



MATERIAL SAFETY DATA SHEET



SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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: AZ(R) P4110 PHOTORESIST
SYNONYMS: None

MSDS NO. 70K4
REVISION DATE: 01/03/2000
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SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>Hazardous?</u>	<u>NJ Trade Secret #</u>	<u>Ingredient Synonyms</u>	<u>Other Information:</u>
1-Methoxy-2-propanol acetate 000108-65-6	77	Yes	N/A	Propylene glycol monomethyl ether acetate, PGMEA, PMA	None
Cresol-novolak resin 117520-84-0	<25	No	N.A.	None	NJ & PA RTK Listings, not on any other state RTK list.
Diazonaphthoquinonesulfonic Esters 005610-94-6	<5	No	NA	None	NJ and PA RTK listings, not on any other state RTK list.

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Amber-red liquid with characteristic odor. Partially dissolves in water leaving a floating viscous mass. OSHA combustible liquid; DOT flammable liquid. Irritating on contact or inhalation.

POTENTIAL HEALTH EFFECTS:

- Eye:**
Causes eye irritation.
- Skin:**
Causes skin irritation.
- Ingestion:**
May be harmful if swallowed.
- Inhalation:**
Single exposure unlikely to be hazardous. High vapor concentration causes irritation to the nose, throat, and lungs.
- Systemic Effects:**
No hazard in normal industrial use.
- Reproductive & birth defects:**
Exposures having no adverse effect on the mother should have no effect on the fetus.
- Relevant Routes of Exposure:**
Inhalation. Skin absorption. Eye contact with liquid and vapors.
- Medical Conditions Aggravated:**
Preexisting skin, eye, and respiratory conditions may be aggravated.

ENVIRONMENTAL OVERVIEW:

Not all components tested, major component has little or no environmental hazard.

SECTION 4. FIRST AID MEASURES

FIRST AID PROCEDURES:

- Inhalation:**
Remove 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. Flush affected area thoroughly with water. After flushing with water, remove residue with soap and water. If necessary, clean area with a cloth or paper towel wetted with acetone. Assure adequate ventilation. Dispose of cloth/towel in a suitable receptacle. Wash area again 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. Consult physician.

NOTE TO PHYSICIANS:

Administer oxygen if there is difficulty in breathing.

SECTION 5. FIRE FIGHTING MEASURES

- Flash point:**
112 deg F, Closed Cup
- Extinguishing Media:**
Carbon dioxide, water, alcohol foam, dry chemical.
- Special Procedures:**
Use self-contained breathing apparatus and full protective clothing. Use water spray to cool drums in fire area.
- Unusual hazards:**

Solvent vapors. Emits toxic fumes under fire conditions.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures:

Wearing appropriate personal protective equipment, contain spill, ventilate area of spill or leak, remove all sparking devices or ignition sources, collect onto inert absorbent, and place in a suitable container.

SECTION 7. HANDLING AND STORAGE

Handling:

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

Storage:

Store at appropriate temperature. See label for details. Store in original container. Transport and store under dry conditions tightly closed and protected from heat and light. Pressure may build up slowly in closed containers due to gradual decomposition. This is accelerated by heat and light. May liberate combustible solvent vapors.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Use local exhaust ventilation.

Personal Protective Equipment (PPE):

Clothing suitable to prevent skin contact. Rubber gloves. Chemical cartridge respirator recommended for exposures exceeding TLV. Safety eyewear to protect against splashes.

Exposure Guidelines:

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>Manufacturer's TWA TLV*</u>	<u>ACGIH TWA TLV*</u>	<u>OSHA PEL*</u>	<u>NIOSH REL*</u>	<u>AIHA WEEL*</u>
1-Methoxy-2-propanol acetate 000108-65-6	77	100 ppm				100 ppm (541 mg/m ³)

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>Manufacturer's TWA TLV*</u>	<u>ACGIH TWA TLV*</u>	<u>OSHA PEL*</u>	<u>NIOSH REL*</u>	<u>AIHA WEEL*</u>
Cresol-novolac resin 117520-84-0	<5					
Diazonaphthoquinonesulfonic Esters 005610-94-6	<5					

*TWA TLV = Time Weighted Average Threshold Limit Value

ACGIH = American Conference of Governmental Industrial Hygienists
 OSHA PEL = Occupational Safety and Health Administration Permissible Exposure Limit
 NIOSH REL = National Institute of Occupational Safety and Health Recommended Exposure Limit
 AIHA WEEL = American Industrial Hygiene Association Workplace Environmental Exposure Level
 **Skin Notation

***Hoechst Celanese Workplace Exposure Level (HCC WEL); included is a "no contact" recommendation for NMP due to its skin absorption properties.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear amber-red liquid.
Odor: Strong, characteristic odor.
Physical State: Liquid with dissolved solids.
Vapor Pressure: 2.8 torr (calculated)
Boiling Point: Begins 134 C
Solubility in water: The solvent is water soluble but the product forms two layers.
Specific gravity: 1.100
VOC: 770 g/L
Evaporation rate (butyl acetate=1): 0.33 (PGMEA)
Viscosity: 17 CST
% Volatile: 77%

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability:

Stable.

Hazardous Polymerization:

Will not occur.

Conditions to Avoid:

Avoid contact with oxidizing agents. Avoid contact with strong acids. Avoid contact with alkaline materials.

Hazardous Decomposition Products:

Thermal decomposition may generate carbon dioxide, carbon monoxide, and oxides of nitrogen and sulfur.

SECTION 11. TOXICOLOGICAL INFORMATION

Carcinogen:

IARC: NO NTP: NO OSHA: NO

Ingredient Toxicity Data:

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>oral rat LD50</u>	<u>skin rbt LD50</u>	<u>inh rat LC50</u>
1-Methoxy-2-propanol acetate 000108-85-6	77	8.5 g/kg/male, 10.0 g/kg/female	>5.0 g/kg	>4350 ppm

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>oral rat LD50</u>	<u>skin rbt LD50</u>	<u>inh rat LC50</u>
Cresol-novolak	<25			

resin
 117520-84-0
 Diazonaphthoquinonesulfonic
 Esters
 005610-94-6 <5

TOXICITY HAZARD STATEMENTS FOR PRODUCT:

Eye Effects:

Based on data from components, this material is considered a mild eye irritant.

Skin Effects:

Based on data from components, this material is considered a nonirritant; however, the product is considered a human skin irritant. The acute toxicity via the dermal route of exposure, based on component data, suggest that this material should be considered not harmful (rabbit or rat dermal LD50 greater than 2000 mg/kg)

Acute Oral Effects:

Based on data from components this material is considered not harmful (rat acute oral LD50 >5000 mg/kg).

Acute Inhalation:

Based on data from components, this material is considered not harmful (LC50 greater than 10,000 ppm or 200 mg/L)
 Based on component data, material is considered irritating to the respiratory tract.

Subchronic Effects:

Long term, high level exposure to PGMEA has resulted in adverse effects to the livers and kidneys of experimental animals.

Chronic Effects:

No information available.

Mutagenicity/Genotoxicity:

Testing of components suggest no genotoxic hazard.

SECTION 12. ECOLOGICAL INFORMATION

Ingredient Ecological Toxicity Data:

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>Fish LC50</u>	<u>Daphnia EC50</u>	<u>Algae IC50</u>
1-Methoxy-2-propanol acetate 000108-65-6	77	161 mg/L	408 mg/L	

<u>Chemical Name & CAS Number</u>	<u>Weight Percent</u>	<u>Fish LC50</u>	<u>Daphnia EC50</u>	<u>Algae IC50</u>
Cresol-novolac resin 117520-84-0	<25			
Diazonaphthoquinonesulfonic Esters 005610-94-6	<5	>500 mg/l		

Environmental hazard information statements (using EU classification criteria):

Toxicity to fish:

Based on data from components, this material is classified as: Not Harmful (LC50 >100 mg/L).

Toxicity to daphnids:

Based on data from components, this material is classified as: Not Harmful (EC50 greater than 100 mg/L).

Toxicity to Algae:

No data available.

Environmental Fate:

No information.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal:

Consult local, state, and federal regulations. For disposal, this material is a flammable hazardous waste under RCRA.

SECTION 14. TRANSPORT INFORMATION

DOT/IATA Shipper Entry:

Flammable liquid, n.o.s. (1-methoxy-2-propanol acetate), 3, UN 1993, III

Other Information:

Not regulated for surface transportation in non-bulk containers under 119 gallons.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory Status:

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

SARA Title III section 313:

This product is not subject to SARA Title III Section 313 reporting requirements under 40CFR372.

OSHA Physical Hazards:

Combustible liquid.

OSHA Health Hazards:

Eye Hazard, Irritant, Nervous System Toxin, Skin Hazard, Lung Toxin.

SARA (311, 312) Hazard Class(es):

Acute health hazard. Fire hazard.

SECTION 16. OTHER INFORMATION

HMIS Ratings:

Health = 2; Flammability = 2; Reactivity = 0; PPE=X

NFPA Ratings:

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

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