

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**MERCK**

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product number 179988

Product name AZ nLOF® 2020 Photoresist

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses Materials for use in technical applications

### 1.3 Details of the supplier of the safety data sheet

Company Merck KGaA \* 64271 Darmstadt \* Germany \* Phone: +49 6151 72-0

Responsible Department PM-OQR \* e-mail: PM\_SDS\_Supply@merckgroup.com

### 1.4 Emergency telephone number

Please contact the regional company representation in your country.

---

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3

H226: Flammable liquid and vapour.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements : H226 Flammable liquid and vapour.

Precautionary statements : **Prevention:**  
P210 Keep away from heat.

### 2.3 Other hazards

None known.

---

## SECTION 3: Composition/information on ingredients

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

Chemical nature : Organic mixture in:  
Solvent

### 3.1 Substance

Not applicable

### 3.2 Mixtures

#### Hazardous components

Chemical name	CAS-No. Registration number	Classification	Concentration (% w/w)
2-methoxypropyl acetate	2-Methoxypropyl acetate-1	Flam. Liq. 3; H226 Repr. 1B; H360D STOT SE 3; H335	>= 0,1 - < 0,3

#### Substances with a workplace exposure limit

2-methoxy-1-methylethyl acetate	108-65-6 01-2119475791-29- xxxx	Flam. Liq. 3; H226	>= 50 - <= 100
---------------------------------	---------------------------------------	--------------------	----------------

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

If inhaled : fresh air.

In case of skin contact : rinse out with polyethylene glycol 400 or a mixture of polyethylene glycol 300/ethanol 2:1 and wash with plenty of water. If neither is available wash with plenty of water. Immediately take off contaminated clothing. Seek medical advice immediately.

In case of eye contact : rinse out with plenty of water.  
Remove contact lenses.

If swallowed : make victim drink water (two glasses at most). Consult doctor if feeling unwell.

### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Nausea  
Vomiting  
Unconsciousness  
narcosis  
Cyanosis  
Drowsiness

### 4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No information available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**AZ nLOF® 2020 Photoresist**

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Water  
Foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry powder

Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Vapours are heavier than air and may spread along floors.  
Forms explosive mixtures with air at elevated temperatures.  
Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Cool closed containers exposed to fire with water spray.  
Suppress (knock down) gases/vapours/mists with a water spray jet.  
Prevent fire extinguishing water from contaminating surface water or the ground water system.

---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Advice for non-emergency personnel:  
Do not breathe vapours, aerosols.  
Ensure adequate ventilation.  
Keep away from heat and sources of ignition.  
Evacuate the danger area, observe emergency procedures, consult an expert.  
Advice for emergency responders:  
Protective equipment see section 8.

### 6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.  
Risk of explosion.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7 and 10).  
Take up with liquid-absorbent material (e.g. Chemizorb®).

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

Indications about waste treatment see section 13.

---

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- |   |   |   |
|---|---|---|
| Advice on safe handling                         | : | Observe label precautions.  |
| Advice on protection against fire and explosion | : | Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. |
| Hygiene measures                                | : | Change contaminated clothing. Wash hands after working with substance.  |

### 7.2 Conditions for safe storage, including any incompatibilities

- |   |   |  |
|---|---|--|
| Requirements for storage areas and containers | : | Store in original container.   |
| Further information on storage conditions     | : | Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Protected from light. |
|   |   | Risks from decomposition products: see section 10.3  |
| Recommended storage temperature               | : | Recommended storage temperature see product label.   |

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

---

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

### 8.2 Exposure controls

#### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

#### Personal protective equipment

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled and must meet the specifications of a standard EN/ISO/DIN. The chemical resistance of the protective equipment should be enquired at the respective supplier.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

Eye protection : Safety glasses

Hand protection :

splash contact

Glove material : Nitrile rubber

Glove thickness : 0,4 mm

Break through time : 10 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example:KCL 730 Camatril® -Velours(splash contact);.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Protective measures : Flame retardant antistatic protective clothing.

Respiratory protection : required when vapours/aerosols are generated.

Recommended Filter type: : ABEK-filter

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.  
Risk of explosion.

---

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid
Colour	slight light yellow clear
Odour	characteristic pungent
Odour Threshold	No information available.
pH	No information available.
Melting point	No information available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

Boiling point/boiling range	145 °C
Flash point	ca. 48 °C Method: closed cup
Evaporation rate	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	2,6 Torr Method: (calculated)
Relative vapour density	No data available
Density	1,041 g/cm <sup>3</sup>
Solubility(ies)	No information available.
Water solubility	partly soluble - phase separation
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, kinematic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
<b>9.2 Other data</b>	
Viscosity, dynamic	32 mPas

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Vapour/air-mixtures are explosive at intense warming.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Hazardous reactions : Risk of ignition or formation of inflammable gases or vapours with:

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

### Oxidizing agents

Violent reactions possible with:  
alkalines  
Peroxides

### 10.4 Conditions to avoid

Conditions to avoid : Heating.

### 10.5 Incompatible materials

Materials to avoid : no information available

### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

---

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product:

Acute oral toxicity : No data available  
Acute inhalation toxicity : No data available  
Acute dermal toxicity : No data available

##### Components:

##### **2-methoxypropyl acetate:**

Acute oral toxicity : No data available  
Acute inhalation toxicity : No data available  
Acute dermal toxicity : No data available

##### **2-methoxy-1-methylethyl acetate:**

Acute oral toxicity : LD50 (Rat): 8.532 mg/kg  
Remarks: (RTECS)

Acute inhalation toxicity : No data available  
Acute dermal toxicity : No data available

#### Skin corrosion/irritation

##### Product:

No data available

##### Components:

##### **2-methoxy-1-methylethyl acetate:**

Species: Rabbit  
Exposure time: 24 h  
Method: OECD Test Guideline 404  
Result: No irritation

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

### Serious eye damage/eye irritation

#### Product:

No data available

#### Components:

#### **2-methoxy-1-methylethyl acetate:**

Species: Rabbit

Method: OECD Test Guideline 405

Result: No eye irritation

### Respiratory or skin sensitisation

#### Product:

No data available

#### Components:

#### **2-methoxy-1-methylethyl acetate:**

Test Type: Maximisation Test

Exposure routes: dermal

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

### Germ cell mutagenicity

#### Product:

No data available

#### Components:

#### **2-methoxy-1-methylethyl acetate:**

Genotoxicity in vitro

: Test Type: Ames test

Species: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

### Carcinogenicity

#### Product:

This information is not available.

#### Components:

This information is not available.

### Reproductive toxicity

#### Product:

No data available



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

### **Components:**

#### **2-methoxypropyl acetate:**

Effects on fertility :

Effects on foetal development : No data available

Reproductive toxicity - Assessment : May damage the unborn child.

#### **STOT - single exposure**

##### **Product:**

Target Organs: Respiratory system

Assessment: Mixture may cause respiratory irritation.

Target Organs: Central nervous system

Assessment: Mixture may cause drowsiness or dizziness.

### **Components:**

#### **2-methoxypropyl acetate:**

Exposure routes: Inhalation

Assessment: May cause respiratory irritation.

#### **STOT - repeated exposure**

##### **Product:**

No data available

### **Components:**

No data available

#### **Repeated dose toxicity**

##### **Product:**

No data available

### **Components:**

No data available

#### **Aspiration toxicity**

##### **Product:**

No data available

### **Components:**

No data available

## **11.2 Other information**

### **Product:**

Handle in accordance with good industrial hygiene and safety practice.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**AZ nLOF® 2020 Photoresist**

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

## SECTION 12: Ecological information

### 12.1 Toxicity

**Product:**

No data available

**Components:**

**2-methoxypropyl acetate:**

No data available

**2-methoxy-1-methylethyl acetate:**

- |  |   |  |
|--|---|--|
| Toxicity to fish   | : | LC50 ( <i>S.gairdnerii</i> ): 100 - 180 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203   |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 ( <i>Daphnia magna</i> (Water flea)): 373 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202  |
| Toxicity to algae  | : | EC50 ( <i>Pseudokirchneriella subcapitata</i> (green algae)): > 1.000 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 201                     |
| Toxicity to microorganisms   | : | EC10 (activated sludge): > 1.000 mg/l<br>Exposure time: 30 min<br>Method: OECD Test Guideline 209  |
| Toxicity to fish (Chronic toxicity)                                    | : | NOEC: 47,5 mg/l<br>Exposure time: 14 d<br>Species: <i>Oryzias latipes</i> (Orange-red killifish)<br>Method: OECD Test Guideline 204                      |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: >= 100 mg/l<br>Exposure time: 21 d<br>Species: <i>Daphnia magna</i> (Water flea)<br>Test Type: semi-static test<br>Method: OECD Test Guideline 211 |

### 12.2 Persistence and degradability

**Product:**

No data available

**Components:**

**2-methoxypropyl acetate:**

No data available

**2-methoxy-1-methylethyl acetate:**

- |                  |   |  |
|------------------|---|--|
| Biodegradability | : | Result: Readily eliminated from water<br>Biodegradation: 100 % |
|------------------|---|--|

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

Exposure time: 8 d  
Method: OECD Test Guideline 302B

Biochemical Oxygen Demand (BOD) : 330 mg/g  
Incubation time: 5 d  
Remarks: (IUCLID)

Chemical Oxygen Demand (COD) : 1.740 mg/g  
Remarks: (IUCLID)

ThOD : 1.820 mg/g  
Remarks: (IUCLID)

### 12.3 Bioaccumulative potential

#### **Product:**

No data available

#### **Components:**

##### **2-methoxypropyl acetate:**

No data available

##### **2-methoxy-1-methylethyl acetate:**

Partition coefficient: n-octanol/water : log Pow: 1,2 (20 °C)  
Method: OECD Test Guideline 117  
Remarks: Bioaccumulation is not expected.

### 12.4 Mobility in soil

#### **Product:**

No data available

#### **Components:**

##### **2-methoxypropyl acetate:**

No data available

##### **2-methoxy-1-methylethyl acetate:**

No data available

### 12.5 Results of PBT and vPvB assessment

#### **Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

#### **Components:**

##### **2-methoxypropyl acetate:**

No data available

##### **2-methoxy-1-methylethyl acetate:**

---

The Safety Data Sheets for catalogue items are available at [www.merck-performance-materials.com](http://www.merck-performance-materials.com)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## AZ nLOF® 2020 Photoresist

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

Assessment	:	Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII..
------------	---	--

### 12.6 Other adverse effects

#### Product:

Additional ecological information	:	Discharge into the environment must be avoided.
-----------------------------------	---	---

#### Components:

##### **2-methoxypropyl acetate:**

No data available

##### **2-methoxy-1-methylethyl acetate:**

No data available

---

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product	:	See <a href="http://www.retrologistik.com">www.retrologistik.com</a> for processes regarding the return of chemicals and containers, or contact us there if you have further questions.
---------	---	---

---

## SECTION 14: Transport information

### Air transport(IATA)

14.1. UN/ID No.	:	UN 1993
14.2. Proper shipping name	:	Flammable liquid, n.o.s. (2-Methoxy-1-methylethyl acetate)
14.3. Class	:	3
14.4. Packing group	:	III
14.5 Environmentally hazardous	:	--
14.6 Special precautions for user	:	no

### Sea transport(IMDG)

14.1. UN number	:	UN 1993
14.2. Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (2-Methoxy-1-methylethyl acetate)
14.3. Class	:	3
14.4. Packing group	:	III
14.5 Environmentally hazardous	:	--
14.6 Special precautions for user	:	yes
EmS Code	:	F-E, <u>S-E</u>

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**AZ nLOF® 2020 Photoresist**

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

## 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

### Land transport(ADR/RID)

**14.1. UN number** : UN 1993  
**14.2. Proper shipping name** : FLAMMABLE LIQUID, N.O.S.  
(2-Methoxy-1-methylethyl acetate)  
**14.3. Class** : 3  
**14.4. Packing group** : III  
**14.5 Environmentally hazardous** : --

---

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : 2-methoxypropyl acetate

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
P5c	FLAMMABLE LIQUIDS	5.000 t	50.000 t

Storage class : 3

Volatile organic compounds : Volatile organic compounds (VOC) content: 734 g/l

Other regulations : Take note of Dir 94/33/EC on the protection of young people at work.

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**AZ nLOF® 2020 Photoresist**

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017

Print Date: 05.02.2018

---

## SECTION 16: Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Full text of H-Statements

H226	: Flammable liquid and vapour.
H335	: May cause respiratory irritation.
H360D	: May damage the unborn child.

### Key or legend to abbreviations and acronyms used in the safety data sheet

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Disclaimer

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

# **SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

## **AZ nLOF® 2020 Photoresist**

Version: 1.0

Product number: 179988

Date of first issue: 17.11.2017  
Print Date: 05.02.2018

---