1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Code 30100
Trade Name MICROPOSIT DEVELOPER CONCENTRATE
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 September 1996
MSDS data revised 8 June 1999
Prepared By: Environmental, Health & Safety Department
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>90.00 - 95.00</td>
</tr>
<tr>
<td>Alkaline-phospate salt</td>
<td></td>
<td>1.00 - 5.00</td>
</tr>
<tr>
<td>Silicate compound</td>
<td></td>
<td>1.00 - 5.00</td>
</tr>
</tbody>
</table>

3. HAZARD IDENTIFICATION

Main Hazards - Irritant - Skin - Eye - Respiratory System - Kidney
Routes of Entry Inhalation, ingestion, eye and skin contact.
Carcinogenic Status Not considered carcinogenic by NTP, IARC and OSHA
Target Organs - Skin - Eye - Respiratory System - Kidney
Health Effects - Eyes Liquid, mist or vapor will cause conjunctival irritation and possibly corneal damage.
Health Effects - Skin Material will cause severe irritation and may cause chemical burns. Repeated or prolonged contact may produce defatting of the skin leading to irritation and dermatitis.
Health Effects - Ingestion Swallowing may have the following effects:
3. HAZARD IDENTIFICATION

- severe irritation of mouth, throat and digestive tract - kidney damage

Health Effects - Inhalation
Exposure to vapor or mist may have the following effects:
- severe irritation of nose, throat and respiratory tract
Exposure to vapor at high concentrations may have the following effects:
- lung damage - kidney damage

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
Immediately flush the skin with large quantities of water, preferably under a shower. Remove contaminated clothing while flushing skin. Continue washing for at least 15 minutes. Contaminated clothing should be washed or dry-cleaned before re-use. 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. Obtain medical attention immediately

Advice to Physicians
Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media
Not readily combustible. Select extinguishing agent appropriate to other materials involved.

Special Fire-Fighting Procedures
None.

Unusual Fire & Explosion Hazards
None.

Protective Equipment for Fire-Fighting
No special fire-fighting clothing required.
6. ACCIDENTAL RELEASE MEASURES

Spill Procedures  Contain and absorb using earth, sand or other inert material.

Personal Precautions  Wear appropriate protective clothing.

Environmental Precautions  None known.

7. HANDLING AND STORAGE

Handling  Use in well ventilated area.

Storage  Store in original containers. Storage area should be:
- cool  - dry  - well ventilated  - out of direct sunlight

Other  None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Standards  
Alkaline-phosphate salt  None assigned.

Silicate compound  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  Neoprene or nitrile gloves. Other chemical resistant gloves may be recommended by your safety professional.

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>Almost colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>VOC (g/l)</td>
<td>None.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.0-1.1</td>
</tr>
<tr>
<td>pH</td>
<td>&gt;12</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
<td>begins at 120 °C.</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C/F)</td>
<td>Not Flammable</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>Heavier than air.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Slower than ether</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable.</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></td>
<td>- Exposure to direct sunlight</td>
</tr>
<tr>
<td>Incompatibilities</td>
<td>- Acids</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
<tr>
<td>Hazardous Decomposition</td>
<td>- oxides of phosphorus</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Data</td>
<td>Silicate compound: Oral LD50 (rat) 1280mg/kg. A single 4h semi-occlusive application to intact rabbit skin produced severe irritation (mean scores for erythema or edema much greater than 2).</td>
</tr>
<tr>
<td>Chronic/Subchronic Data</td>
<td>No relevant studies identified.</td>
</tr>
<tr>
<td>Genotoxicity</td>
<td>No adverse effects are expected.</td>
</tr>
<tr>
<td>Reproductive/Developmental</td>
<td>No adverse reproductive or fetal developmental effects are expected.</td>
</tr>
<tr>
<td>Toxicity</td>
<td></td>
</tr>
</tbody>
</table>
11. **TOXICOLOGICAL INFORMATION**

   **Additional Data**
   No relevant information known.

12. **ECOLOGICAL INFORMATION**

   **Mobility**
   The product is involatile and water soluble and will partition to the aqueous phase. The product is poorly absorbed onto soils or sediments.

   **Persistence/Degradability**
   The product is expected to be readily biodegradable.

   **Bio-accumulation**
   Product is not expected to bioaccumulate.

   **Ecotoxicity**
   Silicate compound: Tests on the following species gave a 96h LC50 of 530mg/litre:
   - mosquito fish
   Tests on the following species gave a 48h LC50 of 113mg/litre:
   - ceriodaphnia dubia (water flea)

13. **DISPOSAL CONSIDERATIONS**

   **Product 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:**
   Not Regulated

   **UN Proper Shipping Name**
   Not Regulated

   **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 Identification Number**
   None assigned.
### 14. TRANSPORT INFORMATION

| **CERCLA RQ** | None. |
| **Marine Pollutant** | None. |

### 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. |
| **TSCA Exemptions** |  |
| **TSCA Sec.12(b) Export Notification** | This product does not contain any substances subject to Section 12(b) export notification. |
| **WHMIS Classification** | None. |
| **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 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** | 1 |
| **NFPA Rating- REACTIVITY** | 0 |
| **NFPA Rating- SPECIAL** | None. |
| **Revisions Highlighted** | Hazard Identification, First Aid Measures, Toxicological Information, Ecological Information |

**Abbreviations**

- **N/A**: Denotes no applicable information was found.
- **CAS#**: Chemical Abstract Services Number
- **ACGIH**: American Conference of Governmental Industrial Hygienists
16. OTHER INFORMATION

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

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