



SAFETY DATA SHEET

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

1.1 Product Identifier

INDALLOY FLUX 3

SDS Number: SDS- IN LF003

Revised Date: 19 FEBRUARY 2018

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

Product Use: Industrial Use – PASTE FLUX FOR SOLDERING APPLICATIONS

1.3 Details of the supplier of the safety data sheet

MANUFACTURER/SUPPLIER/IMPORTER:

In America:

The Indium Corporation of America®
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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****ALL OTHER INQUIRIES: TOLL FREE: +1-800-448-9240 Indium Corporation****2. HAZARDS IDENTIFICATION****PRIMARY ROUTES OF ENTRY:** Eye Inhalation Skin Ingestion

NTP

Carcinogen listed in

IARC

OSHA

 Not Listed**2.1 Classification:****2.2 Label elements**

Labeling in accordance with Regulation (EC) No. 1272/2008



Signal Word: Danger

Hazard statement(s)

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
H361	Suspected of damaging fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects

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	Take off contaminated clothing and wash before reuse
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:

Acute toxicity (oral) – Cat 4
 Acute toxicity- (inhalation) – Cat 4
 Skin corrosion – Cat 1B
 Skin sensitivity- Cat 1
 Aquatic (chronic) – Cat 2
 Reproductive toxicity – Cat 2
 Mutagenicity- Cat 2
 Specific target organ, single exposure, respiratory- Cat 2

2.3 OTHER HAZARDS:

POTENTIAL HEALTH EFFECTS:

Eye Contact: Irritating to the eyes. May cause burns to the eyes.

Ingestion: Harmful if swallowed.

Inhalation: Heated vapor concentrations may be harmful if inhaled. Severe irritant to respiratory tract.

Skin Contact: May cause severe irritation. Can cause burns to skin

Chronic:

Eyes: Prolonged contact might cause more severe burns.

Skin: Prolonged contact might cause more severe

Ingestion: May cause osseous fluorosis (increased radiographic density of the bones). May cause kidney damage, asthma and symptoms resembling rheumatism.

Inhalation: Not determined

Target organ: Chronic ingestion may cause kidney damage. May aggravate an existing dermatitis.

Long term over exposure to inorganic tin compound can cause a benign dust-induced lung condition called Stannosis.

Usually this condition does not interfere with normal lung function.

EMERGENCY OVERVIEW: DANGER: Harmful if swallowed. Causes severe burns. Avoid physical contact with eyes, mucous membranes and skin. CONTAINS FLUORIDES AND ZINC CHLORIDES. Do not take internally. Soldering may produce fumes and gases. Prolonged or repeated over-exposure by skin contact may cause dermatitis. Use adequate ventilation. KEEP OUT OF THE REACH OF CHILDREN.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixture:

Components	CAS Registry #/EINECS#
Zinc Chloride	7646-85-7/231-592-0

Organic Fluorides	1341-49-7/215-676-4
Stannous Chloride (Tin (II) Chloride dehydrate)	7772-99-8/231-868-0 10025-69-1
Monoethanolamine	141-43-5/205-483-3

4. FIRST AID MEASURES

Description of first aid measures:

4.1 **Eye Contact:** Hold eyelids apart and flush eyes with plenty of tepid water for at least 15 minutes. Seek medical attention if irritation persists.

4.2 **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.

4.3 **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.

4.4 **Skin Contact:** Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention.

Most important symptoms and effect, both acute and delayed:

Skin contact can cause irritation. Eye exposure may cause serious irritation. Harmful if swallowed.

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. Seek medical attention if eye irritation continues after flushing. If respiratory discomfort is evident seek immediate medical advice. Seek medical advice if swallowed.

5. FIRE FIGHTING MEASURES

5.1 **Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Water, CO2, foam media.

5.2 **Special hazards arising from the substance or mixture:** May produce toxic oxide fumes if burning.

5.3 **Advice for Firefighters:** Fire-fighters must wear approved self-contained breathing apparatus and full protective clothing. Material product is not flammable. No other information is available.

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. If on floor wear foot protection to avoid any direct contamination to shoes and boots. Avoid conditions that create fumes. Use an approved respirator with chemical cartridge.

Environmental Precautions: Material is hazardous.

Methods and material for containment and cleaning up:

Spill or leak procedures: Clean up absorption with clay/sawdust/sand. Place into pail or drum and tightly cap.

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

7. HANDLING AND STORAGE

7.1 **Precautions:** Keep containers tightly closed when not in use. Use care to avoid spills. Wear appropriate personal protective equipment (PPE) when working or handling material. 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 during handling of this product.

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):** Not specified.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters:

	CAS#/EINECS#	<u>TWA</u>	<u>STEL</u>
		mg/m ³	mg/m ³
Zinc Chloride	8.51-8.96	7646-85-7/231-592-0	
	(UK)	1(fume)	2
	France	1	-
	Belgium	1	2
	Spain	1	2
	Germany	0.1(respirable)	2
	Portugal	1	2
	Finland	1	-
	Denmark	0.5	-
	Switzerland	1	-
	Poland	1	2
	Norway	1	3
	Iceland	0.5	1(ceiling)
	Sweden	1	-
	Croatia	1	2
	Ireland	1	2
	Czech	1	2(ceiling)
	Estonia	1	-
	Greece	1	2

Organic Fluorides	17.92-18.87	1341-49-7/215-676-4		
		UK	2.5	7.5
		France	2.5	-
		Spain	2.5	-
		Germany	1	-
		Portugal	2.5	-
		Norway	0.6	-
		Latvia	0.2	-
		Russia	0.2	-
Stannous Chloride (Tin (II) Chloride dehydrate)	10 -15	7772-99-8/231-868-0 10025-69-1		
		UK	2	4
		Spain	2	-
		Portugal	2	-
		Finland	2	-
		Austria	2	4
		Switzerland	2	4
		Norway	2	-
Monoethanolamine	56.6	141-43-5/205-483-3		
		UK	2.5	7.6
		France	2.5	7.6(skin)
		Belgium	2.5	7.6(skin)
		Spain	2.5	7.5
		Italy	2.5	7.6(skin)
		Germany	5.1(skin)	10.2(peak)
		Portugal	3ppm	6ppm
		The Netherlands	2.5	7.6(skin)
		Finland	2.5	7.6(skin)
		Austria	2.5	7.6(skin)
		Denmark	2.5(skin)	-
		Switzerland	5	10(skin)
		Poland	2.5	7.5
		Norway	2.5	5(skin)
		Bulgaria	2.5	7.6(skin)
		Croatia	8	15(skin)
		Ireland	2.5	7.6(skin)
		Cyprus	2.5	7.6(skin)
		Czech	5	7.5(skin)
		Estonia	2.5	7.6(skin)
		Gibraltar	2.5	7.6(skin)
		Greece	2.5	7.6(skin)
		Hungary	2.5	7.6(skin)
		Iceland	2.5	7.6(skin)
			5(ceiling)	
		Latvia	0.5	7.6(skin)
		Lithuania	8	15(skin)
		Luxembourg	2.5	7.6
		Malta	2.5	7.6
		Romania	2.5	7.6(skin)
		Russia	0.5	-
		Slovak	7.6(ceiling)	
		Slovenia	2.5	7.5
		Sweden	8	15(skin)
		Turkey	2.5	7.6(skin)

TWA = time weighted average
 STEL = short term exposure level
 Ceiling = can't exceed this limit.

8.2 Exposure Controls:

Engineering Controls: Local and/or Mechanical exhaust ventilation or point source exhaust is required to control any airborne contaminants and to reduce potential exposures to workers. Avoid inhalation of fume/spray. Use exhaust when there is any doubt in whether the operator/user is getting any exposure.

Personal protection:

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

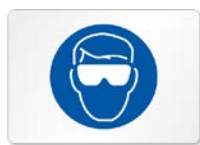
Respiratory: An approved air-purifying respirator (half or full face) with an acid gas filter is required under certain circumstances where airborne concentrations are expected to be elevated.

Keep exposures to as low as possible.

Skin: Compatible chemical resistant gloves. Avoid direct skin contact.

Other: Lab coat, eye-wash fountain in work area. Avoid the use of contact lenses in high fume/dust areas.

Work/Hygenic Practices: 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. Do not wear work clothes into lunchroom areas.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance:	Solid-light amber	Boiling Point/Range:	>93C (200F)
Odor:	Ammonia-like	Melting Point/Freezing Point:	Not applicable
Odor Threshold:	Not established	Evaporation Rate:	Not applicable
Specific Gravity:	1.33 (H ₂ O=1).	pH:	6-8
Vapour Pressure:	Not available	Solubility in Water:	soluble
Vapour Density:	(air=1) Not applicable.	Partition coefficient:	Not established
Relative Density:	Not established	Flammability:	Not applicable
Flash Point:	>93C	Method:	Not applicable

Auto-ignition Temperature: Not applicable	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	

10. STABILITY AND REACTIVITY

- 10.1 **Reactivity:** Stable. Thermal decomposition generates-corrosive vapors
- 10.2 **Chemical Stability:** Stable
- 10.3 **Possibility of Hazardous Reactions:** Not established
- 10.4 **Conditions To Avoid:** Heat
- 10.5 **Incompatible Materials:** Avoid contact strong oxidizing agents, sodium nitrate.
- 10.6 **Hazardous Decomposition / Combustion:** Harmful toxic oxide fumes may form at elevated. Hydrogen fluoride. temperatures.
- 10.7 **Hazardous Polymerization:** Will not occur.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Acute toxicity: Not established	Mutagenicity: Not established
Irritation: Not established	Toxicity for Reproduction: Not Established
Corrosivity: Not applicable	Absence of specific data: None available (not tested)
Sensitization: Not available	
Repeated dose toxicity: Not established	
Carcinogenicity: Not established	
Likely Routes of Entry: eyes(serious irritation) /skin (irritation) /inhalation (irritation)	
Interactive effects: None known	

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

May cause irritation by skin and inhalation. Causes serious eye irritation.

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

LD50: Monoethanolamine: 1,720 mg/kg (rat) oral
 LC50: Monoethanolamine 1,210 mg/m³ inhalation 4hrs
 Stannous chloride 604 (mouse) LD50
 Zinc chloride 200 (guinea pig)/350 (rat) LD50

Mixture verses substance information: None known

11.3 Other Information:

Carcinogenicity:

NTP:No (National Toxicity Program)

OSHA:No (US Occupational Safety & Health Administration)

IARC: No (U.N. International Agency for Research on Cancer)

12. ECOLOGICAL INFORMATION

- 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.

Zinc chloride is very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. If flux is released to the aquatic environment, it is expected to have toxic effects to aquatic plants, fish and invertebrates.

13. DISPOSAL CONSIDERATION

13.1 **Waste treatment method:**

. 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 2 (Restriction of Hazardous Substances): Compliant .

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

UN1759, Corrosive Solid, N.O.S., 8, PG II (monoethanolamine, organic fluorides)

UN proper shipping name: 1759

Transport hazard class(s): 8

Packing group: II

Special precautions for user: None

Transport in bulk: Not applicable



IMDG UN1759, Corrosive Solid, N.O.S., 8, PG II (monoethanolamine, organic fluorides) Marine Pollutant



15. REGULATORY INFORMATION

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.

Safety data sheet was developed using EC 1907/2006 amended as of 20 May 2010 EU No 453/2010 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.

16. OTHER INFORMATION

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

Revised Date: 19 FEBRUARY 2018

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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.