



SAFETY DATA SHEET

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

Revision date: 3/9/2018

Version: 4

Language: en-GB,IE

Date of print: 2/10/2018

Negative Photoresist AR-N 4650 series

Material number AR-N 4650

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

1.1 Product identifier

Trade name: Negative Photoresist AR-N 4650 series

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

General use: Intermediate for electronic industry
Reserved for industrial and professional use.

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: DE-15344 Strausberg
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.
Skin Irrit. 2; H315	Causes skin irritation.
Eye Irrit. 2; H319	Causes serious eye irritation.
Skin Sens. 1; H317	May cause an allergic skin reaction.
Aquatic Chronic 2; H411	Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (CLP)



Signal word:

Warning

Hazard statements:	H226	Flammable liquid and vapour.
	H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H319	Causes serious eye irritation.
	H411	Toxic to aquatic life with long lasting effects.



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Precautionary statements: P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P391	Collect spillage.

Special labelling

Text for labelling: Contains A mixture of: Thiobis(4,1-phenylene)-S,S,S',S'-tetraphenyldisulfonium bishexafluorophosphate, diphenyl(4-phenylthiophenyl)sulfonium hexafluorophosphate, propylene carbonate.

2.3 Other hazards

Potentially explosive mixtures may form if adequate ventilation is not provided.
Higher doses may lead to a narcotic effect.
Special danger of slipping by leaking/spilling product.

Results of PBT and vPvB assessment:

No data available

SECTION 3: Composition / information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Hazardous ingredients:

Ingredient	Designation	Content	Classification
REACH 01-2119475791-29-xxxx EC No. 203-603-9 CAS 108-65-6	2-Methoxy-1-methylethyl acetate	< 80 %	Flam. Liq. 3; H226.
CAS 29690-82-2	Poly[(o-cresyl glycidyl ether)-co-formaldehyde]	>= 30 %	Skin Irrit. 2; H315. Eye Irrit. 2; H319.
EC No. 403-490-8 CAS 74227-35-3	A mixture of: Thiobis(4,1-phenylene)-S,S,S',S'-tetraphenyldisulfonium bishexafluorophosphate, diphenyl(4-phenylthiophenyl)sulfonium hexafluorophosphate, propylene carbonate	< 5 %	Eye Irrit. 2; H319. Skin Sens. 1; H317. Aquatic Acute 1; H400. Aquatic Chronic 1; H410.
REACH 01-2119537232-48-xxxx EC No. 203-572-1 CAS 108-32-7	Propylene carbonate	< 5 %	Eye Irrit. 2; H319.

Full text of H- and EUH-statements: see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: If medical advice is needed, have product container or label at hand. First aider: Pay attention to self-protection!



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- In case of inhalation: Move victim to fresh air, put at rest and loosen restrictive clothing. Immediately get medical attention.
- Following skin contact: Immediately clean with water and soap followed by thorough rinsing. Take off immediately all contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.
- After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Subsequently consult an ophthalmologist.
- After swallowing: Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person.
Do not induce vomiting. Immediately get medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. Inhaling can lead to irritations of the respiratory tract and mucous membrane. Higher doses may lead to a narcotic effect.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing powder, water spray jet or carbon dioxide.

In case of large fires: alcohol resistant foam or water spray jet.

Extinguishing media which must not be used for safety reasons:

Full water jet.

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapour.

With air, vapours form potentially explosive mixtures, which are heavier than air.

Vapours may proceed on the ground over great distances and cause fire and backflashes.

May form dangerous gases and vapours in case of fire.

Furthermore, there may develop: sulphur oxides, phosphorus compounds, carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information: Hazchem-Code: •3Y

Suppress gases/vapours/mists with water spray jet. Heating will lead to pressure increase: Danger of bursting and explosion. Keep containers cool with water spray.

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.

Fire residuals and contaminated extinguishing water must be disposed of in accordance with the regulations of the local authorities.



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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe vapour/aerosol. Avoid contact with the substance. Take off immediately all contaminated clothing and wash it before reuse.

Eliminate all ignition sources if safe to do so. Wear appropriate protective equipment. If possible, eliminate leakage. Cordon off downwind area at risk and warn inhabitants. Keep unprotected people away.

6.2 Environmental precautions

Do not allow to enter into ground-water, surface water or drains. Danger of explosion! In case of release, notify competent 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 vapour/aerosol. Take off immediately all contaminated clothing and wash it before reuse. Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.

Avoid contact with skin, eyes, and clothing. Wear appropriate protective equipment.

When using do not eat, drink or smoke. Wash hands thoroughly after handling.

When handling large quantities, supply emergency spray.

Precautions against fire and explosion:

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Use only explosion-protected equipment/instruments. Do not weld.

In partially filled containers explosive mixtures may form.

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 container dry. Keep only in the original container. Handle and open container with care.

Protect from heat and direct sunlight.

Store containers in upright position. Explosion protection required. Avoid admission of air/oxygene (formation of peroxide).

Storage temperature: 8 °C up to 12 °C.

Hints on joint storage:

Do not store together with strong oxidizing agents, strong acids or strong bases.

Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

No information available.



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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/m ³ ; 100 ppm (may be absorbed through the skin)
		Europe: IOELV: TWA	275 mg/m ³ ; 50 ppm (may be absorbed through the skin)
		Great Britain: WEL-STEL	548 mg/m ³ ; 100 ppm
		Great Britain: WEL-TWA	274 mg/m ³ ; 50 ppm
		Ireland: 15 minutes	550 mg/m ³ ; 100 ppm (may be absorbed through the skin)
		Ireland: 8 hours	275 mg/m ³ ; 50 ppm (may be absorbed through the skin)

8.2 Exposure controls

Provide for good ventilation or exhaust system or work with completely self-contained equipment. Explosion protection required.

Personal protection equipment

Occupational exposure controls

Respiratory protection: When aerosols and vapours form: Use appropriate 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) - Layer thickness: 0.50 mm.
Breakthrough time: > 480 min.
Unsuitable glove material:
Protective gloves made of fabric, leather, natural rubber (NR), polychloroprene (CR), polyvinyl chloride (PVC), fluoro rubber (FKM), nitrile rubber (NBR).
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:
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not breathe vapour/aerosol.
Do not get in eyes, on skin, or on clothing. Take off immediately all contaminated clothing and wash it before reuse.
When using do not eat or drink. Wash hands thoroughly after handling.
When handling large quantities, supply emergency spray.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance: Physical state at 20 °C and 101.3 kPa: liquid
Colour: colourless up to light yellow

Odour: ester-like

Odour threshold: No data available

pH value: No data available



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Melting point/freezing point:	No data available
Initial boiling point and boiling range:	145 °C (2-Methoxy-1-methylethyl acetate)
Flash point/flash point range:	46 °C (2-Methoxy-1-methylethyl acetate)
Evaporation rate:	No data available
Flammability:	Flammable liquid and vapour.
Explosion limits:	LEL (Lower Explosion Limit): 1.50 Vol-% (2-Methoxy-1-methylethyl acetate) UEL (Upper Explosive Limit): 10.80 Vol-% (2-Methoxy-1-methylethyl acetate)
Vapour pressure:	at 20 °C: 3.1 hPa (2-Methoxy-1-methylethyl acetate)
Vapour density:	No data available
Density:	at 20 °C: 0.967 g/mL (2-Methoxy-1-methylethyl acetate)
Water solubility:	at 20 °C: 220 g/L (2-Methoxy-1-methylethyl acetate)
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity, kinematic:	No data available
Explosive properties:	Vapours can form explosive mixtures with air.
Oxidizing characteristics:	No data available

9.2 Other information

Ignition temperature: 315 °C (2-Methoxy-1-methylethyl acetate)

SECTION 10: Stability and reactivity

10.1 Reactivity

Flammable liquid and vapour. Vapours can form explosive mixtures with air.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Heating will lead to pressure increase: Danger of bursting and explosion.
Avoid admission of air/oxygen (formation of peroxide).

10.4 Conditions to avoid

Keep away from heat sources, sparks and open flames.
Protect against direct sunlight.

10.5 Incompatible materials

Strong oxidizing agents, strong acids, strong bases.

10.6 Hazardous decomposition products

Carbon monoxide and carbon dioxide.

Thermal decomposition: No data available



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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Toxicological effects: The statements are derived from the properties of the single components. No toxicological data is available for the product as such.
Acute toxicity (oral): Based on available data, the classification criteria are not met.
ATEmix calculated: > 2000 mg/kg
Acute toxicity (dermal): Based on available data, the classification criteria are not met.
ATEmix calculated: > 2000 mg/kg
Acute toxicity (inhalative): Based on available data, the classification criteria are not met.
ATEmix calculated (Vapours): > 20 mg/L
Skin corrosion/irritation: Skin Irrit. 2; H315 = Causes skin irritation.
Serious eye damage/irritation: Eye Irrit. 2; H319 = Causes serious eye irritation.
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Skin Sens. 1; H317 = May cause an allergic skin reaction.
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: > 5000 mg/kg
LD50 Rabbit, dermal: > 2000 mg/kg
LC50 Rat, inhalative: 35.7 mg/L/4h
Information about Propylene carbonate:
LD50 Rat, oral: > 5000 mg/kg (OECD 401)
LD50 Rabbit, dermal: > 2000 mg/kg (OECD 402)

Symptoms

After eye contact: Upon direct contact with eyes may cause burning, tearing, redness.



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SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity: Toxic to aquatic life with long lasting effects.
Information about 2-Methoxy-1-methylethyl acetate:
Daphnia toxicity:
EC50 Daphnia magna (Big water flea): > 500 mg/L/48h.
Fish toxicity:
LC50 Oncorhynchus mykiss: 134 mg/L/96h (OECD 203)
Algae toxicity:
EC50 Pseudokirchneriella subcapitata (green algae): > 1,000 mg/L/96h
Information about Propylene carbonate:
Daphnia toxicity:
EC50/LC50 Daphnia magna (Big water flea): > 1,000 mg/L/48h (OECD 202)
Fish toxicity:
LC50 Cyprinus carpio (Common Carp): > 1,000 mg/L/96h (EU Method C.1)
Algae toxicity:
EC50/LC50 Desmodesmus subspicatus (green algae): > 900 mg/L/72h (OECD 201)
NOEC Desmodesmus subspicatus (green algae): 900 mg/L/72h (OECD 201)

12.2 Persistence and degradability

Further details: Biodegradability:
Information about 2-Methoxy-1-methylethyl acetate:
83 % /10 d (OECD 301 F).
Easily bio-degradable
Information about Propylene carbonate:
> 83%/28d (OECD 301B).
Easily bio-degradable
Effects in sewage plants: Information about 2-Methoxy-1-methylethyl acetate:
EC10 activated sludge: > 1,000 mg/L/30min (OECD 209)

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:
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 hazardous substances
* = Evidence for disposal must be provided.

Recommendation: Dispose of waste according to applicable legislation.
Do not dispose of with household waste.
Do not empty into drains.



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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-DGR:

UN 1993

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 1993, FLAMMABLE LIQUID, N.O.S. (2-Methoxy-1-methylethyl acetate)

14.3 Transport hazard class(es)

ADR/RID:

Class 3, Code: F1

IMDG:

Class 3, Subrisk -

IATA-DGR:

Class 3



14.4 Packing group

ADR/RID, IMDG, IATA-DGR:

III

14.5 Environmental hazards

Marine pollutant:

yes



14.6 Special precautions for user

Land transport (ADR/RID)

Warning board:

ADR/RID: Kemmler-number 30, UN number UN 1993

Hazard label:

3

Special provisions:

274 601

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

Excepted quantities:

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:

-

Segregation group:

none



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Air transport (IATA)

Hazard label:	Flamm. liquid
Excepted Quantity Code:	E1
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y344 - Max. Net Qty/Pkg. 10 L
Passenger and Cargo Aircraft:	Pack.Instr. 355 - Max. Net Qty/Pkg. 60 L
Cargo Aircraft only:	Pack.Instr. 366 - Max. Net Qty/Pkg. 220 L
Special provisions:	A3
Emergency Response Guide-Code (ERG):	3L

14.7 Transport in bulk according to Annex II of Marpol 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
No data available

National regulations - EC member states

Volatile organic compounds (VOC):
approx. 45 % by weight

Labelling of packaging with <= 125mL content



Signal word:

Warning

Hazard statements:	H317	May cause an allergic skin reaction.
Precautionary statements:	P261	Avoid breathing vapours/spray.
	P280	Wear protective gloves/protective clothing/eye protection.
	P333+P313	If skin irritation or rash occurs: Get medical advice/attention.

Further regulations, limitations and legal requirements:

Use restriction according to REACH annex XVII, no.: 3, 40

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.
H315 = Causes skin irritation.
H317 = May cause an allergic skin reaction.
H319 = Causes serious eye irritation.
H400 = Very toxic to aquatic life.
H410 = Very toxic to aquatic life with long lasting effects.
H411 = Toxic to aquatic life with long lasting effects.

Reason of change:	Changes in section 1: Product name, Material number Changes in section 2: Classification, Labelling Changes in section 3: Composition / information on ingredients
Date of first version:	23/8/2018



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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.

