MATERIAL SAFETY DATA SHEET

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SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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MANUFACTURER/SUPPLIER NAME: Clariant Corporation, AZ Electronic Materials PO Box 3700, 70 Meister Avenue Somerville, NJ 08876-1258

TELEPHONE NUMBERS:

Emergency-CHEMTREC: (800) 424-9300 Product Safety Information: (908) 429-3593 Customer Service: (800) 515-4164

PRODUCT NAME: SYNONYMS:

AZ(R) 300 MIF DEVELOPER
None

MSDS NO.
REVISION DATE: DATE PRINTED:

70N4
11/23/1999 07/19/2000

SECTION 2. COMPOSITION/INFORMA TION ON INGREDIENTS

Chemical Name & CAS Weight Percent
____Number

Hazardous?

NJ Trade Secret #

Ingredient
Synonyms

Tetramethylammonium
hydroxide 000075-59-2

2

Yes

No

TMAH

Chemical Name & CAS Weight Percent Number

NJ Trade Secret #

Hazardous?

Ingredient Synonyms

Water 007732-18-5

>95

No

NA

None

SECTION 3. HAZARDS IDENTIFICATION

Other Information:

None

Other Information:

NJ/PA RTK listings.
Not on any other state
RTK list.

EMERGENCY OVERVIEW:
Clear liquid with slight amine odor. Noncombustible. Water soluble. Causes moderate skin irritation. Causes moderate eye irritation.

°OTENTIAL HEALTH EFFECTS:

Eye:

Causes moderate eye irritation.
Skin:
Causes moderate skin irritation.
Ingestion:
May be harmful if swallowed.
Inhalation:
No hazard in normal industrial use.
Systemic Effects:
No hazard in normal industrial use.
Reproductive & birth defects:
No information.
Relevant Routes of Exposure:
Liquid and mist contact with skin and eyes. Inhalation of mist.
Medical Conditions Aggravated:
Preexisting skin and eye conditions may be aggravated.

ENVIRONMENTAL OVERVIEW:
Toxic or highly toxic to fish and daphnids. Resistant to biodegradation.

SECTION 4. FIRST AID MEASURES

FIRST AID PROCEDURES:

Inhalation:
1emove victim to fresh air. Consult physician if irritation occurs.
Eye Contact:
Flush thoroughly with water for 15 minutes. Get immediate medical help.
Skin Contact:
Immediately remove contaminated clothing and wash affected area thoroughly with soap and water. Consult physician if exposure is extensive or if irritation occurs.
Ingestion:
If person is conscious. give water or milk to dilute stomach contents. Never give anything by mouth to an unconscious person. Do not induce vomiting. Consult physician.

SECTION 5. FIRE FIGHTING MEASURES

Noncombustible. Water-based material with low organic content. Compatible with extinguishing agents.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:
Wearing appropriate personal protective equipment, contain spill, collect onto inert absorbent, and place in a suitable container. Rinse residual with water.

SECTION 7. HANDLING AND STORAGE

Handling:
Jse only with adequate ventilation and proper protective eyewear, gloves, and clothing.
Storage:
Store in original container. Store at appropriate temperature. See label for details. Keep from freezing.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:
Where mist is present, provide local exhaust ventilation or a respirator certified for mist by NIOSH. Personal Protective Equipment (PPE):
Clothing suitable to prevent skin contact. Safety eyewear to protect against splashes. Rubber gloves.

Exposure Guidelines:

Chemical Name & CAS Number

Weight Percent

Manufacturer's TWA TLV* | ACGIH TWA TLV*

OSHA PEL *

NIOSH REL.

Tetramethylammonium hydroxide 000075-59-2

Chemical Name & CAS

Number

Weight Percent

Manufacturer's TWA TLV* | ACGIH TWA TLV* | OSHA PEL*

NIOSH REL *

Water 007732-18-5

>95

AIHA WEEL *

AIHA WEEL *

***TWA TLV = Time Weighted Average Threshold Limit Value**
ACGIH = American Conference of Govemmentallndustrial Hygienists
OSHA PEL = Occupational Safety and Health Administration Permissable Exposure Limit
NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Umit
AIHA WEEL = American Industrial Hygiene Association Workplace Environmental Exposure Level
"Skin Notation
".Hoechst Celanese Workplace Exposure Level (HCC WEL); induded is a -no contaa- recommendation for NMP due to its skin absorption properties.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear. colorless liquid. Odor: Slight amine odor.
Physical State: Liquid with dissolved solids. pH 13.3
Vapor Pressure aprox the same as water Boiling Point: 100 deg C.
Solubility in water: Soluble.
Specific gravity: 1.0
Evaporation rate
(butyl acetate=1): approx same as water
0;. Volatile: 98

SECTION 10. STABILITY AND REACTIVITY

~hemical Stability:
Stable.
Hazardous Polymerization:

Will not occur.
Conditions to Avoid:
Avoid contact with strong acids. This product is expected, by test or analogy, to slowly attack aluminum and perhaps other nonferrous metals, releasing hydrogen gas.
Hazardous Decomposition Products:
If heated to dryness, TMAH may decompose to trimethylamine and methanol. TMAH reportedly decomposes in boiling water, rate unknown.

SECTION 11. TOXICOLOGICAL INFORMATION

Carcinogen:
IARC: NO

NTP: NO

OSHA: NO

Ingredient Toxicity Data:

Chemical Name & CAS Number

Weight Percent

oral rat LD50

skin rot LD50

T etramethyianvnonium hydroxide 000075-59-2

2

50 mg/kg as TMAH d11~ salt

25 mg/kg (g pig)

Chemical Name & CAS Number

Weight Percent

oral rat LD50

skin rot LD50

Water 007732-18-5

>95

TOXICITY HAZARD STATEMENTS FOR PRODUCT:

Inh rat LCSO

Inh rat LCSO

Eye Effects:
Testing in rabbits of a similar product suggests that this material is a moderate eye irritant.
Skin Effects:
Testing in rabbits of a similar product suggests that this material is a moderate skin irritant. D.O.T. four hour rabbit skin test of the highest commercial concentration of this product was negative for skin corrosion.
Acute Oral Effects:
Testing in animals shows that this material is hannful (rat acute orallD50 between 500 and 5000 mg/kg).
Subchronlc Effects:
No information available.
Chronic Effects:
No information available.
Mutagen icity/Genotoxicity:
No information

SECTION 12. ECOLOGICAL INFORMATION

Ingredient Ecological Toxicity Data

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Chemical Name & CAS Number

Tetramethylammonium hydroxide 000075-59-2

Chemical Name & CAS Number

Water 007732-18-5

Weight Percent

2

Weight Percent

*****

Fish LCSO

35.1 mg/l (as chloride)

Fish LC50

Daphnia EC50

Algae IC50

0.21 mgn (as mloride)

Daphnia EC50

Environmental hazard information statements (using EU classification criteria):

Algae IC50

Toxicity to fish:
'-Iarmful (LC50 between 10 and 100 mg/L).
..oxicity to daphnids:
Very Toxic (EC50 less than 1 mg/L).
Environmental Fate:
Testing indicates that this material is resistant to biodegradation; however, it should be effectively removed under the conditions encountered in a typical water treatment plant.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal:
Consult local, state, and federal regulations. This product would be considered a hazardous waste under RCRA due to high pH unless neutralized prior to disposal.

SECTION 14.

TRANSPORT INFORMATION

DOT/lATA Shipper Entry:
Caustic alkali liquid, n.o.s. (tetramethylammonium hydroxide), 8, UN1719, III.

Other Information:
Classification due to corrosivity of aluminum.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory Status:
~I components of this product are listed on the TSCA Inventory.
3ARA Title III section 313:
This product is not subject to SARA Title III Section 313 reporting requirements under 40CFR372.

OSHA Physical Hazards:
None
OSHA Health Hazards:
Eye Hazard. Irritant. Skin Hazard. SARA (311, 312) Hazard Class(es): Acute health hazard.

SECTION 16.

OTHER INFORMATION

HMIS Ratings:
Health = 2; Flammability = 0; Reactivity = 0; PPE=G
NFPA Ratings:

Health = 2; Flammability = 0; Reactivity = 0; Special Hazard = None

Special Precautions:
The tetramethylammonium ion (TMA), as TMAH, in this developer is toxic at low levels to the water flea ceriodaphnia dubia (CD) used in the whole effluent toxicity (WET) biomonitoring test. Data from the supplier suggests that continuous input of 60-100 ppm TMA to a small POTW should not cause WET toxicity. It is expected that discharges to a sizable POTW will not affect the ability to pass the WET tests. However, discharges to a small POTW or direct discharges to surface waters should be carefully reviewed. Contact AZ Electronic Materials Product Safety for additional information (908-429-3593 or 908-429-3562).