



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

SAFETY DATA SHEET

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

Product Identifier: FC-WS-HT-A1 (FLIP CHIP FLUX)
SDS Number: SDS- IN FC08R **Revised Date:** 21 JANUARY 2014
Product Use: Industrial Use (Mixture) – Flip chip flux- soldering applications.

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

MANUFACTURER/SUPPLIER/IMPORTER:

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2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:

Eye Inhalation Skin Ingestion NTP IARC OSHA Not Listed

Carcinogen listed in

Classification:

Risk Phrases: R11, R36/37/38, R67, R52/53



Signal Word: Danger

Hazard statement(s)

- H225 Highly flammable liquid and vapour
- H319 Causes serious eye irritation
- H335 May cause respiratory irritation
- H336 May cause drowsiness or dizziness
- H412 Harmful to aquatic life with long lasting effects

Precautionary statement(s)

- P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking
- P233 Keep container tightly closed
- P240 Ground/Bond container and receiving equipment
- 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
- 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)

OTHER HAZARDS:

POTENTIAL HEALTH EFFECTS:

- Eye Contact:** Irritating to the eyes and if not removed promptly, may result in serious eye irritation. Do not allow material to come in contact with the eyes.
- Ingestion:** Harmful if swallowed. May cause irritation and damage to mouth, esophagus and the gastrointestinal tract.
- Inhalation:** Vapors or fumes from this material may cause local irritation to the respiratory system. May be harmful if inhaled. High concentrations may cause headache or dizziness or light headedness.
- Skin Contact:** May cause skin irritation.
- Chronic:** Not established

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.2 Mixture:

Components	% wt	CAS Registry #/ EINECS#
ISOPROPYL ALCOHOL	85-90	67-63-0
PROPRIETARY (confidential/trade secret)	10-15	-

THIS PRODUCT DOES NOT CONTAIN ANY EU REACH REPORTABLE SUBSTANCES OF VERY HIGH CONCERN (SVHC).

<http://www.indium.com>

4. FIRST AID MEASURES

Description of first aid measures:

- Eye Contact:** Hold eyelids apart and flush eyes with plenty of 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.

Most important symptoms and effect, both acute and delayed:

Skin contact may cause irritation.
Inhalation of product may cause headache or drowsiness
Eye exposure may cause serious irritation.

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, headache or dizziness is evident seek medical advice.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Use alcohol resistant type foam, CO₂, dry chemical, sand. Cool containers with water spray.

Special hazards arising from the substance or mixture:

May produce toxic fumes of carbon monoxide if burning .

Advice for Firefighters

Fire-fighters must wear approved self-contained breathing apparatus and full protective clothing. Thermal decomposition can lead to release of irritating gases and vapors.

Material product is flammable. Contains alcohol.

6. ACCIDENTAL RELEASE MEASURES

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. Use only spark resistant tools. Absorb spill. Contain run off to a limited area.

Environmental Precautions: Dispose contaminated absorbents following all applicable governmental regulations. Material is hazardous and classified as flammable. Do not release to the environment.

Methods and material for containment and cleaning up:

Spill or leak procedures: Absorb spilt materials.

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

7. HANDLING AND STORAGE

**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 flux. Wear appropriate personal protective equipment 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 when using product. General odor and chemical content require exhaust whenever the container is open. Ground containers and receiving containers that are in use.

Conditions for Safe Storage, including any incompatibilities:

Storage Precautions: Store product in tightly capped original containers in a cool, dry and well - ventilated area. Refer to product label and product data sheet for specific storage temperature requirements. Rotate stock to ensure use before expiration date. Ensure all storage is away from sources of ignition.

Specific End Use(s): Soldering type applications.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters:

			<u>TWA</u>	<u>STEL</u>
			mg/m ³	mg/m ³
		<u>CAS#/EINECS#</u>		
ISOPROPYL ALCOHOL (ISOPROPANOL)	85- 90	67-63-0/200-661-7		
		(UK)	999	1250
		FRANCE	980	-
		BELGIUM	997	1248
		SPAIN	998	1250
		PORTUGAL	200ppm	400ppm
		FINLAND	500	620
		DENMARK	490	-
		AUSTRIA	500	2000
		SWITZERLAND	500	1000
		POLAND	900	1200
		NORWAY	245	-
		IRELAND	200ppm (skin)	-
PROPRIETARY (CONFIDENTIAL)	10-15	-	N.E.	N.E.

TWA = time weighted average
STEL = short term exposure level

Exposure Controls:

Engineering Controls: Use only with production equipment with adequate exhaust ventilation and other safety features specifically designed for chemical use. Use exhaust ventilation when using the product especially while heating product. Air emission control equipment may be necessary based on the local governmental requirements for contaminants entering the atmosphere. Use grounded equipment to guard against static charge.

Personal protection:

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

Respiratory: An approved or EU compliant CE marked air-purifying respirator with a fume/organic chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated.

Skin: Compatible chemical resistant gloves. Recommend a nitrile rubber glove for heavy exposure or other chemical glove such as neoprene rubber blend for non - immersion applications.

Other: Lab coat, eye-wash 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 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Appearance:	Liquid flux	Boiling Point/Range:	Not determined
Odor:	Alcohol like odor.	Melting Point/Freezing Point:	Not applicable
Odor Threshold:	Not established	Evaporation Rate:	Not applicable
Specific Gravity:	Not applicable.	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:	Flammable
Flash Point:	11C (52F)	Method:	Not available
Auto-ignition Temperature:	Not established	Flammable Limits:	Limits not established
UEL/LEL Limits:	Not established	Decomposition Temp:	Not applicable
Viscosity:	Not established	Explosive properties:	Not applicable
Oxidizing Properties:	Not established		

Other Information: Above data for the whole mixture.

10. STABILITY AND REACTIVITY

Reactivity: Stable.

Chemical Stability: Stable

Possibility of Hazardous Reactions: Not established

Conditions To Avoid: Open flame, high temperatures

Incompatible Materials: Avoid contact with acids, bases or oxidizing agents.

Hazardous Decomposition / Harmful toxic oxide fumes may form at elevated

Combustion: temperatures.
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

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 (severe irritation) /skin (irritation) /inhalation (irritation/headache) ingestion (may be harmful)		

Interactive effects: None known

Symptoms related to the physical, chemical and toxicological characteristics:

May cause irritation and or headache.

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

Long term exposure by inhalation may be harmful.

Mixture verses substance information: None known

Other Information:

Carcinogenicity: NTP: No (National Toxicity Program)
Listing OSHA: No (US Occupational Safety & Health Administration)
 IARC: No (UN International Agency for Research on Cancer)

Oral LD50 (isopropyl alcohol)
 LD50 Oral- rat- 5,045 mg/kg
 Inhalation LC50 (isopropyl alcohol)
 LC50 inhalation-rat-8h-16000 ppm
 Dermal LD50
 LD50 – Dermal- rabbit-12,800 mg/kg

RTECS: Isopropyl alcohol NT8050000

12. ECOLOGICAL INFORMATION

Product mixture not tested.

LC50-Pimephales promelas (fathead minnow)- 9,640 mg/l – 96h (isopropyl alcohol)
 EC50-Daphnia magna (water flea) – 5,102 mg/l – 24h (isopropyl alcohol)

13. DISPOSAL CONSIDERATION

Waste treatment method:

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. Hazardous flux material is flammable.

RoHS (Restriction of Hazardous Substances): Compliant with RoHS 2 (2011/65/EU).

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

Flux is hazardous.

UN proper shipping name: UN1219

Transport hazard class(s): 3

Packing group: II

Environmental hazards: None

Special precautions for user: None

Transport in bulk: Not applicable

Shipping Name: UN1219, Isopropanol, 3, PG II



15. REGULATORY INFORMATION

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

The information in this Material 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.

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.

Risk Phrases:

R36/37/38 Irritating to eyes, respiratory system and skin
R11 Highly flammable
R67 Vapors may cause drowsiness and dizziness

Safety Phrases:

S16 Keep away from sources of ignition – No Smoking
S20/21 When using do not eat, drink or smoke
S23 Do not breathe fumes/gas/vapor/spray
S24/25 Avoid contact with skin and eyes
S27 Take off immediately all contaminated clothing
S28 After contact with skin wash immediately with plenty of soap and water
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection
S7 Keep container tightly closed

Revised Date: 21 JANUARY 2014

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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.