SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: FLUX 3519
SDS Number: SDS-HG4025
Product Use: Industrial Use - Solder Flux- wave flux, rosin flux
Revised Date: 20 MARCH 2018

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:

<table>
<thead>
<tr>
<th>Carcinogen listed in</th>
</tr>
</thead>
<tbody>
<tr>
<td>XEye</td>
</tr>
</tbody>
</table>

GHS:

Signal Word: Danger

Hazard Statements:

H225  Highly flammable liquid and vapor
H317  May cause an allergic skin reaction
H319  Causes serious eye irritation
H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335  May cause respiratory irritation
H336  May cause drowsiness or dizziness
EUH208  Contains rosin. May produce an allergic reaction

Precautionary statement(s)

P210  Keep away from heat/sparks/open flames/hot surfaces. – No smoking
P233  Keep container tightly closed
P240  Ground container and receiving equipment
P242  Use spark resistant tools
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:
Flammable Liquid - Category 2
Serious eye damage/eye irritant - Category 2
Specific target organ systemic toxicity (single exposure) – Category 3 Central Nervous system

POTENTIAL HEALTH EFFECTS:

Eye Contact:  Vapors may be irritating, liquid may damage eye tissue.

Ingestion:  May result in gastric disturbances such as nausea and vomiting.

Inhalation:  May cause throat irritation, headache or dizziness. Rosin based products may cause respiratory sensitization.

Skin Contact:  May cause irritation. Contact with rosin based product may cause dermatitis.

Chronic:  Not established.

NOTE:  The Indium Corporation does not recommend, manufacture, market or endorse any of it's 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>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>55-60</td>
<td>67-63-0 (US)</td>
<td>980</td>
<td>983</td>
<td>1230</td>
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<tr>
<td></td>
<td></td>
<td>(EU)</td>
<td>-</td>
<td>999</td>
<td>1250</td>
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<td>980</td>
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<td>700</td>
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<tr>
<td>ROSIN</td>
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<td>8050-09-7</td>
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<tr>
<td></td>
<td></td>
<td>(EU)</td>
<td>0.05</td>
<td>-</td>
<td>0.15</td>
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<tr>
<td>TERPENE HYDROCARBON</td>
<td>5-15</td>
<td>9005-90-7(US)</td>
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<tr>
<td>PROPRIETARY</td>
<td>5-10</td>
<td>-</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: 18C(65F)  Method: TCC
Auto-ignition Temperature: Not available
Flammable Limits: Upper limit 12. Lower limit 0.8.
Extinguishing Media: Water, CO2, Dry chemical. Use extinguishers appropriate for the surrounding fire conditions.
Special Fire Fighting Procedures: Standard fire fighting equipment

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: DO NOT allow material to enter sewer system or waterway. Wear personal protective equipment, such as gloves and depending on the quantity a respirator with organic cartridges may be required. Clean up by absorption. Eliminate sources of ignition. Keep unnecessary personnel away. Put clean-up materials in a properly labeled metal drum. 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.

Storage Precautions: Store product in tightly capped original containers in a cool, dry area away from sources of ignition. Refer to product label for specific storage temperature requirements. Rotate stock to ensure use before expiration date on the label.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

Personal protection:
Eye: Chemical safety glasses/goggles. Face shield for splash hazard.

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.

Skin: Compatible chemical resistant gloves.

Other: Lab coat, eyewash 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: Amber

Odor: Alcoholic

Specific Gravity: 0.860

Vapor Pressure: 27.2 mm HG @68°F

Vapor Density: 2.62

Volatile by Volume: 75%

Boiling Point: 81°C (178°F)

Melting Point: Not applicable

pH: Not available

Solubility in Water: Insoluble

Evaporation Rate: 1.7

10. STABILITY AND REACTIVITY

General: Stable.

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

Incompatible Materials: phosphorus, halogens, anhydrides, monomers, aldehydes, trichlorides

Hazardous Decomposition / Combustion: Carbon dioxide/carbon monoxide.

Hazardous Polymerization: Will not occur.
11. TOXICOLOGICAL INFORMATION

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

LD50: Not established.  LC50: Not established.

Other: Prolonged or repeated exposure to rosin flux fume may cause workers to develop occupational asthma.

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

This section is subject to future development.

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 Disposal Method: Dispose of in accordance with all Federal, State and Local environmental regulations. In Europe follow the Special Waste Regulations.

14. TRANSPORT INFORMATION

Transport in accordance with applicable regulations and requirements.

UN1219, Isopropanol , 3, PG II


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 Flammable Division 2, D2B Toxic Material Causing Other Toxic Effects (eye irritation in animals).

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

In China:
This product has been classified using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007. Decree No. 591: Regulations on the Control over Safety of Hazardous Chemicals GB 30000.2-29-2013, Rules for classification and labeling of chemicals. (GHS) GB/T 16483-2008, GB/T 17517-2013

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).

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

SARA 313 Listing - 40 CFR 372.65: None

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>
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<tr>
<td></td>
<td>Reactivity:</td>
<td>0</td>
</tr>
</tbody>
</table>

Revised Date: 20 MARCH 2018
Prepared by: Nancy Swarts, Indium Corporation of America
Approved by: Nancy Swarts, Indium Corporation of America

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