1. PRODUCT AND COMPANY IDENTIFICATION

MICROPOSIT™ MF™ -CD-26 DEVELOPER

Supplier
ROHM AND HAAS ELECTRONIC MATERIALS LLC
A Subsidiary of The Dow Chemical Company
455 FOREST STREET
MARLBOROUGH, MA 01752 United States

For non-emergency information contact: 215-592-3000

Emergency telephone number
1 800 424 9300

Local emergency telephone number
989-636-4400

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2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>90.0 - 99.0%</td>
</tr>
<tr>
<td>Tetramethylammonium hydroxide</td>
<td>75-59-2</td>
<td>1.0 - 5.0 %</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form  liquid
Colour  clear
Odour  Amines
Hazard Summary

**WARNING!**
Alkaline liquid and vapor. Causes skin, eye, and respiratory tract irritation. Onset of symptoms may be delayed. Prolonged, repeated contact, inhalation, ingestion, or absorption through the skin, may cause adverse 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: central nervous system depression drowsiness defatting of skin leading to irritation and dermatitis

**Ingestion:** Swallowing may have the following effects: irritation of mouth, throat and digestive tract Repeated doses may have the following effects: central nervous system depression drowsiness

**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 Skin nervous system

4. FIRST AID MEASURES

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

**Skin contact:** Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists. Wash clothing before reuse.

**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. FIREFIGHTING MEASURES

Flash point  not applicable  
Lower explosion limit  not applicable  
Upper explosion limit  not applicable  

Suitable extinguishing media: Not readily combustible. Select extinguishing agent appropriate to other materials involved.

Specific hazards during firefighting: No specific measures necessary.

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

Further information: This product may give rise to hazardous vapors in a fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear suitable protective clothing.

Environmental precautions
Prevent the material from entering drains or water courses. 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.

7. HANDLING AND STORAGE

Handling
Use only in well-ventilated areas.

Storage
Storage conditions: Store in original container. Storage area should be: cool dry well ventilated out of direct sunlight
Further information on storage conditions: No special precautions necessary.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)
Exposure limits are listed below, if they exist.

Exposure controls
**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.

**Individual protection measures**

- **Eye/face protection:** Goggles

- **Skin protection**

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

  - **Other 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.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>clear</td>
</tr>
<tr>
<td>Odour</td>
<td>Amines</td>
</tr>
<tr>
<td>pH</td>
<td>13</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>100 °C (212 °F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Slower than ether</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>not applicable</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Similar to water</td>
</tr>
</tbody>
</table>

Component: **Tetramethylammonium hydroxide**

- **Vapour pressure**
  
  17.5 mmHg at 20 °C (68 °F)

- **Relative vapour density**
  
  no data available

- **Relative density**
  
  1.00

- **Water solubility**
  
  completely soluble

**VOC’s**

not applicable

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

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**10. STABILITY AND REACTIVITY**
Hazardous reactions  Stable under normal conditions.

Conditions to avoid  contact with incompatible materials

Materials to avoid  Strong oxidizing agents  Acids

Hazardous decomposition products  triethylamine, nitrogen oxides (NOx), oxides of carbon, Methanol, polymerisation  Will not occur.

11. TOXICOLOGICAL INFORMATION

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

Component: Tetramethylammonium hydroxide

Acute oral toxicity  LD50 rat male 34 - 50 mg/kg

Component: Tetramethylammonium hydroxide

Acute dermal toxicity  > 2,000 mg/kg

Component: Tetramethylammonium hydroxide

Acute dermal toxicity  LD50 rat 449 mg/kg

Component: Tetramethylammonium hydroxide

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

Acute dermal toxicity  3.5 %(m)
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.

Component: Tetramethylammonium hydroxide
Acute dermal toxicity 5 % (m)
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.
Corrosive to aluminum per DOT corrosivity testing.

Component: Tetramethylammonium hydroxide
Acute dermal toxicity 7 % (m)
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.
Corrosive to aluminum per DOT corrosivity testing.

Component: Tetramethylammonium hydroxide
Acute dermal toxicity <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.

Component: Tetramethylammonium hydroxide
Acute dermal toxicity >=5% (w/v):
Repeated application to rat skin for 6h/d, 5d/wk for 4 weeks produced rapid toxicity and 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.

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

Component: Tetramethylammonium hydroxide
Skin irritation This material is corrosive.
Component: Tetramethylammonium hydroxide
Eye irritation This material is corrosive.

12. ECOLOGICAL INFORMATION

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

Tetramethylammonium hydroxide
Elimination information (persistence and degradability)
<table>
<thead>
<tr>
<th><strong>Biodegradability</strong></th>
<th>OECD Test Guideline 301B or Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 60 % Readily biodegradable</td>
</tr>
<tr>
<td></td>
<td>10-day Window: Pass</td>
</tr>
</tbody>
</table>

**Ecotoxicity effects**

<table>
<thead>
<tr>
<th>Toxicity to aquatic invertebrates</th>
<th>EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 or Equivalent 13.9 mg/l Calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to aquatic invertebrates</td>
<td>EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 or Equivalent 12 mg/l</td>
</tr>
</tbody>
</table>

### 13. DISPOSAL CONSIDERATIONS

**Environmental precautions:** Prevent the material from entering drains or water courses. 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. 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

**Classification for SEA transport (IMO-IMDG):**

Not regulated for transport

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

### 15. REGULATORY INFORMATION

**Workplace Classification**

OSHA: Irritant

Target organ effects

**SARA TITLE III: Section 311/312 Categorizations (40CFR370):** Immediate (acute) Health 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.

United States TSCA Inventory (US.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

NFPA Hazard Rating

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Legend

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>American Conference of Governmental Industrial Hygienists</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAc</td>
<td>Butyl acetate</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit (STEL):</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
</tr>
</tbody>
</table>

Bar denotes a revision from prior MSDS.

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.

Version: 1.1
Print Date: 02/19/2014