SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) and Regulation (EU) No 2015/830

Negative Photoresist AR-N 4450-10

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

1.1 Product identifier

Trade name: Negative Photoresist AR-N 4450-10

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

General use: intermediate for electronic industry

1.3 Details of the supplier of the safety data sheet

Company name: Allresist
Gesellschaft für chemische Produkte zur Mikrostrukturierung mbH
Street/POB-No.: Am Biotop 14
Postal Code, city: 15344 Strausberg
Germany
WWW: www.allresist.de
E-mail: info@allresist.de
Telephone: +49 (0)33 41-35 93-0
Telefax: +49 (0)33 41-35 93-29
Dept. responsible for information:
Frau Feldt, Email: doerte.feldt@allresist.de

1.4 Emergency telephone number

Telephone: +49 (0)33 41-35 93-0
Only available during office hours.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Flam. Liq. 3; H226 Flammable liquid and vapour.

2.2 Label elements

Labelling (CLP)

Signal word: **Warning**

Hazard statements: H226 Flammable liquid and vapour.

Precautionary statements:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P243	Take precautionary measures against static discharge.
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P403+P235	Store in a well-ventilated place. Keep cool.

Special labelling

Text for labelling: Contains 2-Methoxy-1-methylethyl acetate.

2.3 Other hazards

Potentially explosive mixtures may form if adequate ventilation is not provided.
Inhaling can lead to irritations of the respiratory tract and mucous membrane.
Higher doses may have a narcotic effect.
Special danger of slipping by leaking/spilling product.

SECTION 3: Composition / information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Chemical characterisation:

Mixture of the following listed substances with safe additions

Hazardous ingredients:

Ingredient	Designation	Content	Classification
EC No. 203-603-9 CAS 108-65-6	2-Methoxy-1-methylethyl acetate	45 - 70 %	CLP: Flam. Liq. 3; H226.
EC No. - CAS 68002-20-0	Polymer Melamine-Formaldehyde-Methanol	< 5 %	CLP: Aquatic Chronic 3; H412.
EC No. 215-293-2 CAS 1319-77-3	Cresol-isomers	< 0.5 %	CLP: Acute Tox. 3; H301. Acute Tox. 3; H311. Skin Corr. 1B; H314.

SECTION 4: First aid measures

4.1 Description of first aid measures

In case of inhalation: Move victim to fresh air, put at rest and loosen restrictive clothing. Seek medical aid in case of troubles.

Following skin contact: Change contaminated clothing. Remove residues with soap and water.
In case of skin irritation, consult a physician.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart.
Subsequently consult an ophthalmologist.

After swallowing: Never give anything by mouth to an unconscious person. Rinse mouth immediately and drink plenty of water.
Do not induce vomiting. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Nausea, vomiting, headache, dizziness, unconsciousness.
In case of inhalation: Vapours > 100 ppm: irritant.
If higher concentrations occur: strongly irritant.
Other symptoms: central nervous system depression, Cough and shortage of breath.
Pulmonary edema is possible. Symptoms may occur with delay.
In case of ingestion: May be harmful if swallowed.
Other symptoms: Nausea, vomiting, central nervous system depression.
After contact with skin:
Danger of cutaneous absorption. Prolonged/repetitive skin contact may cause skin defattening or dermatitis.
After eye contact: May cause irritations.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Decontamination.
In the event of pulmonary irritation treat initially with dexamethasone - dosing aerosol.
Subsequent observance for pneumonia and lung oedema.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing powder, water fog or carbon dioxide.
In case of large fires alcohol resistant foam or water fog.

Extinguishing media which must not be used for safety reasons:

High power water jet.

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapour. On contact with air, potentially explosive mixtures may develop. Vapours may proceed on the ground over great distances and cause fire and backflashes.
In case of fire may be liberated: Nitrogen oxides (NOx), carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information: Hazchem-Code: •3Y
Do not expose to high temperature. Danger of bursting and explosion. Use fine water spray to cool endangered containers.
Move undamaged containers from immediate hazard area if it can be done safely.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Do not allow fire water to penetrate into surface or ground water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate all ignition sources if safe to do so. Avoid contact with the substance. Do not breathe vapours. Wear protective equipment. Provide adequate ventilation.

6.2 Environmental precautions

Do not allow to penetrate into soil, waterbodies or drains.
If necessary notify appropriate authorities.

6.3 Methods and material for containment and cleaning up

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13).
Beware of reignition. Thoroughly clean surrounding area.
In case of greater quantities: Collect mechanically (use only explosion-proof equipment when pumping out).

Additional information: Use explosion-proof equipment and non-sparking tools/utensils.
Special danger of slipping by leaking/spilling product.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.
Do not breathe vapours. Avoid contact with skin, eyes, and clothing.
Wear protective equipment. When using do not eat, drink or smoke.
Do not allow containers to stand open. Handle and open container with care.

Precautions against fire and explosion:
Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges. Use grounding equipment. Use only explosion-protected equipment/instruments. Do not weld. Vapours can form explosive mixtures with air.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:
Keep container tightly closed in a cool, well-ventilated place.
Keep away from sources of ignition and heat. Protect from direct sunlight.
Store containers in upright position. Explosion protection required.
Qualified materials: steel, polypropylene.
Unsuitable materials: Copper, zinc.
Storage temperature: 10 °C up to 18 °C.

Hints on joint storage: Do not store together with combustible or self-igniting materials or any highly flammable solids. Keep away from food, drink and animal feedingstuffs.

Storage class: 3 = Flammable liquids

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
108-65-6	2-Methoxy-1-methylethyl acetate	Europe: IOELV: STEL	550 mg/m³; 100 ppm (May be absorbed through the skin.)
		Europe: IOELV: TWA	275 mg/m³; 50 ppm (May be absorbed through the skin.)
		Great Britain: WEL-STEL	548 mg/m³; 100 ppm
		Great Britain: WEL-TWA	274 mg/m³; 50 ppm
		Ireland: 15 minutes	550 mg/m³; 100 ppm (May be absorbed through the skin.)
		Ireland: 8 hours	275 mg/m³; 50 ppm (May be absorbed through the skin.)
1319-77-3	Cresol-isomers	Europe: IOELV: TWA	22 mg/m³; 5 ppm
		Great Britain: WEL-TWA	22 mg/m³; 5 ppm
		Ireland: 8 hours	22 mg/m³; 5 ppm

8.2 Exposure controls

When aerosols and vapours form: Withdraw by suction.

Personal protection equipment

Occupational exposure controls

Respiratory protection: Respiratory protection must be worn whenever the WEL levels have been exceeded.
Use filter type A (= against vapours of organic substances) according to EN 14387.

Hand protection: Protective gloves according to EN 374.
Glove material: butyl caoutchouc (butyl rubber) (0.7 mm).
Breakthrough time: >480 min.
Unsuitable materials: natural rubber, nitrile rubber
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166.

Body protection: Flame retardant, antistatic and chemical resistant protective clothing.

General protection and hygiene measures:

Use only non-sparking tools. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Avoid contact with skin, eyes, and clothing. Change contaminated clothing. Do not breathe vapour/aerosol. Wear protective equipment. Have eye wash bottle or eye rinse ready at work place. Wash hands before breaks and after work. When using do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	Form: liquid Colour: brown
Odour:	ester-like
Odour threshold:	no data available
pH value:	no data available
Melting point/freezing point:	-88 °C (2-Methoxy-1-methylethyl acetate)
Initial boiling point and boiling range:	146 °C (2-Methoxy-1-methylethyl acetate)
Flash point/flash point range:	42 °C (c.c.)
Evaporation rate:	no data available
Flammability:	Flammable liquid and vapour.
Explosion limits:	LEL (Lower Explosion Limit): 1.20 Vol-% (2-Methoxy-1-methylethyl acetate) UEL (Upper Explosive Limit): 10.80 Vol-% (2-Methoxy-1-methylethyl acetate)
Vapour pressure:	at 25 °C: 3.9 hPa (2-Methoxy-1-methylethyl acetate) at 50 °C: 21 hPa (2-Methoxy-1-methylethyl acetate)
Vapour density:	no data available
Density:	at 20 °C: approx. 1.1 g/mL
Water solubility:	at 20 °C: partially soluble
Partition coefficient: n-octanol/water:	no data available
Auto-ignition temperature:	no data available
Thermal decomposition:	no data available
Viscosity, dynamic:	no data available
Explosive properties:	On contact with air, potentially explosive mixtures may develop.
Oxidizing characteristics:	no data available

9.2 Other information

Ignition temperature:	315 °C (2-Methoxy-1-methylethyl acetate)
Additional information:	Information about 2-Methoxy-1-methylethyl acetate: Saturation concentration at 20 °C: 26.6 g/m³ Relative vapour density (air=1): 4.56

SECTION 10: Stability and reactivity

10.1 Reactivity

Flammable liquid and vapour. On contact with air, potentially explosive mixtures may develop.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Do not expose to high temperature. Danger of bursting and explosion.

10.4 Conditions to avoid

Keep away from heat. Protect from direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents, alkalis. Attacks many plastics and rubbers.

10.6 Hazardous decomposition products

In case of fire may be liberated: Nitrogen oxides (NOx), carbon monoxide and carbon dioxide.

Thermal decomposition: no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Toxicological effects:

Acute toxicity (oral): Lack of data.
Acute toxicity (dermal): Lack of data.
Acute toxicity (inhalative): Lack of data.
Skin corrosion/irritation: Lack of data.
Eye damage/irritation: Lack of data.
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Lack of data.
Germ cell mutagenicity/Genotoxicity: Lack of data.
Carcinogenicity: Lack of data.
Reproductive toxicity: Lack of data.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Lack of data.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Other information:

Information about 2-Methoxy-1-methylethyl acetate:
LD50 Rat, oral: 8532 mg/kg.
LD50 Rabbit, dermal: 7500 mg/kg.
Systemic effects: Drowsiness, cyanosis (blue coloured blood), unconsciousness, narcosis. damage of kidneys.

Information about Cresol-isomers:
LD50 Rat, oral: 1454 mg/kg.
LD50 Rabbit, dermal: 242 mg/kg.

Symptoms

Nausea, vomiting, headache, dizziness, unconsciousness.
In case of inhalation: Vapours > 100 ppm: irritant.
If higher concentrations occur: strongly irritant.
Other symptoms: central nervous system depression, Cough and shortage of breath.
Pulmonary edema is possible. Symptoms may occur with delay.
In case of ingestion: May be harmful if swallowed.
Other symptoms: Nausea, vomiting, central nervous system depression.
After contact with skin:
Danger of cutaneous absorption. Prolonged/repetitive skin contact may cause skin defattening or dermatitis.
After eye contact: May cause irritations.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

Information about 2-Methoxy-1-methylethyl acetate:
Daphnia toxicity:
EC50 Daphnia magna (Big water flea): 408 mg/L/48h.
Fish toxicity:
LC50 Pimephales promelas (fathead minnow): 161 mg/L/96h.

12.2. Persistence and degradability

Further details: Information about 2-Methoxy-1-methylethyl acetate:
Biodegradation:
100 %/8 d (OECD 302 B).
57.4 %/20 d (closed bottle test).

12.3 Bioaccumulative potential

Bioconcentration factor (BCF):

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

General information: Do not allow to enter into ground-water, surface water or drains.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 16 03 05* = Organic wastes containing dangerous substances
* = Evidence for disposal must be provided.

Recommendation: Incinerate as hazardous waste according to applicable local, state, and federal regulations.

Contaminated packaging

Recommendation: Dispose of waste according to applicable legislation. Handle empty containers with care. Incineration may cause explosion. Handle contaminated packages in the same way as the substance itself. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number

ADR/RID, IMDG, IATA: UN 1993

14.2 UN proper shipping name

ADR/RID, IMDG, IATA: UN 1993, FLAMMABLE LIQUID, N.O.S. (2-Methoxy-1-methylethyl acetate solution)

14.3 Transport hazard class(es)

ADR/RID: Class 3, Code: F1
IMDG: Class 3, Subrisk -
IATA: Class 3

14.4 Packing group

ADR/RID, IMDG, IATA: III

14.5 Environmental hazards

Marine pollutant: No

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board:	ADR/RID: Kemmler-number 30, UN number 1993
Hazard label:	3
Special provisions:	274 601 640E
Limited quantities:	5 L
EQ:	E1
Contaminated packaging - Instructions:	P001 - IBC03 - LP01 - R001
Special provisions for packing together:	MP19
Portable tanks - Instructions:	T4
Portable tanks - Special provisions:	TP1 TP29
Tank coding:	LGBF
Tunnel restriction code:	D/E

Sea transport (IMDG)

EmS:	F-E, S-E
Special provisions:	223, 274, 955
Limited quantities:	5 L
EQ:	E1
Contaminated packaging - Instructions:	P001, LP01
Contaminated packaging - Provisions:	-
IBC - Instructions:	IBC03
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T4
Tank instructions - Provisions:	TP1, TP29
Stowage and handling:	Category A.
Properties and observations:	-

Air transport (IATA)

Hazard:	Flammable liquid
EQ:	E1
Passenger Ltd.Qty.:	Pack.Instr. Y344 - Max. Net Qty/Pkg. 10 L
Passenger:	Pack.Instr. 355 - Max. Net Qty/Pkg. 60 L
Cargo:	Pack.Instr. 366 - Max. Net Qty/Pkg. 220 L
Special Provisioning:	A3
ERG:	3L

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

no data available

SECTION 15: Regulatory information

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

National regulations - Great Britain

Hazchem-Code: •3Y

National regulations - EC member states

Volatile organic compounds (VOC):

approx. 65 % by weight = 745 g/L

Labelling of packaging with <= 125mL content

Signal word: **Warning**

Hazard statements: not applicable

Precautionary statements:

not applicable

15.2 Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Further information

Wording of the H-phrases under paragraph 2 and 3:

H226 = Flammable liquid and vapour.
H301 = Toxic if swallowed.
H311 = Toxic in contact with skin.
H314 = Causes severe skin burns and eye damage.
H412 = Harmful to aquatic life with long lasting effects.

Reason of change: General revision (Regulation (EU) Nr. 2015/830)

Date of first version: 13/1/2011

Department issuing data sheet

Contact person: see section 1: Dept. responsible for information

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.