26mg/l LC 50 96h, 0.0004-0.003 mg/l LC50 96h, 0.006 mg/l LC50 96h

SECTION 13. DISPOSAL CONSIDERATION

13.1 Waste treatment method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with environmental regulations. Containerize material and classify according to applicable regulations. No pre-treatment on site is recommended. Do not dispose of down any drain or waterway. Utilize the same personal protective equipment as the user when handling for disposal.

RoHS (Restriction of Hazardous Substances): some of the product mixtures are RoHS compliant because they are lead free. Product mixtures do not contain any PBB or PBDT brominated compounds.
RoHS – Note that some of the product mixtures do contain lead or cadmium and are therefore not complaint with RoHS. Users should review their particular use for any applicable exemptions that may apply. Review alloy table for products.

SECTION 14. TRANSPORT INFORMATION

Transport in accordance with applicable international regulations and requirements.

Not regulated/non - hazardous under US DOT (United States Department of Transportation).
Not regulated/non - hazardous under international shipping requirements (IATA/Ocean).

14.1 UN Number Not applicable

14.2 UN proper shipping name: Not applicable

14.3 Transport hazard class(s): No Applicable

14.4 Packing group: Not Applicable

14.5 Environmental hazards: Not Applicable

14.6 Special precautions for user: Not Applicable

14.7 Transport in bulk: Not applicable

SECTION 15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

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.).

All ingredients are listed on the USEPA TSCA Inventory.

All ingredients are listed on EINECS. Note Rosin was recently listed under the No Longer Polymer List, Notification of New Chemical Substances in Accordance with Directive 67/548/EEC.

Safety data sheet was developed using EC 1907/2006 amended as of 20 May 2010 EU No 453/2010, 2015/830 and information as stated under regulation EC No 1272/2008 CLP Regulation.

GHS = Global Harmonized System

CLP= Classification, labeling and packaging

Product does not contain any substances ozone depleting substances and therefore not subject to EC 2037/2000.

15.2 Chemical safety assessment: None performed for mixture.

SECTION 16. OTHER INFORMATION

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

Revised Date: 6 APRIL 2020
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

Changes provided on this SDS were based on the requirements of EU No. 453/2010 of May 20, 2010 regarding amendments to EC No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

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.

ALLOY TABLE

(Alloy mixture with a 1-4% rosin coating)

INDALLOY	RoHS 2/3 Compliance	%BISMUTH Bi	%COPPER Cu	%INDIUM In	%LEAD Pb	%TIN Sn	%SILVER Ag	%CADMIUM Cd	%ANTIMONY Sb	MELTING POINT	SG
1E (In52, Sn48)	YES	-	-	49.9-51.5	-	46.1-47.5	-	-	-	118C/244 F	7.30
4 (100In)	YES	-	-	100	-	-	-	-	-	156C/314 F	7.31
104 (Sn62,Pb36)	NO	-	-	-	34.6-35.6	59.5-61.4	1.92-1.98	-	-	179C/354 F	8.41
106 (Sn63, Pb37)	NO	-	-	-	35.5-36.6	60.5-62.4	-	-	-	183C/361 F	8.40
1**09** (Pb40,Sn60)	NO	--	-	-	38.4-39.6	57.6-59.4	-	-	-	179C/354 F	8.50
130 (Pb60, Sn40)	NO	-	-	-	57.6-59.4	38.4-39.6	-	-	-	238C/460 F	9.28
132 (Sn95, Ag5)	YES	--	-	-	-	91.2-94.1	4.8-4.95	-	-	240C/430 F	7.39
156 (Sn90, Ag10)	YES	-	-	-	-	86.4-89.1	9.6-9.9	-	-	295C/563 F	7.51
181 (Pb30.6, Sn51.2, Cd18.2)	NO	-	-	-	29.4-30.3	49.2-50.7	-	17.5-18.0	-	145C/293 F	8.45
206 (In40, Pb60)	NO	-	-	38.4-39.6	57.6-59.4	-	-	-	-	231C/448 F	9.30
241 (SAC387) (Cu0.7, Sn95.5, Ag3.8)	YES	-	0.67-0.69	-	-	91.7-94.5	3.6-3.76	-	-	220C/428 F	7.40
244 (Cu0.7, Sn 99.3)	YES	--	0.67-0.69	-	-	95.3-98.3	-	-	-	227C/441 F	7.31
256 (SAC305) (Cu0.5,	YES	-	0.48-0.49	-	-	92.6-95.5	2.9-2.97	-	-	220C/428 F	7.40

Sn96.5, Ag3)											
INDALLOY	**RoHS 2/3 Compliance**	**%BISMUTH Bi**	**%COPPER Cu**	**%INDIUM In**	**%LEAD Pb**	**%TIN Sn**	**%SILVER Ag**	**%CADMIUM Cd**	**%ANTIMONY Sb**	**MELTING POINT**	**SG**
281 (Bi58, Sn42)	YES	55.7-57.4	-	-	-	40.3-41.6	-	-	-	138C/281 F	8.56
290 (In97, Ag3)	YES	-	-	93.1-96.0	-	-	2.9-2.97	-	-		7.38
NS (Cu2, 97Sn, 0.2Ag, 0.8Sb)	YES	-	1.92-1.98	-	-	93.1-96.0	0.19-0.198	-	0.77-0.79	-	7.31
NS (Sn96, Ag4)	YES	-	-	-	-	92.2-95.0	3.8-3.96	-	-	-	7.37
NS (Pb38, Sn60, Ag2)	NO	-	-	-	36.5-37.6	57.6-59.4	1.92-1.98	-	-	-	8.49
NS (Bi97.5, Ag2.5)	YES	93.6-96.5	-	-	-	-	2.4-2.48	-	-	-	9.82

RoHS 2 Compliance = Restriction of Hazardous Substances EU Directive 2011/65/EU. Review any applicable exemptions.
Visit http://www.indium.com.
RoHS 3 – products do not contain any listed phthalates
Solder related products are not directly related to RoHS. Therefore the above is provided as information only. It is the customer's responsibility to determine compliance with any applicable regulation.