1. PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** ONSPEC SOLAR FLUX ROSIN ACTIVATED (5RA)

**MSDS Number:** MSDS-5094

**Revised Date:** 18 SEPTEMBER 2009

**Product Use:** Industrial Use – Heat stabilized resin flux, designed for soldering related activities.

**MANUFACTURER:**

**In America:**
The Indium Corporation of America
1676 Lincoln Ave., Utica NY 13502
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 Europe
7 Newmarket Ct.
Kingston, Milton Keynes, UK, MK 10 OAG
Information: +44 [0] 1908 580400

**In Asia:**
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:**

[Safety symbols]
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 be harmful if swallowed. May cause irritation and damage to the mouth, esophagus, gastrointestinal tract. May cause headache, dizziness or lowered blood pressure.

Inhalation: Heated vapor concentrations may be harmful if inhaled. Moderately toxic. Moderately irritating to respiratory tract. Inhalation of high concentrations may cause headache or central nervous system depression. Rosin may cause occupational asthma.

Skin Contact: May cause skin irritation or dryness. Allergic reactions/dermatitis are possible, especially with repeated or prolonged exposure.

Chronic: Target organs: CNS

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</th>
<th>TLV-TWA</th>
<th>TLV-STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>mg/m³</td>
<td>mg/m³</td>
<td>mg/m³</td>
</tr>
<tr>
<td>ROSIN FLUX</td>
<td>40-50</td>
<td>65997-05-9</td>
<td>N.E.</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(EU)</td>
<td>0.05</td>
<td>N.E.</td>
<td>0.15</td>
</tr>
<tr>
<td>ISOPROPYL ALCOHOL</td>
<td>35-40</td>
<td>67-63-0/200-661-7</td>
<td>980</td>
<td>983</td>
<td>1230</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Propan-2ol)</td>
<td>(EU)</td>
<td>999</td>
<td>1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Canada)</td>
<td>-</td>
<td>983</td>
<td>1228</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>983</td>
<td>-</td>
<td>1230</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico)</td>
<td>-</td>
<td>980</td>
<td>1225</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(China)</td>
<td>-</td>
<td>350</td>
<td>700</td>
</tr>
<tr>
<td>METHYL ETHYL KETONE</td>
<td>10-20</td>
<td>78-93-3/201-159-0</td>
<td>590</td>
<td>590</td>
<td>885</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Butanone)</td>
<td>(EU)</td>
<td>N.E.</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Canada)</td>
<td>N.E.</td>
<td>590</td>
<td>885</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Singapore)</td>
<td>590</td>
<td>-</td>
<td>885</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Mexico)</td>
<td>-</td>
<td>590</td>
<td>885</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(China)</td>
<td>-</td>
<td>300</td>
<td>600</td>
</tr>
</tbody>
</table>

Symbol: XI, F
Risk Phrases: R36/37/38, R11,R42/43
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 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:** 11 C (52 F)
- **Method:** Not available

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

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

- **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. Evacuate area and fight fire from a safe distance. Containers can build up pressure if exposed to heat (fire) or flame.

6. ACCIDENTAL RELEASE MEASURES

- **Spill or Leak Procedures:** Wear a respirator and appropriate Personal Protective (See Exposure Controls/Personal Protective Section). Size of spill shall determine respiratory protection from air purifying to self contained breathing apparatus. Keep unnecessary and unprotected personnel from entering the spill area. Extinguish or remove all ignition sources. 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: Exhaust ventilation is necessary control airborne levels and any potential exposures.

Personal protection:

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

Respirator: An 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. Sleeves as appropriate. Face shield is recommended when there is a possibility for splash hazards.

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>84 C (183 F)</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight characteristic odor.</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.88</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Not established</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>(air=1) Not applicable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

General: Stable.

Conditions to Avoid: High temperatures, open flame, oxidizing agents, strong reducing agents.

Incompatible Materials: Excessive heat

Hazardous Decomposition / Combustion: Not established

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Carcinogenicity:

NTP: No
OSHA: No
IARC: No

LD50: Not established.
LC50: Not established.

Other: Methyl ethyl ketone LD50 Oral, rat, 2,737 mg/kg
LD50 Dermal, rabbit, 6,480 mg/kg
12. ECOLOGICAL INFORMATION
This section is subject to future development. Product not tested.
WGK Germany – Water hazard Class – Class 1

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.
Shipping Name: UN 1993, Flammable Liquid, N.O.S., 3, PG II (methyl ethyl ketone, isopropanol)

15. REGULATORY INFORMATION
The information in this Material 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.).
The information in this Material Safety Data Sheet meets the requirements of the EU under Chemicals (Hazard Information and Packaging for Supply) Regulations 1994 (CHIP 2) Regulation 6.
This product has been classified in accordance with the hazard criteria of the Commission Directive 91/155/EEC and EH40.
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 in accordance with Mexican regulations NOM-018-STPS-2000 and NOM-010-STPS-
This product has been classified using the Chinese Occupational Exposure Limit for Hazardous Agents in the Workplace, GBZ2-2002.

SARA 313 Listing - 40 CFR 372.65 - Methyl Ethyl Ketone  CAS# 78-93-3
All ingredients are listed on the EPA TSCA Inventory.

EC Classification, Packaging and Labeling Requirements:
Symbol and Hazard Classification of Product

XI, F

Risk Phrases:
R36/37/38 Irritating to eyes, respiratory system and skin
R11  Highly Flammable
R42/43 May cause sensitization by inhalation and skin contact

Safety Phrases:
S20/21 When using do not eat, drink or smoke
S23  Do not breathe fumes/gas/vapor/spray
S24/25 Avoid contact with skin and eyes
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection
S7  Keep container tightly closed

16. OTHER INFORMATION

HMIS Hazard Rating:  
Health: 2
Fire: 3
Physical Hazard: 0

Revised Date: 18 SEPTEMBER 2009
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.