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

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: WS575-SP FLUX
SDS Number: SDS-5551
Product Use: INDUSTRIAL USE (MIXTURE) - LIQUID FLUX APPLICATION – SPRAYABLE FLIP CHIP FLUX

MANUFACTURER:

In America:
The Indium Corporation of America
1676 Lincoln Ave., Utica NY 13502
Information: (315) 853-4900
nswarts@indium.com

In Europe:
Indium Corporation of Europe
7 Newmarket Ct.
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

In Asia:
Asia-Pacific Operations-Singapore
29 Kian Teck Avenue
Singapore 628908
Information: +65 6268-8678

EMERGENCY PHONE:
CHEMTREC 24 hrs.
USA: 1 (800) 424-9300
Outside USA: +1 (703) 527-3887

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

http://www.indium.com
2. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY:  
- Eye  
- Inhalation  
- Skin  
- Ingestion  

Carcinogen listed in  
- NTP  
- IARC  
- OSHA  
- Not Listed  

GHS:

Signal Word: Danger

Hazard statement(s):

H225  Highly flammable liquid and vapor
H315  Causes skin irritation
H319  Causes serious eye irritation
H335  May cause respiratory irritation
H336  May cause drowsiness or dizziness

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/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
P305 + P314  IF IN EYES: Rinse continuously with water for several minutes (15 mins)
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:  Vapors may be irritating, liquid may damage eye tissue, and causes burn or irritates eyes.

Ingestion:  Harmful if swallowed. May cause persistent nausea, vomiting and abdominal pain.

Inhalation:  May cause irritation to respiratory system. Vapor may cause headaches and or dizziness.

Skin Contact:  Prolonged contact may cause dryness, irritation and can cause dermatitis.

Chronic:  Not established.

Note:  The Indium Corporation does not recommend, manufacture, market or endorse any of its products for human consumption.
3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>% wt</th>
<th>CAS Registry #</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-STEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOPROPANOL</td>
<td>38 - 45</td>
<td>67-63-0 (US)</td>
<td>980</td>
<td>983</td>
<td>1225</td>
</tr>
<tr>
<td>(PROPA-2-OL)</td>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>999</td>
<td>1250</td>
</tr>
<tr>
<td>(IPA)</td>
<td></td>
<td>(Canada)</td>
<td>-</td>
<td>983</td>
<td>1228</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>983</td>
<td>-</td>
<td>1230</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico)</td>
<td>-</td>
<td>980</td>
<td>1225</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(China)</td>
<td>-</td>
<td>350</td>
<td>700</td>
</tr>
<tr>
<td>PROPRIETARY ACTIVATORS</td>
<td>19 - 44</td>
<td>-</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

| POLYGLYCOL ETHER | 18 - 36 | 9038-95-3 | N.E. | N.E. | N.E. |

Symbol: Xi, F
Risk Phrases: R36/37/38, R11, R67
N.E. = Not established
EU = European Exposure Limits

DOES NOT CONTAIN ANY EU SUBSTANCES OF VERY HIGH CONCERN (SVHC)

4. 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.

5. FIRE FIGHTING MEASURES

Flash Point: 71°F (22C)  Method: Closed Cup
Auto-ignition Temperature: Not Available
Flammable Limits: Not Available
Extinguishing Media: Dry chemical, Water or CO₂. Use extinguishers appropriate for the surrounding fire conditions.

Special Fire Fighting Procedures: Wear protective clothing and self-contained breathing apparatus. Use water to cool fire exposed containers. Flammable vapors may travel great distances to ignition source and flash back.
6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: DO NOT allow material to enter sewer system or waterway. Wear personal protective equipment. Eliminate sources of ignition. Ventilate area in accordance with regulations. Adsorb spilt material. Or cover with absorbent material and then clean up. Do not throw into regular trash bins. Dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations.

7. HANDLING AND STORAGE

Handling Precautions: Keep containers tightly closed when not in use. Use care to avoid spills. Wear personal protective equipment. Ground all containers. Keep away from sources of ignition.

Storage Precautions: Store product in tightly capped 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. Keep away from heat and flame.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Face velocity >2.1 cubic feet/minute in confined areas. Exhaust ventilation is advised to keep exposures as low as possible.

Personal protection:

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

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/organic chemical cartridge is recommended where airborne concentrations are expected to be elevated. Confined areas may require additional protection.

Skin: Compatible chemical resistant gloves. Use gloves such as nitrile, which are compatible with alcohols.

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

Work/Hygienic 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid flux

Boiling Point: Not available

Odor: Alcohol odor.

Evaporation Rate: Not available

Specific Gravity: Not available

pH: N/A

Vapor Pressure: Not available

Solubility in Water: Not available

Vapor Density: Not available
10. STABILITY AND REACTIVITY

**General:** Stable.

**Conditions to Avoid:** Direct heat, open flames and storage in aluminum.

**Incompatible Materials:** Combustible materials, oxidizing materials

**Hazardous Decomposition / Combustion:** Carbon dioxide/carbon monoxide.

**Hazardous Polymerization:** Will not occur.

11. TOXICOLOGICAL INFORMATION

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

**LD50:** Not established.

**LC50:** Not established.

Isopropyl alcohol - RTECS: NT8050000

**Signs and Symptoms of Exposure:**
Central nervous system depression, prolonged or repeated exposure can cause: nausea, headache, vomiting, narcosis, drowsiness. Overexposure may cause mild, reversible liver effects.

**Specific target organ toxicity:**
May cause drowsiness or dizziness.

**LD50 Oral – rat:** 5,045 mg/kg

**Inhalation LC50 – rat:** 8h - 16000 ppm

**Dermal LD50 – rabbit:** 12,800 mg/kg

**Skin corrosion - rabbit:** mild skin irritant

**Serious eye irritant/eye damage - eyes-rabbit:** eye irritation - 24h

Polyglycol ether – RTECS: MD0911000

**LD50 oral-rat:** 12,792 mg/kg

**LD50 dermal-rabbit:** >20,800 mg/kg

12. ECOLOGICAL INFORMATION

Product not tested.

Isopropyl alcohol –

**Toxicity to fish:** LC50-pimephales promelas (fathead minnow) – 9,640 mg/l – 96h

**Toxicity to algae:** EC50 – desmodesmus subspicatus (green algae) > 2,000 mg/l – 72h

13. DISPOSAL CONSIDERATION

**Waste Disposal Method:** Dispose of in accordance with all Federal, State and Local environmental regulations. Flammable materials are considered hazardous waste. Contact a permitted environmental waste disposer.

In Europe follow the Special Waste Regulations.
14. TRANSPORT INFORMATION
Transport in accordance with applicable regulations and requirements.

Shipping Name: UN 1219, Isopropanol, 3, PG II

Marine pollutant: No

15. REGULATORY INFORMATION
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.).

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

Canadian WHMIS: Class B Division 2 Flammable, D2B Toxic Material Causing Other toxic effects (eye irritation in animals.

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

Taiwan:
This product contains a substance listed as a harmful material: isopropyl alcohol, a substance listed in the Regulations of Labeling and Hazard Communication of Dangerous and Harmful Materials under Attachment II. This is so specified under the Taiwan Regulations for Governing Prevention of Organic Solvent Toxication.

This product does not contain any other listed or known listed hazardous material found in Attachment II of the Regulations for Governing Prevention of Organic Solvent Toxication.

This product contains a substance, isopropyl alcohol a flammable liquid, classified as a Hazardous Material under Attachment I in Article 2, Paragraph 1, Item 1, of the Regulations of Labeling and Hazardous Communication of Dangerous and Harmful Materials.

This product does not contain any substances classified as Taiwan Precursor chemicals.

This product does not contain any other substances found on either the first or second stage listings of chemical substances found in the Regulations of Labeling and Hazard Communication of Dangerous and Harmful Materials.

This msds was developed following the guidelines of GHS and the Taiwan National Standard 15030 which has adopted those principles.

This product does not contain any Taiwan listed toxic classified substances.
SARA 313 Listing - 40 CFR 372.65: none

All ingredients are listed on the EPA TSCA Inventory.

This product has been classified under the Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-1999.

This product has been classified using the Chinese Occupational Exposure Limit for Hazardous Agents in the Workplace, GBZ2-2002.

Complies with RoHS 2 (2011/65/EU)

EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

Xi, F

Risk Phrases:

R36/37/38 Irritating to eyes, respiratory system and skin
R 11 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
S24/25 Avoid contact with skin and eyes
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

16. OTHER INFORMATION

HMIS Hazard Rating:

Health: 2
Fire: 3
Reactivity: 0

Revised Date: 19 DECEMBER 2013
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.