1. PRODUCT AND COMPANY IDENTIFICATION

PRX(TM) -127 Plasma Etch Polymer Remover
Revision date: 10/18/2004

Supplier
Rohm and Haas Electronic Materials LLC
455 Forest Street
Marlborough, MA 01752 United States of America

For non-emergency information contact: 508-481-7950

Emergency telephone number
Chemtrec 800-424-9300
Rohm and Haas Emergency 215-592-3000

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipropylene glycol monomethyl ether</td>
<td>34590-94-8</td>
<td>&lt; 30.0 %</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>67-68-5</td>
<td>&lt; 75.0 %</td>
</tr>
<tr>
<td>Tetramethylammonium hydroxide pentahydrate</td>
<td>10424-65-4</td>
<td>&lt; 4.0 %</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance
Form: liquid
Colour: Clear - Pink - Amber
Odour: mild

Hazard Summary
Combustible liquid and vapor. Causes irritation to eyes, nose, and respiratory tract. Harmful if swallowed, inhaled, or absorbed through the skin. Prolonged, repeated contact, inhalation, ingestion, or absorption through the skin, may cause toxic effects to internal organ systems.

Potential Health Effects
Primary Routes of Entry: Inhalation, ingestion, eye and skin contact, absorption.
Eyes: May cause pain, transient irritation and superficial corneal effects.

Skin: Material may cause irritation.  
Prolonged or repeated exposure may have the following effects:  
drowsiness  
defatting and drying of the skin which can lead to irritation and dermatitis  
central nervous system depression  
kidney damage  
liver damage  

Ingestion: Swallowing may have the following effects:  
irritation of mouth, throat and digestive tract  
headache  
nausea  
vomiting  
Repeated doses may have the following effects:  
central nervous system depression  
liver damage  
kidney damage  

Inhalation: Inhalation may have the following effects:  
irritation of nose, throat and respiratory tract  
Higher concentrations may have the following effects:  
systemic effects similar to those resulting from ingestion  

Target Organs: Eye  
Respiratory System  
nervous system  
Liver  
Kidney  
Skin  

Carcinogenicity  
Not considered carcinogenic by NTP, IARC, and OSHA  

4. FIRST AID MEASURES  

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

Skin contact: Chew skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.  

Eye contact:  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.  

Ingestion:  Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Induce vomiting if person is conscious. Immediate medical attention is required. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing.  

Notes to physician  
Treat symptomatically.
5. FIRE-FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>82 - 85 °C (180 - 185 °F)</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Suitable extinguishing</td>
<td>Use water spray, foam, dry chemical or carbon dioxide.</td>
</tr>
<tr>
<td>media:</td>
<td>Keep containers and surroundings cool with water spray.</td>
</tr>
</tbody>
</table>

Specific hazards during fire fighting: 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.

Special protective equipment for fire-fighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: Pressure may build up in closed containers with possible liberation of combustible vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear suitable protective clothing.
Wear respiratory protection.
Eliminate all ignition sources.

Environmental precautions
Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods for cleaning up
Contain spills immediately with inert materials (e.g., sand, earth).
Transfer into suitable containers for recovery or disposal.
Finally flush area with plenty of water.

7. HANDLING AND STORAGE

Handling
Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed.

Further information on storage conditions: Keep away from heat, sparks, flame, and other sources of ignition. Practice good personal hygiene to prevent accidental exposure.

Storage
Storage conditions: Store in original container. Keep away from heat and sources of ignition.
Storage area should be: cool, dry, well ventilated, out of direct sunlight.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipropylene glycol</td>
<td>Rohm and Haas</td>
<td>TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td>monomethyl ether</td>
<td>Rohm and Haas</td>
<td>STEL</td>
<td>30 ppm</td>
</tr>
<tr>
<td></td>
<td>Rohm and Haas</td>
<td>Absorbed via skin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA</td>
<td>606 mg/m³ 100 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>909 mg/m³ 150 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>Skin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA_TRANS</td>
<td>PEL</td>
<td>600 mg/m³ 100 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA_TRANS</td>
<td>Skin</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>TWA</td>
<td>100 ppm</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl sulfoxide</td>
<td>ACGIH</td>
<td>TWA</td>
<td>30 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>STEL</td>
<td>45 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH</td>
<td>Absorbed via skin</td>
<td></td>
</tr>
</tbody>
</table>

Eye protection: goggles

Hand protection: Butyl rubber gloves. Other chemical resistant gloves may be recommended by your safety professional.

Skin and body protection: Normal work wear.

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.

Engineering 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

- Form: liquid
- Colour: Clear - Pink - Amber
- Odour: mild
- pH: ca.12
- Boiling point/range: >204 °C (399 °F)
- Flash point: 82 - 85 °C (180 - 185 °F)
- Lower explosion limit: No data available
- Upper explosion limit: No data available
Component: Tetramethylammonium hydroxide pentahydrate
Vapour pressure 17.5 mmHg at 20 °C
Relative vapour density Heavier than air.
Water solubility completely soluble
Relative density 1.04
Evaporation rate Slower than ether
VOC's 1,015 g/l

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Hazardous reactions Stable under normal conditions.

Conditions to avoid contact with incompatible materials

Materials to avoid Strong Reducing Agents Strong acids Oxidizing agents

Hazardous decomposition products Carbon monoxide, carbon dioxide, sulfides, oxides of sulfur, nitrogen oxides (NOx), mercaptans, ketones, ammonia, aldehydes,
polymerization Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Component: Dipropylene glycol monomethyl ether
Acute oral toxicity LD50 rat 6,600 mg/kg

Component: Dimethyl sulfoxide
Acute oral toxicity LD50 rat 14,500 - 28,300 mg/kg
Single application to the rabbit eye produced conjunctival irritation.
A single application to rabbit skin produced mild irritation.

Component: Dipropylene glycol monomethyl ether
Acute dermal toxicity LD50 rabbit 6,600 mg/kg

Component: Dimethyl sulfoxide
Acute dermal toxicity LD50 rat 40,000 mg/kg

Component: Tetramethylammonium hydroxide pentahydrate
### Acute dermal toxicity

**2.1 % (m)**

A single 4h semi-occlusive application to intact rabbit skin produced no signs of dermal irritation.

No clinical signs of toxicity were observed.


DOT Corrosivity testing conducted on stainless steel and laboratory animals determined that this product is not corrosive.

**Component: Tetramethylammonium hydroxide pentahydrate**

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>3.5 % (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A single 4h semi-occlusive application to intact rabbit skin produced minimal signs of irritation (mean scores for erythema or edema less than 2).</td>
</tr>
<tr>
<td></td>
<td>No clinical signs of toxicity were observed.</td>
</tr>
</tbody>
</table>

**Component: Tetramethylammonium hydroxide pentahydrate**

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>5 % (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A single 4h semi-occlusive application to intact rabbit skin produced burns (full thickness destruction of skin).</td>
</tr>
<tr>
<td></td>
<td>This material is corrosive.</td>
</tr>
<tr>
<td></td>
<td>No clinical signs of toxicity were observed.</td>
</tr>
<tr>
<td></td>
<td>Corrosive to aluminum per DOT corrosivity testing.</td>
</tr>
</tbody>
</table>

**Component: Tetramethylammonium hydroxide pentahydrate**

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>7 % (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A single 4h semi-occlusive application to intact rabbit skin produced burns (full thickness destruction of skin).</td>
</tr>
<tr>
<td></td>
<td>This material is corrosive.</td>
</tr>
<tr>
<td></td>
<td>No clinical signs of toxicity were observed.</td>
</tr>
<tr>
<td></td>
<td>Corrosive to aluminum per DOT corrosivity testing.</td>
</tr>
</tbody>
</table>

**Component: Tetramethylammonium hydroxide pentahydrate**

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>&lt;5% (w/v):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repeated application to rat skin for 6 h/d, 5 d/wk for 4 weeks did not produce systemic toxicity.</td>
</tr>
<tr>
<td></td>
<td>Test material was applied continuously through a reservoir affixed to shaved animal backs.</td>
</tr>
</tbody>
</table>

**Component: Tetramethylammonium hydroxide pentahydrate**

<table>
<thead>
<tr>
<th>Acute dermal toxicity</th>
<th>&gt;=5% (w/v):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repeated application to rat skin for 6h/d, 5d/wk for 4 weeks produced rapid toxicity and following effects:</td>
</tr>
<tr>
<td></td>
<td>convulsions</td>
</tr>
<tr>
<td></td>
<td>death</td>
</tr>
<tr>
<td></td>
<td>Effects were noted after 2 hours of initial application.</td>
</tr>
<tr>
<td></td>
<td>Test material was applied continuously through a reservoir affixed to shaved animal backs.</td>
</tr>
</tbody>
</table>

**Component: Tetramethylammonium hydroxide pentahydrate**
**Acute dermal toxicity**
LD50 guinea pig 25 mg/kg
100% (by weight).

**Component: Dimethyl sulfoxide**

**Skin irritation**
rabbit slight irritation

**Component: Dimethyl sulfoxide**

**Eye irritation**
rabbit Eye irritation

**Component: Dimethyl sulfoxide**

**Subchronic toxicity**
Studies have not revealed any evidence of skin sensitization effects.
Kligman maximisation test
Oral study (13 weeks, rat): LOEL = 8800 mg/kg/day (minor target organ effects: liver) (reduced body weight gain): NOEL = 1100 mg/kg/day

**Component: Dimethyl sulfoxide**

**Toxicity to reproduction**
Developmental effects were seen in laboratory animals only at oral dose levels that were maternally toxic (11,000 mg/kg).

**Component: Dimethyl sulfoxide**

**Mutagenicity**
No significant mutagenic response was observed and the carcinogenic potential of the material is therefore considered to be low.

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### 12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

**Dipropylene glycol monomethyl ether**

**Ecotoxicity effects**

**Toxicity to fish**
LC50
100 mg/l

**Toxicity to aquatic invertebrates**
EC50 Daphnia magna
500 mg/l

**Tetramethylammonium hydroxide pentahydrate**

**Ecotoxicity effects**

**Toxicity to aquatic invertebrates**
LC50 ceriodaphnia dubia (water flea) 96 h
0.07 - 1.2 mg/l
A pH neutralized solution has been shown to be toxic to aquatic organisms.

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### 13. DISPOSAL CONSIDERATIONS

**Environmental precautions**: Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

**Disposal**
Dispose in accordance with all local, state (provincial), and federal regulations. Incineration is the recommended method of disposal for containers. Under RCRA, it is the responsibility of the product's user to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous. Do not remove label until container is thoroughly cleaned. Empty containers may contain hazardous residues. This material and its container must be disposed of in a safe way.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

IMO/IMDG

Not regulated (Not dangerous for transport)

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations

15. REGULATORY INFORMATION

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Immediate, delayed, flammability hazard

SARA TITLE III: Section 313 Information (40CFR372)
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D):
U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D) This product contains the following substance(s) which are subject to Section 12(b) export notification:
TSCA_12b Components:

| Diphpropylene glycol monomethyl ether | 34590-94-8 |

US. Toxic Substances Control Act (TSCA) All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Hazard Rating</th>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFPA</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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Revision date 10/18/2004
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.