



SAFETY DATA SHEET  
**AZ nLOF® 2020 Photoresist**

Substance No.: 000000501935  
Version 3.1

Revision Date 11/05/2011  
Print Date 03/07/2012

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : AZ nLOF® 2020 Photoresist  
Material No. : 17998823159  
Product Use Description : Intermediate for electronic industry  
Company : AZ Electronic Materials USA Corp.  
70 Meister Ave.  
Somerville, NJ 08876  
Telephone : 1-908-429-3562  
Telefax : 1-908-429-5982  
Emergency telephone number : 1-800-424-9300 (CHEMTREC)

**SECTION 2. HAZARDS IDENTIFICATION**

**Emergency Overview**

OSHA Hazards : COMBUSTIBLE LIQUID AND VAPOUR.  
IRRITANT

**GHS Classification**

Signal word : Warning  
Hazard category, Hazard class : Flammable liquids, Category 3  
Hazard category, Hazard class : Eye irritation, Category 2A  
Hazard category, Hazard class : Specific target organ toxicity - single exposure

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Hazardous ingredients**

Component	CAS-No.	Weight percent
1-Methoxy-2-propanol acetate	108-65-6	65 - 75
Modified melamine -formaldehyde resin	67829000004-5594P	< 4



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**Non-hazardous ingredients**

Component	CAS-No.	Weight percent
Cresol novolak resin	67829000004-5792P	20 - 25
Benzeneacetonitrile derivative	67829000004-5765P	< 2
Phenolic polyol	67829000004-5798P	< 1

**SECTION 4. FIRST AID MEASURES**

**First aid procedures**

- General advice : Remove contaminated clothing immediately and clean affected parts of the body thoroughly.
- Inhalation : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.
- Skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists.
- Eye contact : Remove contact lenses. Flush eyes with water at least 15 minutes. Get medical attention if eye irritation develops or persists.
- Ingestion : Keep respiratory tract clear. If conscious, drink plenty of water. Never give anything by mouth to an unconscious person. Obtain medical attention.

**SECTION 5. FIRE-FIGHTING MEASURES**

**Flammable properties**

- Flash point : 118 °F (48 °C)  
Method: closed cup

**Fire fighting**

- Suitable extinguishing media : Carbon dioxide, water, alcohol resistant foam, dry chemical.
- Further information : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Cool containers / tanks with water spray.



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**Protective equipment and precautions for firefighters**

Specific hazards during fire fighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions : Wear suitable personal protective equipment.  
Avoid contact with skin and eyes.  
Keep away sources of ignition.

Environmental precautions : Do not allow entry to drains, water courses or soil.  
Prevent spreading by use of suitable barriers.  
Local authorities should be advised if significant spillages cannot be contained.

Methods for containment /  
Methods for cleaning up : 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.

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**SECTION 7. HANDLING AND STORAGE**

**Handling**

Handling : Do not breathe vapours or spray mist.  
Do not get on skin or clothing.  
For personal protection see section 8.  
Use only in area provided with appropriate exhaust ventilation.

Advice on protection against fire and explosion : Keep away from heat and sources of ignition.  
Take measures to prevent the build up of electrostatic charge.  
Avoid shock and friction.

**Storage**

Further information on storage conditions : Keep container tightly closed in a dry and well-ventilated place.  
May liberate combustible solvent vapors.  
Store at appropriate temperature. See label for details.

Advice on common storage : Do not store with acids or alkalies  
Do not store with strong oxidizing agents

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**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure Guidelines**

**Components with workplace control parameters**

Components	CAS-No.	Control parameters	Basis
1-Methoxy-2-propanol acetate	108-65-6	TWA: 50 ppm	US WEEL

**Engineering measures**

Engineering measures : Handle only in a place equipped with local exhaust (or other appropriate exhaust).

**Personal protective equipment**

Eye protection : Safety eyewear to protect against splashes.

Hand protection : Solvent-resistant gloves

Skin and body protection : Clothing suitable to prevent skin contact.

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.  
Respirator with filter for organic vapour  
Use NIOSH approved respiratory protection.

Hygiene measures : Observe the usual precautions when handling chemicals.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**

Form : Liquid  
Color : Clear, colorless to pale yellow  
Odor : Strong, characteristic odor.

**Safety data**

Flash point : 118 °F (48 °C)  
Method: closed cup

pH : Not applicable

Starts to boil : 293 °F (145 °C)



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Vapour pressure	: 3.2 Torr at 68 °F (20 °C)
Density	: 1.041 g/cm <sup>3</sup>
Water solubility	: The solvent is water soluble but the product forms two layers.
VOC	: 734 g/l (Calculated value)
Loss on drying	: >= 70 %

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**SECTION 10. STABILITY AND REACTIVITY**

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.
Hazardous reactions	: Hazardous polymerisation does not occur.
Chemical stability	: Stable under normal conditions.

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**SECTION 11. TOXICOLOGICAL INFORMATION**

**Data for AZ nLOF® 2020 Photoresist**

Further information : No toxicological testing was carried out on the preparation.

**Data for 1-Methoxy-2-propanol acetate (108-65-6)**

Acute oral toxicity	: LD50: 8,532 mg/kg Species: rat
Acute inhalation toxicity	: LC50: > 23.8 mg/l Exposure time: 6 h Species: rat
Acute dermal toxicity	: LD50: > 5,000 mg/kg Species: rabbit

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Skin irritation : Result: non-irritant

Eye irritation : Result: Mild eye irritation

Sensitisation : Species: Guinea pig  
Result: non-sensitizing

**Data for Modified melamine formaldehyde resin (67829000004-5594P)**

Acute inhalation toxicity : LC50: > 2500 ppm  
Exposure time: 4 h  
Species: rat  
Source : Supplier MSDS

Acute dermal toxicity : LD50: > 2 mg/kg  
Species: rabbit  
Source : Supplier MSDS

Eye irritation : Classification: Irritating to eyes.  
Source: EU CLP/GHS Classification

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**12. ECOLOGICAL INFORMATION**

**Data for AZ nLOF® 2020 Photoresist**

Additional ecological information : No ecological testing was carried out on the preparation.

**Data for 1-Methoxy-2-propanol acetate (108-65-6)**

**Ecotoxicity effects**

Toxicity to fish : LC50: 100 - 180 mg/l Exposure time: 96 h  
Species: Oncorhynchus mykiss

: LC50: 161 mg/l Exposure time: 96 h  
Species: Fish general (Pisces)



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: NOEC: 100 mg/l Exposure time: 96 h

Species: Fish general (Pisces)

Toxicity to daphnia and other aquatic invertebrates. : EC50: > 500 mg/l  
Species: Daphnia magna

Toxicity to bacteria : EC20: 1,000 mg/l  
Exposure time: 30 min  
Species: activated sludge

**Elimination information (persistence and degradability)**

Biodegradability : Method: OECD 302 B  
: The product is biodegradable.

**Data for Modified melamine formaldehyde resin (67829000004-5594P)**

**Ecotoxicity effects**

Toxicity to fish : LC50: > 603.1 mg/l Exposure time: 96 h  
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to daphnia and other aquatic invertebrates. : EC50: > 63 mg/l  
Species: Daphnia magna (Water flea)

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**SECTION 13. DISPOSAL CONSIDERATIONS**

Further information : Dispose of as hazardous waste in compliance with local and national regulations.  
For disposal, this material is a flammable hazardous waste under RCRA.

Contaminated packaging : Packaging that cannot be cleaned should be disposed of as product waste

RCRA hazardous waste : RCRA number: D001  
Yes -- If it becomes a waste as sold.



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**SECTION 14. TRANSPORT INFORMATION**

**DOT**

Not restricted

**IATA**

UN number : 1993  
Description of the goods : Flammable liquid, n.o.s.  
(2-Methoxy-1-methylethyl acetate)  
Class : 3  
Packing group : III  
Labels : 3  
Environmentally hazardous : no  
Additional data for transport : PASSENGER AIRCRAFT SHIPMENT OF GLASS  
CONTAINERS >2.5L NOT PERMITTED. CARGO AIRCRAFT  
ONLY!

**IMDG**

UN number : 1993  
Description of the goods : FLAMMABLE LIQUID, N.O.S.  
(2-Methoxy-1-methylethyl acetate)  
Class : 3  
Packing group : III  
Labels : 3  
EmS Number 1 : F-E  
EmS Number 2 : S-E  
  
Marine pollutant : no  
Environmentally hazardous : no

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**SECTION 15. REGULATORY INFORMATION**

**Notification status**

**US.TSCA** : One or more components of this product are not listed on the TSCA Inventory. The components, however, are covered by Low Volume Exemptions (LVEs). These LVE-based products may only be used in conventional photolithographic processes consistent with their design. For any applications outside of this intended purpose, contact the vendor first.

**DSL** : This product contains one or several components that are not on the Canadian DSL nor NDSL lists.





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**WHMIS Classification** : B3: Combustible Liquid

**Canadian PBT Chemicals** : This product does not contain any components on the DSL that are classified as Persistent, Bioaccumulative and Toxic (PBT) under CEPA.

**CERCLA Reportable Quantity** :  
This material does not contain any components with a CERCLA RQ.

**Carcinogenicity**

**IARC** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**ACGIH** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**EPCRA - Emergency Planning and Community Right-to-Know Act**

**SARA 302 Reportable Quantity** : The following components are subject to reporting levels established by SARA Title III, Section 302:  
Formaldehyde 50-00-0

**SARA 304 Extremely Hazardous Substances** : This material does not contain any components with a section 304 EHS RQ.

**SARA 313:** SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**Clean Air Act**

**Ozone-Depletion Potential** : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

**US. Clean Air Act - Hazardous Air Pollutants (HAP)**



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The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):  
Formaldehyde 50-00-0

**US. Clean Air Act Section 112(r); Regulated toxic and flammable substances for Accidental Release Prevention - 40 CFR 68.130 (subpart F)**

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):  
Formaldehyde 50-00-0

**US. Clean Air Act Section 111 SOCM I Intermediate or Final Volatile Organic Compunds (VOC) - 40 CFR part 60.489**

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):  
Formaldehyde 50-00-0

**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:  
Formaldehyde 50-00-0

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:  
Formaldehyde 50-00-0

**US State Regulations**

<b>Massachusetts Right To Know Components</b>	: Formaldehyde	50-00-0
<b>Pennsylvania Right To Know Components</b>	: 1-Methoxy-2-propanol acetate	108-65-6
	Cresol novolak resin	67829000004-5792P
	Modified melamine -formaldehyde resin	67829000004-5594P
	Formaldehyde	50-00-0



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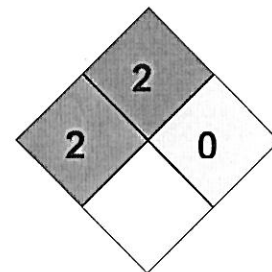
<b>New Jersey Right To Know Components</b>	: 1-Methoxy-2-propanol acetate	108-65-6
	Cresol novolak resin	67829000004-5792P
	Modified melamine -formaldehyde resin	67829000004-5594P
	Benzeneacetonitrile derivative	67829000004-5765P
	Phenolic polyol	67829000004-5798P
	Phenolic compound	67829000004-5803P
<b>California Prop. 65 Components</b>	: WARNING! This product contains a chemical known to the State of California to cause cancer.	
	Formaldehyde	50-00-0

**SECTION 16. OTHER INFORMATION**



**Further information**

**HMIS Classification** : Health hazard: 2  
Flammability: 2  
Reactivity: 0  
PPE:X

**NFPA Classification** : Health hazard: 2  
Fire Hazard: 2  
Reactivity Hazard: 0  
Special Hazards: NONE



**GHS-Labeling**

Symbol(s) :  

Signal word : Warning



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- Hazard statements : Flammable liquid and vapour.  
Causes serious eye irritation.  
May cause respiratory irritation, and drowsiness or dizziness.
- Precautionary statements : **Prevention:**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep container tightly closed.  
Ground/bond container and receiving equipment.  
Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
Use only non-sparking tools.  
Take precautionary measures against static discharge.  
Wash skin thoroughly after handling.  
Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF exposed or if you feel unwell:  
Get medical advice/ attention.  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
**Storage:**  
Store in a well-ventilated place. Keep cool.  
Store in a closed container.  
**Disposal:**  
Dispose of contents/ container to an approved waste disposal plant.

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.

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