1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Code</th>
<th>43040287</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Name</td>
<td>Shipley BPR Developer</td>
</tr>
<tr>
<td>Manufacturer/Supplier</td>
<td>Shipley Company</td>
</tr>
<tr>
<td>Address</td>
<td>455 Forest St.</td>
</tr>
<tr>
<td></td>
<td>Marlborough, Massachusetts 01752</td>
</tr>
<tr>
<td>Phone Number</td>
<td>(508) 481-7950</td>
</tr>
<tr>
<td>Emergency Phone Number</td>
<td>(508) 481-7950</td>
</tr>
<tr>
<td>Chemtrec #</td>
<td>(800) 424-9300</td>
</tr>
<tr>
<td>MSDS first issued</td>
<td>13 December 2001</td>
</tr>
<tr>
<td>MSDS data revised</td>
<td></td>
</tr>
<tr>
<td>Prepared By:</td>
<td>Environmental, Health &amp; Safety Department</td>
</tr>
<tr>
<td>Local Sales Company</td>
<td>Shipley Company, 455 Forest Street, Marlboro, MA 01752</td>
</tr>
<tr>
<td></td>
<td>(508-481-7950)</td>
</tr>
</tbody>
</table>

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>lactic acid</td>
<td>50-21-5</td>
<td>&lt; 80.00</td>
</tr>
<tr>
<td>Alkoxylated alcohols</td>
<td></td>
<td>&lt; 10.00</td>
</tr>
<tr>
<td>water</td>
<td>7732-18-5</td>
<td>&gt; 10.00</td>
</tr>
</tbody>
</table>

3. HAZARD IDENTIFICATION

Main Hazards: - Corrosive - Skin - Eye - Respiratory System

Routes of Entry: Inhalation, ingestion, eye and skin contact.

Carcinogenic Status: Not considered carcinogenic by NTP, IARC and OSHA

Target Organs: - Eye - Skin - Respiratory System

Health Effects - Eyes: Liquid will cause severe conjunctival irritation, corneal damage, and may result in loss of vision. Vapor or mist will cause severe conjunctival irritation and corneal damage.

Health Effects - Skin: Material will cause chemical burns.

Health Effects - Ingestion: Swallowing may have the following effects:
- corrosion of mouth, throat and digestive tract

Health Effects - Inhalation: Exposure to vapor or mist may have the following effects:
- severe irritation of nose, throat and respiratory tract
3. HAZARD IDENTIFICATION

Exposure to mist at high concentrations may have the following effects:
- severe irritation to nose, throat and respiratory tract and possibly lung damage

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**
Immediately flush the skin with large quantities of water, preferably under a shower. Remove contaminated clothing while flushing skin. Continue washing for at least 20 minutes. Contaminated clothing should be washed or dry-cleaned before re-use. Obtain medical attention immediately.

**First Aid - Ingestion**
Do not induce vomiting. Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. If vomiting occurs naturally, lean victim forward to reduce risk of aspiration. Repeat administration of water. Obtain medical attention immediately. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing.

**First Aid - Inhalation**
Remove from exposure. If there is difficulty in breathing, give oxygen. Obtain medical attention immediately

**Advice to Physicians**
Treat symptomatically. Treat skin burns conventionally. Avoid aspiration.

5. FIRE FIGHTING MEASURES

**Extinguishing Media**
Use water spray, foam, dry chemical or carbon dioxide.

**Special Fire-Fighting Procedures**
No specific measures necessary.

**Unusual Fire & Explosion Hazards**
None known.

**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.
6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**
Wear appropriate protective clothing. Wear respiratory protection.

**Environmental Precautions**
Prevent the material from entering drains or water courses. Advise Authorities if spillage has entered water course or sewer or has contaminated soil or vegetation.

7. HANDLING AND STORAGE

**Handling**
Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Emergency shower and eye wash facilities should be readily available. Avoid inhaling vapor. Keep container tightly closed when not in use.

**Storage**
Store in original containers. Storage area should be:
- cool
- dry
- well ventilated
- out of direct sunlight
- away from incompatible materials

**Other**
None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Standards**
None assigned.

**Lactic acid**

**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 and face shield.

**Body Protection**
- rubber or neoprene apron
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>Colorless - Straw colored</td>
</tr>
<tr>
<td>Odor</td>
<td>Mild</td>
</tr>
<tr>
<td>VOC (g/l)</td>
<td>0.0</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.19</td>
</tr>
<tr>
<td>pH</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Boiling Range/Point (°C/F)</td>
<td>Decomposes before boiling.</td>
</tr>
<tr>
<td>Flash Point (PMCC) (°C/F)</td>
<td>Corrosive</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>Not applicable.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable.</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 - heat</td>
</tr>
<tr>
<td>Incompatibilities</td>
<td>- Strong oxidizing agents - Strong reducing agents - Strong bases - Strong acids - Mild steel</td>
</tr>
<tr>
<td>Hazardous Polymerization</td>
<td>Will not occur.</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>- carbon monoxide - carbon dioxide - smoke and fumes</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Data</td>
<td>Lactic Acid: Oral LD50 (rat) 7600mg/kg. Dermal LD50 (rat) 7940mg/kg. This material is corrosive to the eye. This material is corrosive to skin.</td>
</tr>
<tr>
<td>Chronic/Subchronic Data</td>
<td>No relevant studies identified.</td>
</tr>
<tr>
<td>Genotoxicity</td>
<td>Lactic acid: Not mutagenic when tested in bacterial or mammalian systems.</td>
</tr>
<tr>
<td>Reproductive/Developmental Toxicity</td>
<td>No relevant studies identified.</td>
</tr>
<tr>
<td>Additional Data</td>
<td>None.</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>The product will dissolve rapidly in water. The product is poorly absorbed</td>
</tr>
</tbody>
</table>
12.  ECOLOGICAL INFORMATION

- Persistence/Degradability: The product is expected to be readily biodegradable.
- Bio-accumulation: Product is not expected to bioaccumulate.
- Ecotoxicity: The product may be harmful to aquatic organisms.

13.  DISPOSAL CONSIDERATIONS

- Product Disposal: Dispose of in accordance with all applicable local and national regulations. If discarded in its purchased form, this product would be considered a RCRA hazardous waste because it exhibits the corrosivity characteristic (D002).
- 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: Corrosive liquid, acidic, organic, n.o.s.
- UN Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s.
- UN Class: (8) Corrosive
- UN Number: UN3265
- UN Packaging Group: II
- N.O.S. 1: Lactic Acid
- N.O.S. 2: Not applicable.
- Subsidiary Risks: None.
- 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. This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).
- TSCA Exemptions: None.
- TSCA Sec.12(b) Export Notification: This product does not contain any substances subject to Section 12(b) export notification.
15. REGULATORY INFORMATION

WHMIS Classification
California Proposition 65

E

This product contains the following chemicals that have been found by the State of California to cause cancer, birth defects or other reproductive harm:
- Ethylene Oxide (trace)
- Propylene Oxide (trace)

SARA TITLE III-Section 311/312 Categorization (40 CFR 370)
SARA TITLE III-Section 313 (40 CFR 372)

Immediate health hazard

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
2

NFPA Rating- REACTIVITY
0

NFPA Rating- SPECIAL
None.

Revisions Highlighted

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%
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.