

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 1

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
Date of printing :07/15/2004

Section 01 - Product Information

Identification of the company:

Clariant Corporation

70 Meister Avenue
Somerville, NJ 08876
Telephone No.: +1 (800) 515-4164

Information of the substance/preparation:

Electronic Materials
Product Safety 1-908-429-3562

Emergency tel. number: +1 800-424-9300 CHEMTREC

Trade name: AZ 400 T Photoresist Stripper (US)
Material number: 104437
Synonyms: None

Section 02 - Composition information on hazardous ingredients

OSHA hazardous ingredients:

Component	CAS-no. (Trade secret no.)	Concentration
1-Methyl-2-pyrrolidone	872-50-4	74 %
1,2-Propanediol	57-55-6	24 %
Tetramethylammonium hydroxide	75-59-2	2 %

Section 03 - Hazards identification

Emergency overview:

Clear, colorless liquid.
Strong characteristic odor.
Causes skin irritation.
Causes moderate to strong eye irritation.
May produce systemic or organ effects with repeated or excessive exposure.
Contains an ingredient that is highly toxic by ingestion and skin absorption.

Expected Route of entry:

Inhalation:	Irritating to respiratory system.
Skin contact:	Product causes slight irritation
Eye contact:	Causes eye irritation.
Ingestion:	Toxic by ingestion.

Health effects of exposure:

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 2

Substance key: 000000116353
Version : 1 - / USA

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1-Methyl-2-pyrrolidinone (872-50-4)

1-Methyl-2-pyrrolidinone, NMP is an eye irritant. It is fetotoxic and produces fetal skeletal abnormalities at high doses. Skin contact can lead to dermatitis. NMP has shown nervous system depression, bone marrow and lymph tissue effects. Some tests in rats have shown testicular effects. It was positive in chromosome aberration testing.

1,2-Propanediol (57-55-6)

1,2-Propanediol is a skin and eye irritant. It has been reported to cause central nervous system depression when administered orally and has been reported to be an in-vitro mutagen. Most mutagenicity tests with propylene glycol have indicated that it is not mutagenic. However, in one in vitro test, it was found to be mutagenic, at one dose level.

Tetramethylammonium hydroxide (75-59-2)

Tetramethylammonium hydroxide may cause severe irritation or caustic burns to eyes and mucous membranes. TMAH is caustic and corrosive to skin and eyes in concentrated form. Pure TMAH is highly toxic in animal tests by the oral and dermal routes of exposure.

Known effects on other illnesses:	Preexisting skin, eye, and respiratory conditions may be aggravated.
Listed carcinogen:	IARC: NO NTP: NO OSHA: NO

HMIS:

Health: 2

Flammability: 1

Reactivity: 0

Personal protection: X

Section 04 - First aid measures

After inhalation:

Remove victim to fresh air.
Consult physician if irritation occurs.

After contact with skin:

Immediately remove contaminated clothing and wash affected area thoroughly with water until greasy feel is gone.
Consult physician if irritation occurs or if irritation is extensive.

After contact with eyes:

Flush thoroughly with water for 15 minutes. Get immediate medical help.

After ingestion:

If person is conscious, give water or milk to dilute stomach contents.
Never give anything by mouth to an unconscious person.
Consult physician.
Do not induce vomiting.

Advice to doctor / Treatment:

A component of this material causes severe acute toxicity in experimental animals by the oral or dermal route of exposure. Exposed individuals should be carefully observed and treated according to symptoms.

Section 05 - Fire fighting measures

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 3

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
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- Flashpoint:** > 200 °F
Method: CC: closed cup
- Decomposition products:** Thermal decomposition may generate carbon dioxide, carbon monoxide, and oxides of nitrogen.
If heated to dryness, TMAH may decompose to trimethylamine and methanol. TMAH reportedly decomposes in boiling water, rate unknown.
- Extinguishing media:** Carbon dioxide, water, alcohol foam, dry chemical.
- Fire-fighting further advice:**
Use self-contained breathing apparatus and full protective clothing.
Use water spray to cool drums in fire area.
- Hazards during fire-fighting:**
Solvent vapors.
Emits toxic fumes under fire conditions.

Section 06 - Accidental release measures

Steps to be taken in case of spill or leak:

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

Section 07 - Handling and storage

Advice on safe handling:

Wash thoroughly after handling.
Keep container closed.
Avoid breathing dust and contact with skin, eyes, and clothing.
Use only with adequate ventilation and proper protective eyewear, gloves, and clothing.

Further info on storage conditions:

Store at appropriate temperature. See label for details.
Store in original container.
Transport and store under dry conditions tightly closed.

Section 08 - Exposure controls / personal protection

Occupational exposure limits:

N-METHYL-2-PYRROLIDONE CAS number: 872-50-4

Regulatory list	Type of value	Value 1	Value 2
US WEEL Guides Data	Time Weighted Average (TWA):	10 ppm	40 mg/m3

PROPYLENE GLYCOL, CAS number: 57-55-6
TOTAL VAPOR AND
AEROSOL

PROPYLENE GLYCOL, CAS number: 57-55-6

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 4

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
Date of printing :07/15/2004

AEROSOL ONLY

Regulatory list	Type of value	Value 1	Value 2
US WEEL Guides Data	Time Weighted Average (TWA):	50 ppm	
US WEEL Guides Data	Time Weighted Average (TWA):		10 mg/m3

Respiratory protection:	Chemical cartridge respirator recommended for exposures exceeding TLV.
Hand protection:	Rubber gloves.
Eye protection:	Safety eyewear to protect against splashes.
Body protection:	Clothing suitable to prevent skin contact.
Advice on system design:	Where mist is present, provide local exhaust ventilation or a respirator certified for mist by NIOSH.

Section 09 - Physical and chemical properties

Form:	Liquid
Color:	Clear, colorless
Odor:	Characteristic odor.
Solubility in water:	soluble
Density:	1.035 g/cm3
Evaporation number:	< n-butyl acetate
Vapor pressure:	0.2 Torr Method: calculated
Relative vapor density:	> 1
Loss on drying:	98 %

Section 10 - Stability and reactivity

Chemical stability:	Stable.
Hazardous Polymerization:	no
Conditions to avoid:	Avoid contact with oxidizing agents. Avoid contact with strong acids.

Section 11 - Toxicological information

Product information:	
Acute dermal toxicity:	D.O.T. four hour rabbit skin test of the highest commercial concentration of this product was negative for skin corrosion.

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 5

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
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Skin irritation:	Testing in rabbits of a more concentrated form of this product showed it was a mild skin irritant.
Eye irritation:	moderate eye irritant.
Component information:	
1-Methyl-2-pyrrolidinone (872-50-4)	
Acute oral toxicity:	LD50 3,900 mg/kg (rat)
Acute inhalation toxicity:	LC50 >370 ppm/6 hour (rat)
Acute dermal toxicity:	LD50 8,000 mg/kg (rabbit)
1,2-Propanediol (57-55-6)	
Acute oral toxicity:	LD50 30,000 mg/kg (rat)
Acute inhalation toxicity:	LC50 > saturation (rat)
Acute dermal toxicity:	LD50 > 10,000 mg/kg (rat)
Tetramethylammonium hydroxide (75-59-2)	
Acute oral toxicity:	LD50 50 mg/kg as chloride salt (rat)
Acute oral toxicity:	
Acute inhalation toxicity:	No data.
Acute dermal toxicity:	LD50 25 mg/kg (Guinea pig) not determined

Section 12 - Ecological information

Product information:	
Biodegradation:	The single components are biological degradable.
Fish toxicity:	A more concentrated form of this product was non-toxic to fathead minnow at up to 1.017 grams per liter.
Component information:	
1-Methyl-2-pyrrolidinone (872-50-4)	
Fish toxicity:	LC50 4,000 mg/l
Daphnia toxicity:	EC50 > 1,000 mg/l
Algae toxicity:	IC50 > 500 mg/l
1,2-Propanediol (57-55-6)	
Fish toxicity:	LC50 50,000 mg/l
Daphnia toxicity:	EC50 > 4,850 mg/l
Algae toxicity:	No data available.
Tetramethylammonium hydroxide (75-59-2)	
Fish toxicity:	LC50 35.1 mg/l

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 6

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
Date of printing :07/15/2004

Daphnia toxicity: EC50 0.21 mg/l
Algae toxicity: No data available.

Section 13 - Disposal considerations

Waste disposal information:

Dispose of or incinerate in accordance with regulations.
Product would be considered a hazardous waste under RCRA due to high pH unless neutralized prior to disposal.
See special precautions.

RCRA hazardous waste:

RCRA number: D002

Section 14 - Transport information

DOT Regulation:

Proper shipping name: Corrosive liquid, basic, organic, n.o.s.
Hazard class: 8
Packing group: III
UN/NA-number: UN 3267
Primary hazard class: 8
Technical Name: Tetramethylammonium hydroxide
Emergency Response Guide: 154

IATA

Proper shipping name: Corrosive liquid, basic, organic, n.o.s.
Class: 8
Packing group: III
UN/ID number: UN 3267
Primary risk: 8
Hazard inducer(s): Tetramethylammonium hydroxide

IMDG

Proper shipping name: Corrosive liquid, basic, organic, n.o.s.
Class: 8
Packing group: III
UN no.: UN 3267
Primary risk: 8
Hazard inducer(s): Tetramethylammonium hydroxide
EmS: 8-15

Section 15 - Regulatory information

TSCA Status:

All components of this product are listed on the TSCA Inventory.

SARA (section 311/312):

Reactive hazard: no
Pressure hazard: no

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 7

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
Date of printing :07/15/2004

Fire hazard: no
Immediate/acute: yes
Delayed/chronic: yes

SARA 313 information:

This product contains the chemical or chemicals listed below which are subject to the supplier notification requirements of Section 313 of the Superfund Amendments and Reauthorization Act of 1986 ("SARA") and the requirements of 40 CFR Part 372:

Component	CAS-no. (Trade secret no.)	Concentration
1-Methyl-2-pyrrolidone	872-50-4	41 %

Volatile organic compounds VOC:

Content VOC (g/l): 1,000 g/l
Method: calculated

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 8

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
Date of printing :07/15/2004

Section 16 - Other information

Other 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).

State regulatory information:

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause cancer.
Contains N-methylpyrrolidone (CAS # 872-50-4).

Label information:

DANGER!

Alkaline solution. Contains ingredients that are highly toxic or that can cause skin and eye irritation, corneal damage, caustic burns, gastric upset, central nervous system depression, development effects, bone marrow effects, and lymph tissue effects.

Keep away from heat and flame. Avoid breathing vapor. Avoid contact with skin, eyes, and clothing. Use only with adequate ventilation, and proper protective eyewear, gloves, and clothing. Wash thoroughly after handling. Keep container closed.

In case of contact, flush eyes with plenty of water for 15 minutes. Get medical attention immediately. Flush affected skin areas with water, and wash with mild soap and water. Remove contaminated clothing. If INHALED, remove individual to fresh air. If breathing is difficult, give oxygen. If ingested, give water or milk to dilute stomach contents. Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately for ingestion or breathing problems or if skin contact is extensive.

In case of fire, use water, "alcohol" foam, dry chemical, or CO₂. If spilled, wear protective clothing, remove ignition sources, prevent sparks, and ventilate area. Absorb with inert material, collect, and place in a chemical waste container. Rinse residue with water.

Keep sealed in original container. Avoid freezing and direct sunlight. Product should be stored > 32 F (0 C). Empty container may contain harmful residue.

The solvent in this product is not photochemically reactive per Rule 102 of the California South Coast Air Quality Management District.

NFPA:

Health: 2

Flammability: 1

Reactivity: 0

Protection: NONE

MATERIAL SAFETY DATA SHEET

AZ 400 T Photoresist Stripper (US)

Page 9

Substance key: 000000116353
Version : 1 - / USA

Revision Date: 09/30/2002
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This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications. (R) and TM indicate trademarks of Clariant AG, its business partners or suppliers.