SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: WS3401 FLUX
SDS Number: SDS-4390
Revised Date: 3 AUGUST 2018
Product Use: INDUSTRIAL USE (MIXTURE) - LIQUID FLUX (WATER WASH)

MANUFACTURER:

In America:
The Indium Corporation of America®
34 Robinson Rd., Clinton, NY 13323
Information: (315) 853-4900
nswarts@indium.com

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Information: +44 [0] 1908 580400

In Asia:
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Asia-Pacific Operations-Singapore
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Singapore 628908
Information: +65 6268-8678

EMERGENCY PHONE:
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Outside USA: +1 (703) 527-3887
In China: Emergency: 86+ 4008417580

In China:
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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: 

Carcinogen listed in

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

GHS Classification:

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 +P364 Take off contaminated clothing and wash before reuse
P301 +P314 IF SWALLOWED: Get Medical advice/attention if 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)
P403  Store in well ventilated place
P405  Store locked up
P5010 Dispose of content/container in accordance with local/regional/national regulations.

Classification:

- Flammable liquid- Category 2
- Skin irritation- Category 2
- Serious eye irritation- Category 2A
- Respiratory irritation- Category 3
- Specific target organ systemic toxicity (single exposure) – Category 3

POTENTIAL HEALTH EFFECTS/EXPOSE:

Eye Contact:  Vapors may be irritating, liquid may damage eye tissue, and causes irritation to eyes.

Ingestion:  If swallowed may cause irritation or with overexposure persistent nausea, vomiting and abdominal pain.

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

Skin Contact:  Prolonged direct contact may cause dryness and irritation.

Chronic:  Not established. No information available.

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.

WARNING: This product can expose you to chemicals including [trace amounts of propylene oxide] which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov

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>
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<tbody>
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<td>ISOPROPANOL</td>
<td>38 - 45</td>
<td>67-63-0 (US)</td>
<td>980</td>
<td>983</td>
<td>1225</td>
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<tr>
<td>(PROPAN-2-OL)</td>
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<td>(Singapore) 983</td>
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<td>-</td>
<td>1230</td>
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<td></td>
<td></td>
<td>(Mexico) -</td>
<td>-</td>
<td>980</td>
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<td></td>
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<td>(China) -</td>
<td>-</td>
<td>350</td>
<td>700</td>
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<td>FATTY ACIDS, C6-12</td>
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<td>67762-36-1</td>
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<tr>
<td>POLYGLYCOL ETHER</td>
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<td>9038-95-3</td>
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<td>N.E.</td>
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<td>ALCOHOL C6-C12</td>
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</tbody>
</table>

N.E. = Not established  EU = European Union Occupational Exposure Limits

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: 71F (22C)  Method: Closed Cup
### 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**

Keep containers tightly closed when not in use. Use care to avoid spills. Wear personal protective equipment. Ground 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid flux</td>
</tr>
<tr>
<td>Odor</td>
<td>Alcohol odor.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>&gt;89°C (does not vaporize)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Specific Gravity: Not available  pH: Not applicable (no pH value)  (not corrosive)
Vapor Pressure: Not available  Solubility in Water: Dissolves in water
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.
Product mixture not tested.
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
Product not classified as a carcinogen. Product does not contain any carcinogenic substances.

12. ECOLOGICAL INFORMATION
Product mixture 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
Product is not classified as harmful to the environment.

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 international regulations and requirements.

Shipping Name: UN 1219, Isopropanol, 3, PG II (mixture)

Marine Pollutant: No

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.).

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.

WARNING: This product can expose you to chemicals including [trace amounts of propylene oxide] which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov
SARA 313 Listing - 40 CFR 372.65: none

All ingredients are listed on the EPA TSCA Inventory.
All ingredients are listed on the Korean Inventory of Existing Chemicals (KECL)
Ingredients are listed on the following countries chemical lists:
EU/Canada (DSL)/China

This product has been classified under the Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

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).

Regulatory Information China:
GB/T 16483-2008, GB/T 17519-2013, Safety Data Sheets for Chemical Products
GB 30000.2-29-2013, Rules for classification and labeling of chemicals (GHS)
Decree No. 591: Regulations on the Control Over Safety of Hazardous Chemicals.
This product has been classified using the Chinese Occupational Exposure Limit for Hazardous Agents in the Workplace, GBZ2-2007.

Product does not contain any listed EU REACH Substances of Very High Concern.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Hazard Rating:</th>
<th>Health:</th>
<th>2</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Fire:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Reactivity:</td>
<td>0</td>
</tr>
<tr>
<td>Revised Date:</td>
<td>3 AUGUST 2018</td>
<td></td>
</tr>
<tr>
<td>Prepared by:</td>
<td>Nancy Swarts, Indium Corporation of America</td>
<td></td>
</tr>
<tr>
<td>Approved by:</td>
<td>Nancy Swarts, Indium Corporation of America</td>
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</tbody>
</table>

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.