



**MATERIAL SAFETY DATA SHEET**  
**MICROPOSIT MF-319 DEVELOPER**  
 38460 4.00 US US MSDS\_US

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**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**


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<b>Product Code</b>	38460
<b>Trade Name</b>	MICROPOSIT MF-319 DEVELOPER
<b>Manufacturer/Supplier</b>	Shipley Company
<b>Address</b>	455 Forest St. Marlborough, Massachusetts 01752
<b>Phone Number</b>	(508) 481-7950
<b>Emergency Phone Number</b>	(508) 481-7950
<b>Chemtrec #</b>	(800) 424-9300
<b>MSDS first issued</b>	3 July 1996
<b>MSDS data revised</b>	10 May 1999
<b>Prepared By:</b>	Gregory S. Dripps
<b>Local Sales Company</b>	Shipley Company, 455 Forest Street, Marlboro, MA 01752 (508-481-7950)

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**2. COMPOSITION/INFORMATION ON THE INGREDIENTS**


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Components without CAS numbers are Trade Secret

Component Name	CAS# / Code	Concentration
water	7732-18-5	97.00 - 98.00
Surfactant		0.01 - 1.00
tetramethylammonium hydroxide	75-59-2	2.28

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**3. HAZARD IDENTIFICATION**


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<b>Main Hazards</b>	- Irritant - Skin - Eye - Nervous System - Respiratory System
<b>Routes of Entry</b>	Inhalation, ingestion, eye and skin contact, absorption.
<b>Carcinogenic Status</b>	Not considered carcinogenic by NTP, IARC and OSHA
<b>Target Organs</b>	- Skin - Eye - Nervous System - Respiratory System
<b>Health Effects - Eyes</b>	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.
<b>Health Effects - Skin</b>	Material may cause irritation. Repeated or prolonged contact may cause chemical burns. Abnormal conditions such as prolonged contact or absorption through burns or open wounds may have the following effects: - neurotoxicity - muscle spasms - convulsions - death (See Section 11)



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### 3. HAZARD IDENTIFICATION

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<b>Health Effects - Ingestion</b>	Swallowing may have the following effects: - irritation of mouth, throat and digestive tract - systemic effects similar to those resulting from skin contact
<b>Health Effects - Inhalation</b>	Exposure to vapor or mist may have the following effects: - irritation of nose, throat and respiratory tract

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### 4. FIRST AID MEASURES

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<b>First Aid - Eyes</b>	Immediately flush the eye with plenty of water for at least 20 minutes, holding the eye open. Obtain medical attention immediately.
<b>First Aid - Skin</b>	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.
<b>First Aid - Ingestion</b>	Wash out mouth with water. Do not induce vomiting. Obtain medical attention.
<b>First Aid - Inhalation</b>	Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.
<b>Advice to Physicians</b>	Treat symptomatically. Support respiration and blood pressure. Control seizures. Effects believed to be reversible if hypoxia and prolonged seizures are prevented.

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### 5. FIRE FIGHTING MEASURES

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<b>Extinguishing Media</b>	Use water spray, foam, dry chemical or carbon dioxide.
<b>Special Fire-Fighting Procedures</b>	None.
<b>Unusual Fire &amp; Explosion Hazards</b>	None known.
<b>Protective Equipment for Fire-Fighting</b>	No special fire-fighting clothing required.



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## 6. ACCIDENTAL RELEASE MEASURES

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<b>Spill Procedures</b>	Spills may be absorbed with appropriate absorbent material for alkaline materials.
<b>Personal Precautions</b>	Wear appropriate protective clothing.
<b>Environmental Precautions</b>	Prevent the material from entering drains or water courses.

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## 7. HANDLING AND STORAGE

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<b>Handling</b>	Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed when not in use.
<b>Storage</b>	Store in original containers. Storage area should be: - cool - dry - well ventilated - away from incompatible materials
<b>Other</b>	No special precautions necessary.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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<b>Occupational Exposure Standards</b>	
tetramethylammonium hydroxide	None assigned.
<b>Engineering Control Measures</b>	Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.
<b>Respiratory Protection</b>	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.
<b>Hand Protection</b>	Neoprene or nitrile gloves. Other chemical resistant gloves may be recommended by your safety professional.
<b>Eye Protection</b>	Chemical goggles.
<b>Body Protection</b>	Normal work wear.



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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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

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## 10. STABILITY AND REACTIVITY

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Stability	Stable under normal conditions.
Conditions to Avoid	- contact with incompatible materials
Incompatibilities	- Acids - Strong oxidizing agents
Hazardous Polymerization	Will not occur.
Hazardous Decomposition Products	- methanol - triethylamine - oxides of carbon - oxides of nitrogen

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## 11. TOXICOLOGICAL INFORMATION

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Acute Data	Tetramethylammonium hydroxide: 2.14% (by weight): A single 4h semi-occlusive application to intact rabbit skin produced no signs of dermal irritation. 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. 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.



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**11. TOXICOLOGICAL INFORMATION**

**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.

used burns (full thickness destruction of skin) were observed. No clinical signs of toxicity were observed during a 48h observation period. Testing complied with EPA TSCA 40 CFR Part 798 standard protocols. Corrosive to aluminum per DOT corrosivity testing.

5% and 7% (by weight): A single 4h semi-occlusive application to

intact rabbit skin produced severe burns (full thickness destruction of skin). This material is corrosive to aluminum per DOT corrosivity testing. 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

Repeated application to rat skin for 6 h/d, 5 d/wk, for 4 weeks produced no systemic toxicity. Test material was applied through a reservoir affixed to shaved animal backs.

<5% (w/v): Repeated application to rat skin for 6 h/d, 5 d/wk, for 4 weeks produced no systemic toxicity. Test material was applied through a reservoir affixed to shaved animal backs.

Repeated application to rat skin for 6h/d, 5 d/wk, for 4 weeks produced systemic toxicity with the following effects:

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

After 2 hours of initial application. Test material was applied through a reservoir affixed to shaved animal backs.

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

Dermal LD50 (guinea pig) 25mg/kg.

**12. ECOLOGICAL INFORMATION**

**Mobility**

The product will dissolve rapidly in water. The product will leach into soil.

**Persistence/Degradability**

If neutralized, this material may be biodegradable.

**Bio-accumulation**

If neutralized, this material may be biodegradable.

**Ecotoxicity**

Do not discharge directly into surface water. A pH neutralized solution has been shown to be toxic to aquatic organisms. Tests on the 96h LC50 of 0.07-1.2mg/litre: (rain flea)

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### 13. DISPOSAL CONSIDERATIONS

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<b>Product Disposal</b>	Do not discharge directly to surface water. Dispose of in accordance with all applicable local and national regulations.
<b>Container Disposal</b>	Labels should not be removed from containers until they have been cleaned. Empty containers may contain hazardous residues. Dispose of containers with care.

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### 14. TRANSPORT INFORMATION

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<b>DOT Ground:</b>	Not Regulated
<b>UN Proper Shipping Name</b>	None.
<b>UN Class</b>	None.
<b>UN Number</b>	None.
<b>UN Packaging Group</b>	None.
<b>N.O.S. 1:</b>	Not applicable.
<b>N.O.S. 2:</b>	Not applicable.
<b>Subsidiary Risks</b>	None.
<b>ADR/RID Substance Identification Number</b>	None assigned.
<b>CERCLA RQ</b>	None.
<b>Marine Pollutant</b>	No.

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### 15. REGULATORY INFORMATION

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<b>TSCA Listed</b>	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).
<b>TSCA Exemptions</b>	
<b>TSCA Sec.12(b) Export Notification</b>	This product does not contain any substances subject to Section 12(b) export notification.
<b>WHMIS Classification</b>	D.2.B
<b>MA Right To Know Law</b>	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.
<b>California Proposition 65</b>	This product does not contain materials which the State of



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**15. REGULATORY INFORMATION**

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	California has been found to cause cancer, birth defects or other reproductive harm.
SARA TITLE III-Section 311/312 Categorization (40 CFR 378)	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.

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**16. OTHER INFORMATION**

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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 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 Koc: Soil Organic Carbon Partition Coefficient. TLm: Median Tolerance Limit
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**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.