1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code 30630
Trade Name MICROPOSIT LOL 2000 PHOTO RESIST LIFTOFF LAYER
Manufacturer/Supplier Shipley Company
Address 455 Forest St.
Marlborough, Massachusetts 01752

Phone Number (508) 481-7950
Emergency Phone Number (508) 481-7950
Chemtrec # (800) 424-9300
MSDS first issued 4 August 1997
MSDS data revised 29 March 1999
Prepared By: Amy C. Nichols
Local Sales Company Shipley Company, 455 Forest Street, Marlboro, MA 01752
(508-481-7950)

2. COMPOSITION/INFORMATION ON THE INGREDIENTS

Components without CAS numbers are Trade Secret
Component Name CAS# / Codes Concentration
Dye Compound 0.10 - 1.00
Cyclopentanone 120-92-3 91.00 - 96.00
Aliphatic imide polymer 3.00 - 8.00

3. HAZARD IDENTIFICATION

Main Hazards - Irritant - Flammable - Skin - Eye - Nervous System
Routes of Entry Inhalation, ingestion, eye and skin contact, absorption.
Carcinogenic Status Not considered carcinogenic by NTP, IARC and OSHA
Target Organs - Skin - Eye - Nervous System
Health Effects - Eyes Liquid or vapor may cause slight transient irritation.
Health Effects - Skin Material may cause slight irritation on prolonged or repeated contact. Repeated or prolonged contact may produce defatting of the skin leading to irritation and dermatitis.
Health Effects - Ingestion Swallowing may have the following effects:
- irritation of mouth, throat and digestive tract - dizziness - light
3. HAZARD IDENTIFICATION

Health Effects - Inhalation
Exposure to vapor at high concentrations may have the following effects:
- drowsiness - irritation of nose, throat and respiratory tract

4. FIRST AID MEASURES

First Aid - Eyes
Immediately flush the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

First Aid - Skin
Wash skin with water. Obtain medical attention if blistering occurs or redness persists.

First Aid - Ingestion
Wash out mouth with water. Obtain medical attention.

First Aid - Inhalation
Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.

Advice to Physicians
Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media
Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.

Special Fire-Fighting Procedures
This product may give rise to hazardous vapors in a fire. Vapors can travel a considerable distance to a source of ignition and result in flashback.

Unusual Fire & Explosion Hazards
Pressure may build up in closed containers with possible liberation of combustible vapors.

Protective Equipment for Fire-Fighting
Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures
Contain and absorb using earth, sand or other inert material. Transfer into suitable containers for recovery or disposal. Finally
6. **ACCIDENTAL RELEASE MEASURES**

- **Personal Precautions**: Wear appropriate protective clothing. Wear respiratory protection. Eliminate all sources of ignition.
- **Environmental Precautions**: Prevent the material from entering drains or water courses.

7. **HANDLING AND STORAGE**

- **Handling**: Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.
- **Storage**: Store in original containers. Store away from sources of heat or ignition. Storage area should be:
  - cool
  - dry
  - well ventilated
  - out of direct sunlight
- **Other**: None known.

8. **EXPOSURE CONTROLS/PERSOINAL PROTECTION**

- **Occupational Exposure Standards**: None assigned.
- **Engineering Control Measures**: Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
- **Respiratory Protection**: Respiratory protection if there is a risk of exposure to high vapor concentrations. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.
- **Hand Protection**: Butyl rubber gloves.
- **Eye Protection**: Chemical goggles.
- **Body Protection**: Normal work wear.

9. **PHYSICAL AND CHEMICAL PROPERTIES**

- **Physical State**: Liquid
- **Color**: Clear - Pale Yellow
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor</td>
<td>Sweet</td>
</tr>
<tr>
<td>VOC (g/l)</td>
<td>892.8</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>0.966</td>
</tr>
<tr>
<td>pH</td>
<td>Neutral</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
<td>130 / 266</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C/F)</td>
<td>30 / 86</td>
</tr>
<tr>
<td>Explosion Limits (%)</td>
<td>Data not available.</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble.</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>Heavier than air.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Slower than ether</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Cyclopentanone: 10 mmHg at 23 °C.</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>- High temperatures - Static discharge</td>
</tr>
<tr>
<td>Incompatibilities</td>
<td>- Oxidizing agents - Bases - Acids - Reducing agents - Combustibles</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>- carbon monoxide - Carbon Dioxide</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Data</td>
<td>Cyclopentanone: Oral LD50 (rat) 1180mg/kg.</td>
</tr>
<tr>
<td>Chronic/Subchronic Data</td>
<td>No relevant studies identified.</td>
</tr>
<tr>
<td>Genotoxicity</td>
<td>No relevant studies identified.</td>
</tr>
<tr>
<td>Reproductive/Developmental Toxicity</td>
<td>No relevant studies identified.</td>
</tr>
<tr>
<td>Additional Data</td>
<td>None known.</td>
</tr>
</tbody>
</table>
12. ECOLOGICAL INFORMATION

Mobility
Cyclopentanone: The product will dissolve slowly in water. The product is poorly absorbed onto soils or sediments. The product will leach into soil.

Persistence/Degradability
Cyclopentanone: The product is readily biodegradable in acclimated treatment systems.

Bio-accumulation
Product is not expected to bioaccumulate.

Ecotoxicity
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Product Disposal
Incineration is the recommended method of disposal. Dispose of in accordance with all applicable local and national regulations.

Container Disposal
Labels should not be removed from containers until they have been cleaned. Empty containers may contain hazardous residues. Dispose of containers with care.

14. TRANSPORT INFORMATION

DOT Ground:
Cyclopentanone Solution

UN Proper Shipping Name
Cyclopentanone Solution

UN Class
(3) Flammable Liquid

UN Number
UN 2245

UN Packaging Group
III

N.O.S. 1:
Not applicable.

N.O.S. 2:
Not applicable.

Subsidiary Risks
None.

ADR/RID Substance
CLASS 3 - 31(c)

Identification Number

CERCLA RQ
None.

Marine Pollutant
No.

15. REGULATORY INFORMATION

TSCA Listed
All components of this product are listed on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory) or are exempted from listing because a Low Volume Exemption has
15. REGULATORY INFORMATION

TSCA Exemptions
This product does not contain any substances subject to Section 12(b) export notification.

WHMIS Classification
D.2 B.2

MA Right To Know Law
All components have been checked for inclusion on the Massachusetts Substance List (MSL). Those components present at the de minimus concentration have been identified in the hazardous ingredients section of the MSDS.

California Proposition 65
This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.

SARA TITLE III-Section 311/312 Categorization (40 CFR 370)
Immediate, delayed, flammability hazard

SARA TITLE III-Section 313 (40 CFR 372)
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Rating- FIRE
3

NFPA Rating- HEALTH
2

NFPA Rating- REACTIVITY
0

NFPA Rating- SPECIAL
None.

Revisions Highlighted
Physical and Chemical Properties
Toxicological Information
Ecological Information

Abbreviations
CAS#: Chemical Abstract Services Number
ACGIH: American Conference of Governmental Industrial Hygienists
OSHA: Occupational Safety and Health Administration
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer
R: Risk
S: Safety
LD50: Lethal Dose 50%
16. OTHER INFORMATION

LC50: Lethal Concentration 50%
BOD: Biological Oxygen Demand
TLm: Median Tolerance Limit

Disclaimer
The data contained herein is based on information that Shipley Company believes to be reliable, but no expressed or implied warranty is made with regard to the accuracy of such data or its suitability for a given situation. Such data relates only to the specific product described and not to such products in combination with any other product and no agent of Shipley Company is authorized to vary any of such data. Shipley Company and its agents disclaim all liability for any action taken or foregone on reliance upon such data.