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

A table is provided that lists all metal groupings with this flux. To better serve all of our customers Indium Corporation has generated one SDS, 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 FLUXCAKE 501 (CW-501)**

SDS Number: SDS-4316 **Revised Date:** 27 DECEMBER 2016

Product Use: Industrial Use - solder flux cored wire (flux 1 – 4%)

MANUFACTURER:

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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

Signal Word: Warning

Hazard statement(s)

H303	May be harmful if swallowed
H319	Causes serious eye 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 effects (lead)
EUH201A	Warning! Contains lead (applicable only to the products listed that contain lead) Review listing.

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
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)

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. Molten metal may cause burns to the eyes. Flux causes serious irritation.

Ingestion: This product contains metal alloys and organic chemicals. May be harmful if swallowed.

Inhalation: Vapors or fumes from this material at typical re-flow temperatures over 100°C may cause local irritation to the respiratory system. May be harmful if inhaled.

Skin Contact: If molten may cause skin irritation. Antimony may cause irritation.

Chronic: SILVER: Chronic skin contact or ingestion of silver powder, 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 of copper may cause metal fume fever (chills, muscle aches, nausea, fever; dry throat, cough, weakness, lassitude); metallic or sweet taste; discoloration of skin and hair.

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.

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

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.**

Solid metal wire as is does not pose any danger.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Components	% wt	CAS Registry #/ EINECS#	PEL mg/m³	TLV-TWA mg/m³	TLV-STEL mg/m³
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	-	-
COPPER	*	7440-50-8/231-159-6			
		(US)	0.1 (fume)	0.2 (fume)	-
		(EU)	-	0.2 (fume)	-
		(Canada)	-	0.2 (fume)	0.6 (fume)

		(Mexico)	-	0.2(fume)	2
		(Singapore)	0.2	-	-
		(China)	-	1(dust)	2.5
				0.2(fume)	0.6
LEAD	*	7439-92-1/231-100-4			
		(US)	0.05	0.05	-
		(EU)	-.	0.15	-
		(Singapore)	0.15	-	-
		(Mexico)	-	0.15	-
		(China)	-	0.05(dust) 0.03(fume)	-
		(Canada)	0.05	0.05	-
ANTIMONY	*	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	-
BISMUTH	*	7440-69-9	N.E	N.E.	N.E.
PROPRIETARY FLUX	1-4.0	-	N.E.	N.E.	N.E.

Product complies with *RoHS Restriction of Hazardous Substances (review directive for applicable exemptions)

* See Alloy Table

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: Solid material may be picked up and recycled. Molten metal should not be allowed to flow to any drain. Contain and allow to solidify, pick up and recycle material. Wear protective clothing when handling molten materials. Follow all Federal, State and Local regulations regarding disposal of or recycling of product.

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. Wear appropriate personal protective equipment when working or handling solder . 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 sealed 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, adequate ventilation and other safety features specifically designed for use with solder activities. Control concentration of all components so that any permissible exposure limits are not exceeded. Ventilate areas where molten metal is used, by using exhaust ventilation. Keep exposures as low as possible. Avoid inhalation of fumes. Product fumes may contain lead or small amounts (<0.2%) of an flux ingredient listed that may cause cancer.

Personal protection:

Eyes: Chemical safety glasses/goggles and face shield for molten metal.

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated or exceed exposure limits.

Skin: Compatible chemical resistant gloves. Use hot gloves for handling molten metal.

Other: Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume 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 wire	**Boiling Point:**	Not applicable.
Odor:	No apparent odor	**Melting Point:**	Not applicable
Specific Gravity:	Not applicable.	**pH:**	Not applicable
Vapor Pressure:	Not applicable.	**Solubility in Water:**	Insoluble
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 (International Agency on Research for Cancer) Lead and lead compounds are listed as possible carcinogens.

(Product contains <0.2% of a proprietary flux ingredient listed as a potential carcinogen)

LD50:	Not established.	**LC50:**	Not established.

12. ECOLOGICAL INFORMATION

Product not tested. No information available.

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.

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements. Not regulated under US DOT (United States Department of Transportation.

Non hazardous material under all shipping requirements and modes (GROUND/IATA/OCEAN).

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.).

California PROP 65 (Safe Drinking Water Standard):
This product contains a chemical known to the State of California to cause cancer and/or birth defects or other reproductive harm. (lead and proprietary ingredient)

Some ingredients are contained on the New Jersey State Right To Know List

SARA 313 Listing - 40 CFR 372.65
Silver CAS# 7440-22-4 Copper CAS# 7440-50-8 Lead CAS# 7439-92-1

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 – irritant (resin)

D2B Materials Causing Other Toxic Effects – Very Toxic Material (chronic) (lead)

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.

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, GBZ2-2007.

ALLOY TABLE

%Metal mix with 1-4% flux

INDALLOY (METAL MIX)	%COPPER Cu	%TIN Sn	%SILVER Ag	%BISMUTH Bi	%LEAD Pb	%ANTIMONY Sb	RoHS 2 Compliance
Indalloy 106 (Sn63/Pb37)	-	60.5 - 62.4	-	-	35.5 - 36.6	-	NO
Indalloy 133 (95Sn/5Sb)	-	91 - 94	-	-	-	4.8 - 4.96	YES
Indalloy 241 (SAC 387) (95.5Sn/3.8Ag/ 0.7Cu)	0.67 - 0.69	91.7 - 94.5	3.6 - 3.76	-	-	-	YES
Indalloy 256 (SAC 305) (96.5Sn/3Ag/0. 5Cu)	0.48 - 0.495	92.6 - 95.5	2.88 - 2.97	-	-	-	YES
Indalloy 97 (43Sn/43Pb/14 Bi)	-	41.3 - 42.6	-	13.4 - 13.9	41.3 – 42.6	-	NO
Non-standard 96Sn/4Ag	-	92-95	3.84-3.96	-	-	-	YES

RoHS 2 = Restriction of Hazardous Substances EU Directive 2011/65/EU
Product does not contain any flame-retardants.
Refer to http://www.indium.com

16. OTHER INFORMATION

HMIS Hazard Rating: **Health:** 2
Fire: 1
Reactivity: 0

Revised Date: 27 DECEMBER 2016

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Approved by: Nancy Swarts, Indium Corporation of America

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