SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: LIQUID FLUX 4-OA
SDS Number: SDS-IN LF004
Date: 28 MAY 2019

Product Use: Industrial Use (mixture) - Liquid flux for soldering applications

MANUFACTURER:

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

In Europe:
The Indium Corporation of America® (European Operations)
7 Newmarket Ct
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

In Asia:
Indium Corporation of America
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
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):
- H226 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 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)

Classification – isopropyl alcohol
Eye irritant – (Category 2A)
Flammable liquids - (Category 2)
Skin irritation- (Category 3)
Specific target organ systemic toxicity (single exposure) – (Category 3), Central nervous system

POTENTIAL HEALTH EFFECTS:

Eye Contact: Irritating to the eyes and if not removed promptly, may result in serious eye injury. Do not allow material to come in contact with the eyes.

Ingestion: May cause irritation.

Inhalation: Heated vapor concentrations may be harmful if inhaled, or may cause headache or drowsiness. Maybe irritating to respiratory tract.

Skin Contact: May cause skin irritation or dryness.

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 #/EINECS</th>
<th>PEL mg/m³</th>
<th>TLV-TWA mg/m³</th>
<th>TLV-STEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>70-80</td>
<td>67-63-0/200-661-7</td>
<td>980</td>
<td>983</td>
<td>1225</td>
</tr>
<tr>
<td>(EU)</td>
<td>-</td>
<td>-</td>
<td>999</td>
<td>1250</td>
<td></td>
</tr>
<tr>
<td>(Canada)</td>
<td>-</td>
<td>-</td>
<td>983</td>
<td>1230</td>
<td></td>
</tr>
<tr>
<td>(Singapore)</td>
<td>983</td>
<td>-</td>
<td>-</td>
<td>1230</td>
<td></td>
</tr>
<tr>
<td>(Mexico)</td>
<td>-</td>
<td>-</td>
<td>980</td>
<td>1225</td>
<td></td>
</tr>
<tr>
<td>(China)</td>
<td>-</td>
<td>-</td>
<td>350</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>CARBOXYLIC ACID (C1-5)</td>
<td>20-30</td>
<td>68937-68-8</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

N.E. = Not established

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:** 23 C (73 F)  
**Method:** Not available

**Auto-ignition Temperature:** Not established.

**Flammable Limits:** Flammable. Limits not established

**Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions. Foam, dry chemical, water spray.

**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:
Wear a respirator and appropriate personal protection (See Exposure Controls/Personal Protective Section). Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Dispose of following all Federal, State and Local regulations. In the EU refer to the Special Waste Regulations. Keep away from sources of ignition. Do not dispose of on the ground or into any waterway.

7. HANDLING AND STORAGE
Handling Precautions: Keep containers tightly closed when not in use. Use care to avoid spills. Avoid breathing vapors from heated material. Avoid contact with eyes, skin and clothing. Use with adequate ventilation. Ground containers. Keep away from sources of ignition and flame.
Storage Precautions: Store product in tightly capped original containers in a cool, dry area. Keep away from heat and flame. Store away from incompatible materials. Empty containers may be hazardous as they contain product residue.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
Engineering Controls: Exhaust ventilation should be sufficient to control airborne levels. Use ventilation.
Personal protection:
Eyes: Chemical safety glasses with side shields/goggles and face shield may be required under certain situations for splash protection.
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.
Skin: Compatible chemical resistant gloves. Protective outer garment, apron and sleeves as appropriate.
Other: Eyewash fountain in work area. Avoid the use of contact lenses.
Work/Hygienic Practices: Maintain good housekeeping. Clean up spills immediately.
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 Boiling Point: Not established
Odor: Mild characteristic odor. Melting Point: Not applicable
Specific Gravity: 0.875 g/cc pH: Not applicable
Vapor Pressure: Not applicable. Solubility in Water: Not established
Vapor Density: (air=1) Not applicable. Flash Point: 23C (73F)

10. STABILITY AND REACTIVITY
General: Stable.
Conditions to Avoid: High temperatures, open flame.
11. TOXICOLOGICAL INFORMATION

Carcinogenicity:

- NTP: No
- OSHA: No
- IARC: No

*Liquid Flux 4OA is not considered carcinogenic.

LD50: Not established.

LC50: Not established.

Other: Contains <0.1% of a substance that is classified as a possible reproductive system/toxin/female development toxin.

12. ECOLOGICAL INFORMATION

Product not tested.

13. DISPOSAL CONSIDERATION

Waste Disposal Method: Dispose of in accordance with all Federal, State and Local environmental regulations. In Europe follow the Special Waste Regulations. Flammable material. Do not discharge to any drain or waterway.

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

Shipping Name: UN1219, Isopropanol, 3, PG II

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.).

SARA 313 Listing - 40 CFR 372.65 - CAS# 75-21-8 (Ethylene Oxide), CAS # 123-91-1

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: 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.

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.

In Japan:
Poisonous and Deleterious Substance Control Law: Deleterious contains trace levels of ethylene oxide (75-21-8)- not intentionally added.
Specified Poisonous Substances – None
Chemical Substance Control Law (CSCL) Class 2 – None
PRTR substance list – Class I -ethylene oxide trace mounts not intentionally added
Fire Service Law (FSL)- product contains isopropanol a flammable liquid.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>HMIS Hazard Rating:</th>
<th>Health:</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fire:</td>
<td>3</td>
</tr>
<tr>
<td>Reactivity:</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Revised Date: 28 MAY 2019
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.