SAFETY DATA SHEET

To better serve all of our customers Indium Corporation has generated one SDS, for this product, to be used within the United States as well as internationally. Some of the regulatory information contained within may not be applicable to the customer’s individual state or country. Unless otherwise stated the health and safety information provided within is applicable to all products.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: WS-446-1
SDS Number: SDS-7219
Revised Date: 9 OCTOBER 2018

Product Use: Industrial Use (mixture) - Flux for soldering applications

MANUFACTURER:

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2. HAZARDS IDENTIFICATION

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

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

GHS:

Signal Word: Warning

Hazard statements(s)
- H319 Causes serious eye irritation

Precautionary statement(s)
- P233 Keep container tightly closed
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P270 Do not eat, drink or smoke when using this product
- P280 Wear protective gloves/protective clothing/eye protection/face protection
- P362 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:
Eye irritant (Category 2A)

POTENTIAL HEALTH EFFECTS:

Eye Contact: Irritating to the eyes. May cause serious eye irritation.

Ingestion: May cause irritation.

Inhalation: Heated vapor concentrations may be irritating to respiratory tract.

Skin Contact: May cause skin irritation.

Chronic: Not established. Substance amine target organ: liver/kidneys

WARNING: This product can expose you to chemicals including [trace amounts of 1,4 dioxane, propylene oxide, 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

NOTE: The Indium Corporation does not recommend, manufacture, market or endorse any of it's product's 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>POLYGLYCOL ETHER</td>
<td>33-36</td>
<td>9038-95-3</td>
<td>N.E.</td>
<td>N.E.</td>
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<tr>
<td>ALCOHOLS C6-C12</td>
<td>60-65</td>
<td>68603-15-6</td>
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<tr>
<td>AMIDES C10-C16</td>
<td>2-4</td>
<td>67700-97-4</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:** >100 C

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

**Flammable Limits:** Limits not established, not flammable.

**Extinguishing Media:** Use extinguishers appropriate for the surrounding fire conditions.

**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 Protective (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.

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.

**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:  Good general exhaust ventilation should be sufficient to control airborne levels.

Personal protection:
Eyes:  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 under certain circumstances where airborne concentrations are expected to be elevated.

Skin:  Compatible chemical resistant gloves. Protective outer garment, apron and sleeves as appropriate. Latex type gloves are not recommended.

Other:  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.

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:  Flux – red, thick

Boiling Point:  Not applicable

Odor:  Mild characteristic odor.

Melting Point:  Not applicable

Specific Gravity:  1 g/cc

pH:  4-8

Vapor Pressure:  Not applicable.

Vapor Density:  (air=1) Not applicable

10. STABILITY AND REACTIVITY

General:  Stable.

Conditions to Avoid:  Freezing temperatures. High temperatures.

Incompatible Materials:  Not established

Hazardous Decomposition / Combustion:  Harmful organic fumes and toxic oxide fumes may form at elevated temperatures.

Hazardous Polymerization:  Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:  NTP: No

OSHA: No

IARC: No

LD50:  Not established.

LC50:  Not established.

Product is not considered to be a carcinogen. Product mixture not tested.
12. **ECOLOGICAL INFORMATION**

Product not tested. No information available.

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 international regulations and requirements. Not regulated under US DOT (United States Department of Transportation). Non-hazardous for all shipping modes USDOT/IATA/IMDG.

UN – none Non-hazardous for shipping internationally.

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.).

**WARNING:** This product can expose you to chemicals including [trace amounts of 1,4 dioxane, propylene oxide, 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)

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

WHMIS: Not classified because of insufficient information.

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

SARA 313 Listing - 40 CFR 372.65 - 10% SARA listed solvent.

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

**Revised Date:** 9 OCTOBER 2018

**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.