1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code 30670
Trade Name MEGAPosit MF-24A DEVELOPER
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 26 March 1998
MSDS data revised 10 May 1999
Prepared By: Gregory S. Dripps
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

<table>
<thead>
<tr>
<th>Component Name</th>
<th>CAS# / Codes</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>95.00 - 99.00</td>
</tr>
<tr>
<td>tetramethylammonium hydroxide</td>
<td>75-59-2</td>
<td>2.19</td>
</tr>
<tr>
<td>Polyglycol</td>
<td></td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

3. HAZARD IDENTIFICATION

Main Hazards - Irritant - Skin - Eye - Nervous System - Respiratory 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 - Respiratory System

Health Effects - Eyes Liquid, mist or vapor will cause conjunctival irritation and possibly corneal damage. Systemic effects similar to those resulting from skin contact may occur. Effects may be delayed for several hours.

Health Effects - Skin Material may cause irritation. Repeated or prolonged contact may cause chemical burns. Abnormal conditions such as prolonged
3. **HAZARD IDENTIFICATION**

- contact or absorption through burns or open wounds may have the following effects: - neurotoxicity - muscle spasms - convulsions - death  
  (See Section 11)

  **Health Effects - Ingestion**

  Swallowing may have the following effects:
  - irritation of mouth, throat and digestive tract
  - systemic effects similar to those resulting from skin contact

  **Health Effects - Inhalation**

  Exposure to vapor or mist may have the following effects:
  - 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 20 minutes, holding the eye open. Obtain medical attention immediately.

  **First Aid - Skin**

  Wash skin with water. Remove contaminated clothing as washing proceeds. Continue washing for at least 20 minutes. Obtain medical attention if blistering occurs or redness persists. Obtain medical attention if this product contacted abraded skin or open wounds.

  **First Aid - Ingestion**

  Wash out mouth with water. Do not induce vomiting. 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. Support respiration and blood pressure. Control seizures. Effects believed to be reversible if hypoxia and prolonged seizures are prevented.

5. **FIRE FIGHTING MEASURES**

  **Extinguishing Media**

  Use water spray, foam, dry chemical or carbon dioxide.

  **Special Fire-Fighting Procedures**

  None.

  **Unusual Fire & Explosion Hazards**

  None known.

  **Protective Equipment for Fire-Fighting**

  No special fire-fighting clothing required.
5. FIRE FIGHTING MEASURES

6. ACCIDENTAL RELEASE MEASURES

- **Spill Procedures**: Spills may be absorbed with appropriate absorbent material for alkaline materials.
- **Personal Precautions**: Wear appropriate protective clothing.
- **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. Storage area should be:
  - cool
  - dry
  - well ventilated
  - away from incompatible materials
- **Other**: No special precautions necessary.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- **Occupational Exposure Standards**
  - tetramethylammonium hydroxide: 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 not normally required. Respiratory protection if there is a risk of uncontrolled exposure to vapor. 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**: Neoprene or nitrile gloves. Other chemical resistant gloves may be recommended by your safety professional.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection  Chemical goggles.
Body Protection  Normal work wear.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear - Pale Yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Amine</td>
</tr>
<tr>
<td>VOC (g/l)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.001</td>
</tr>
<tr>
<td>pH</td>
<td>13</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
<td>100 / 212</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C/F)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Explosion Limits (%)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Completely soluble.</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>Data not available.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Slower than ether</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Equivalent to water.</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Conditions to Avoid</td>
<td>- contact with incompatible materials</td>
</tr>
<tr>
<td>Incompatibilities</td>
<td>- Acids - Strong oxidizing agents</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>- methanol - triethylamine - oxides of carbon - oxides of nitrogen</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Data</td>
<td>Tetramethylammonium hydroxide: 2.14% (by weight): A single 4h semi-cocclusive application to intact rabbit skin produced no signs of dermal irritation. No clinical</td>
</tr>
</tbody>
</table>
11. TOXICOLOGICAL INFORMATION

Signs of toxicity were observed during a 48h observation period. Testing complied with OECD Section 404 and EPA TSCA 40 CFR Part 798 standard protocols. DOT Corrosivity testing conducted on stainless steel and laboratory animals determined that this product is not corrosive.

Chronic/Subchronic Data
No relevant studies identified.

Genotoxicity
No relevant studies identified.

Reproductive/Developmental Toxicity
No relevant studies identified.

Additional Data
Tetramethylammonium hydroxide:
3.5% (by weight): A single 4h semi-occlusive application to intact rabbit skin produced minimal signs of irritation (mean scores for erythema or edema less than 2). No clinical signs of toxicity were observed during a 48h observation period. Testing complied with OECD Section 404 and EPA TSCA 40 CFR Part 798 standard protocols.

5% and 7% (by weight): A single 4h semi-occlusive application to intact rabbit skin produced burns (full thickness destruction of skin). This material is corrosive. No clinical signs of toxicity were observed during a 48h observation period. Testing complied with OECD Section 404 and EPA TSCA 40 CFR Part 798 standard protocols. Corrosive to aluminum per DOT corrosivity testing.

<5% (w/v): Repeated application to rat skin for 6 h/d, 5 d/wk, for 4 weeks did not produce systemic toxicity. Test material was applied continuously through a reservoir affixed to shaved animal backs.

>=5% (w/v): Repeated application to rat skin for 6h/d, 5 d/wk, for 4 weeks produced rapid systemic toxicity with the following effects: - convulsions - death
Effects were noted after 2 hours of initial application. Test material was applied continuously through a reservoir affixed to shaved animal backs.

100% (by weight): Dermal LD50 (guinea pig) 25mg/kg.

12. ECOLOGICAL INFORMATION

Mobility
The product will dissolve rapidly in water. The product will leach into
12. ECOLOGICAL INFORMATION

Persistence/Degradability  If neutralized, this material may be biodegradable.

Bio-accumulation       If neutralized, this material may be biodegradable.

Ecotoxicity          Do not discharge directly to surface water.
                      Tetramethylammonium hydroxide: A pH neutralized solution has been shown to be toxic to aquatic organisms. Tests on the following species gave a 96h LC50 of 0.07-1.2mg/litre:
                      - ceriodaphnia dubia (water flea)

13. DISPOSAL CONSIDERATIONS

Product Disposal       Do not discharge directly to surface water. 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: Not Regulated
UN Proper Shipping Name None.
UN Class None.
UN Number None.
UN Packaging Group None.
N.O.S. 1: Not applicable.
N.O.S. 2: Not applicable.
Subsidiary Risks None.
ADR/RID Substance None assigned.
Identification Number None.
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 been granted in accordance with 40 CFR 723.50. This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

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

WHMIS Classification
D.2.B

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 health 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 0
NFPA Rating- HEALTH 3
NFPA Rating- REACTIVITY 0
NFPA Rating- SPECIAL None.

Revisions Highlighted
Composition/Information on the Components
Hazard Identification
First Aid Measures
Hazardous Decomposition Products
Toxicological Information
NFPA Rating-HEALTH

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
16. OTHER INFORMATION

STE: Short Term Exposure Limit
NTP: National Toxicology Program
IARC: International Agency for Research on Cancer
R: Risk
S: Safety
LD50: Lethal Dose 50%
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.