



Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

MICROPOSIT™ MF™ -319 DEVELOPER

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Supplier ROHM AND HAAS ELECTRONIC MATERIALS LLC
A Subsidiary of The Dow Chemical Company
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Emergency telephone number
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Local emergency telephone number
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Water	7732-18-5	95.0 - 99.0 %
Tetramethylammonium hydroxide	75-59-2	1.0 - 5.0 %
Polyalkylene glycol		< 1.0 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

Form liquid
Colour colourless
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

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA

4. FIRST AID MEASURES

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

Skin contact: Wash skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.

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. 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

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.
Do not discharge directly to a water source.
Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods for cleaning up
Cover with absorbent or contain. Collect and dispose.

7. HANDLING AND STORAGE

Handling
Use only in well-ventilated areas. Avoid breathing vapor. Avoid contact with eyes, skin and clothing. Keep container tightly closed.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	colourless
Odour	Amines
pH	13
Boiling point/boiling range	100 °C (212 °F)
Flash point	not applicable
Evaporation rate	Slower than ether

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.

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions.
Hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	contact with incompatible materials
Materials to avoid	Acids. Oxidizers
Hazardous decomposition products	Methanol, nitrogen oxides (NO _x), oxides of carbon,
polymerisation	Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

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

Carcinogenicity:

Not considered carcinogenic by NTP, IARC, and OSHA

Component: **Tetramethylammonium hydroxide**

Acute oral toxicity LD50 rat 175 mg/kg

Component: **Tetramethylammonium hydroxide**

Acute oral toxicity Moderate toxicity if swallowed.
Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause serious injury, even death.

Component: **Tetramethylammonium hydroxide**

Acute inhalation toxicity No adverse effects are anticipated from single exposure to dust.

Component: **Tetramethylammonium hydroxide**

Acute dermal toxicity LD50 rat > 50 - < 200 mg/kg

Component: **Tetramethylammonium hydroxide**

Acute dermal toxicity Prolonged or widespread skin contact may result in absorption of amounts which could cause death.

Component: **Tetramethylammonium hydroxide**

Skin irritation Causes severe burns.
Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Component: **Tetramethylammonium hydroxide**

Eye irritation Corrosive
May cause severe eye irritation.

Component: **Tetramethylammonium hydroxide**
Sensitisation No relevant data found.

Component: **Tetramethylammonium hydroxide**
Sensitisation No relevant data found.

Component: **Tetramethylammonium hydroxide**
Subchronic toxicity In animals, effects have been reported on the following organs:
Central nervous system.

Component: **Tetramethylammonium hydroxide**
Carcinogenicity: No relevant data found.

Component: **Tetramethylammonium hydroxide**
Reproductive toxicity
No relevant data found.

Component: **Tetramethylammonium hydroxide**
Teratogenicity
No relevant data found.

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)

Biodegradability OECD Test Guideline 301B or Equivalent Not biodegradable.
> 60 %
Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Ecotoxicity effects

Toxicity to aquatic invertebrates EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 or Equivalent
12 mg/l

13. DISPOSAL CONSIDERATIONS

Environmental precautions: Prevent the material from entering drains or water courses.
Do not discharge directly to a water source.
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

WHMIS: This product is a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Immediate 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

Health	Fire	Reactivity
3	0	0

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
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BAC	Butyl acetate
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit (STEL):
TLV	Threshold Limit Value
TWA	Time Weighted Average (TWA):
	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.

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