# SAFETY DATA SHEET

## 1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Identifier:</th>
<th>#70 BATTERY FLUX</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS Number:</td>
<td>SDS-4161</td>
</tr>
<tr>
<td>Revised Date:</td>
<td>12 SEPTEMBER 2018</td>
</tr>
<tr>
<td>Product Use:</td>
<td>Industrial Use - Solder Flux</td>
</tr>
</tbody>
</table>

**Product Use:** INDUSTRIAL USE - SOLVENT BASED BATTERY FLUX

**MANUFACTURER:**

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

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

**In Europe:**
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

**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 vapour
- H302 Harmful if swallowed
- H314 Causes severe skin burns and eye damage
- H333 May be harmful if inhaled
- H335 May cause respiratory irritation
- H402 Harmful to aquatic life

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:
- Flammable liquid- Category 3
- Acute toxicity, oral- Category 4
- Skin corrosion- Category 1C
- Acute toxicity, inhalation- Category 5
- Specific target organ, single exposure, respiratory tract irritation- Category 3
- Acute aquatic – Category 3

POTENTIAL HEALTH EFFECTS:

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

Ingestion: Harmful if swallowed

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

Skin Contact: May cause irritation. Prolonged contact may cause burns to the skin

Chronic: Not established.
WARNING: This product can expose you to chemicals including [trace amounts of 1,4 dioxane, acetaldehyde, ethylene oxide] which are known to the State of California to cause cancer and [trace amounts of ethylene oxide] which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://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>
</tr>
</thead>
<tbody>
<tr>
<td>ISOBUTYL ALCOHOL</td>
<td>35-45</td>
<td>78-33-1 (US)</td>
<td>300</td>
<td>152</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Canada) -</td>
<td>152</td>
<td>-</td>
<td>227</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore) 152</td>
<td>-</td>
<td>150</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico) -</td>
<td>350</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>HYDROBROMIC ACID</td>
<td>10-15</td>
<td>10035-10-6(US)</td>
<td>10 N.E.</td>
<td>9.9(ceiling)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EU) -</td>
<td>-</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Canada) -</td>
<td>-</td>
<td>9.9(ceiling)</td>
<td></td>
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<td></td>
<td></td>
<td>(Singapore) -</td>
<td>-</td>
<td>9.9(ceiling)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico) -</td>
<td>-</td>
<td>9.9(ceiling)</td>
<td>10</td>
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<tr>
<td></td>
<td></td>
<td>(China) 10</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROPRIETARY</td>
<td>20-25</td>
<td>N.E.</td>
<td>N.E. N.E.</td>
<td>N.E.</td>
<td></td>
</tr>
<tr>
<td>ALCOHOL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETHANOLAMINE</td>
<td>5-10</td>
<td>141-43-5(US)</td>
<td>6</td>
<td>7.5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EU) -</td>
<td>7.6</td>
<td>15</td>
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<td></td>
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<td>(Canada) -</td>
<td>7.5</td>
<td>15</td>
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<td>(Singapore) 7.5</td>
<td>-</td>
<td>15</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(Mexico) -</td>
<td>8</td>
<td>15</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(China) -</td>
<td>8</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

N.E. = Not established  
EU = European 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:**  85°F
- **Method:**  Closed Cup
- **Auto-ignition Temperature:**
- **Flammable Limits:**  Upper: 12.7 ; Lower 2.0
- **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. 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 containers. Keep away from flame and other ignition sources.

**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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls:**  Face velocity >2.1 cubic feet/minute in confined areas. Exhaust ventilation recommended.

**Personal protection:**

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

**Respirator:**  A NIOSH approved or EU compliant CE marked air-purifying respirator with a fume/organic chemical cartridge is recommended where airborne concentrations are expected to be elevated. Additional protection may be required in confined areas.

**Skin:**  Compatible chemical resistant gloves. Use gloves such as nitrile, which are compatible with alcohol.
and corrosive substances. Latex gloves are not recommended.

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. 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>Colorless</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>225 F</td>
</tr>
<tr>
<td>Odor</td>
<td>Alcohol odor.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>&gt;2</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.045 @60F</td>
</tr>
<tr>
<td>pH</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>20 mm HG @ 68F</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Soluble</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>20 mm HG @ 68F</td>
</tr>
<tr>
<td>% Volatiles by volume</td>
<td>90</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

General: Stable.
Conditions to Avoid: Direct heat, open flames and storage in aluminum.
Incompatible Materials: Anhydrides, halogens, phosphorus, trichlorides, monomers, aldehydes
Hazardous Decomposition / Combustion: Carbon dioxide/carbon monoxide/unidentified organics during combustion
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.

Isobutyl alcohol- RTECS: NP9625000
Hydrobromic acid- RTECS: MW3850000
Ethanolamine- RTECS: KJ5775000

Product mixture not tested.

12. ECOLOGICAL INFORMATION

Product not tested.

13. DISPOSAL CONSIDERATION

Waste Disposal Method: Dispose of in accordance with all Federal, State and Local
14. TRANSPORT INFORMATION
Transport in accordance with applicable international regulations and requirements.
Corrosive liquid, Flammable, N.O.S., (isobutyl alcohol, hydrobromic acid), 8, UN 2920, PGII

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).

WHMIS: Class B2 Flammable Liquid

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 1,4 dioxane, acetaldehyde, ethylene oxide] which are known to the State of California to cause cancer and [trace amounts of ethylene oxide] which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

SARA 313 Listing - 40 CFR 372.65: trace levels of ethylene oxide, 1,4 dioxane, ethylene oxide.

All ingredients are listed on the EPA TSCA Inventory.

This product has been classified in accordance with Mexican regulations NOM-018-STPS-2015 and NOM-010-STPS-2014.

Malaysia:
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). (GHS)

In China:
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 using the Chinese Occupational Limit for Hazardous Agents in the Workplace, GBZ2-2007
16. OTHER INFORMATION

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

Revised Date: 12 SEPTEMBER 2018

Product Use: Industrial Use - Solder Flux

Prepared by: Nancy Swarts, Indium Corporation of America

Approved by: Nancy Swarts, Indium Corporation of America

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