

SAFETY DATA SHEET

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



Negative Photoresist AR-N 2210 series and AR-N 2220 series

Material number AR-N 2210 series and AR-N 2220 series

Revision date: 3/5/2017
Version: 6

Language: en-GB,IE

Date of print: 12/6/2017
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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 2210 series and AR-N 2220 series

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. 2; H225 Highly flammable liquid and vapour.
Eye Irrit. 2; H319 Causes serious eye irritation.
STOT SE 3; H336 May cause drowsiness or dizziness.
(EUH066) Repeated exposure may cause skin dryness or cracking.

2.2 Label elements

Labelling (CLP)



Signal word:

Danger

Hazard statements: H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
EUH066 Repeated exposure may cause skin dryness or cracking.

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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.
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].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.

Special labelling

Text for labelling: Contains 2- Butanone.

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 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

Chemical characterisation: Mixture of the substances listed below with non-hazardous additions

Hazardous ingredients:

Ingredient	Designation	Content	Classification
REACH 02-2119752535-35-xxxx EC No. 201-159-0 CAS 78-93-3	2-Butanone	40 - <80 %	Flam. Liq. 2; H225. Eye Irrit. 2; H319. STOT SE 3; H336. (EUH066).
REACH 01-2119475791-29-xxxx EC No. 203-603-9 CAS 108-65-6	2-Methoxy-1-methylethyl acetate	15 - 55 %	Flam. Liq. 3; H226.

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 exposed or concerned: Get medical advice/attention.
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. Seek medical aid in case of troubles.
- Following skin contact: Take off contaminated clothing and wash it before reuse. 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. 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. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. May cause drowsiness or dizziness.
Repeated exposure may cause skin dryness or cracking.

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:

Full water jet

5.2 Special hazards arising from the substance or mixture

Highly flammable liquid and vapour.
With air, vapours form potentially explosive mixtures, which are heavier than air.
Vapours are heavier than air and will spread at floor level.
May form dangerous gases and vapours in case of fire.
Furthermore, there may develop: nitrogen oxides, sulphur oxides, 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: •3YE

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. Ensure adequate ventilation, especially in confined areas.
Eliminate all ignition sources if safe to do so. If possible, eliminate leakage. Cordon off downwind area at risk and warn inhabitants.
Use solvent-resistant protective clothing. Take off contaminated clothing and wash it before reuse. Keep unprotected people away.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Take up with non-flammable, liquid binding material (e.g. sand/earth/diatomaceous earth/vermiculit) and perform disposal according to instructions.
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. Guarantee sufficient ventilation during and after use, in order to prevent vapour accumulation.
Avoid contact with skin, eyes, and clothing. Wear appropriate protective equipment.
Take off contaminated clothing and wash it before reuse.
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 discharges. 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.
Protect from heat and direct sunlight. Store containers in upright position.
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 strong oxidizing agents, acids or alkalis.
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
78-93-3	2-Butanone	Europe: IOELV: STEL	900 mg/m ³ ; 300 ppm
		Europe: IOELV: TWA	600 mg/m ³ ; 200 ppm
		Great Britain: WEL-STEL	899 mg/m ³ ; 300 ppm
		Great Britain: WEL-TWA	600 mg/m ³ ; 200 ppm
		Ireland: 15 minutes	900 mg/m ³ ; 300 ppm (May be absorbed through the skin.)
		Ireland: 8 hours	600 mg/m ³ ; 200 ppm (May be absorbed through the skin.)
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: PE/EVAL/PE - polyethylene/ethylene-vinyl-alcohol-copolymer/polyethylene.
Breakthrough time: >480 min.
Unsuitable materials: Nitrile rubber, butyl caoutchouc (butyl rubber), fluoro rubber.
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166.

Body protection: Use solvent-resistant protective clothing.
In case of handling larger quantities: Flame retardant, antistatic and chemical resistant protective clothing.

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General protection and hygiene measures:

Do not breathe vapour/aerosol. Do not get in eyes, on skin, or on clothing.
Take off 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: brown-red
Odour:	ester-like
Odour threshold:	No data available
pH value:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	80 °C (2-Butanone)
Flash point/flash point range:	10 °C (c.c.)
Evaporation rate:	No data available
Flammability:	Highly flammable liquid and vapour.
Explosion limits:	LEL (Lower Explosive Limit): 1.20 Vol-% (2-Methoxy-1-methylethyl acetate) UEL (Upper Explosive Limit): 11.50 Vol-% (2-Butanone)
Vapour pressure:	at 20 °C: 105 hPa (2-Butanone) at 50 °C: 370 hPa (2-Butanone)
Vapour density:	4.56
Density:	at 20 °C: approx. 1 g/mL
Water solubility:	partially soluble
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: 333 °C (2-Methoxy-1-methylethyl acetate)

SECTION 10: Stability and reactivity

10.1 Reactivity

Highly 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.

10.4 Conditions to avoid

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

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10.5 Incompatible materials

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

10.6 Hazardous decomposition products

No hazardous decomposition products when regulations for storage and handling are observed.

Thermal decomposition: No data available

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): $2000 \text{ mg/kg} < \text{ATE} \leq 5000 \text{ mg/kg}$.

Acute toxicity (dermal): Based on available data, the classification criteria are not met.
ATEmix (calculated): $2000 \text{ mg/kg} < \text{ATE} \leq 5000 \text{ mg/kg}$.

Acute toxicity (inhalative): Based on available data, the classification criteria are not met.
ATEmix (calculated): $\text{ATE} > 20 \text{ mg/L}$.

Skin corrosion/irritation: Lack of data.

Eye damage/irritation: Eye Irrit. 2; H319 = Causes serious eye irritation.

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): STOT SE 3; H336 = May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure): Lack of data.

Aspiration hazard: Lack of data.

Other information: Information about 2-Butanone:
LD50 Rat, oral: 2737 mg/kg
LD50 Rabbit, dermal: 6480 mg/kg
LC50 Rat, inhalative: 32 mg/L/4h

Information about 2-Methoxy-1-methylethyl acetate:
LD50 Rat, oral: $> 5000 \text{ mg/kg}$
LD50 Rabbit, dermal: $> 2000 \text{ mg/kg}$

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Symptoms

Nausea, vomiting, headache, dizziness, CNS disorders, unconsciousness.

In case of inhalation:

depression of central nervous system, Cough and shortage of breath. Pulmonary edema is possible. Symptoms may occur with delay.

In case of ingestion: May be harmful if swallowed.

Nausea, vomiting, depression of central nervous system.

After absorption of large quantities: CNS disorders, drowsiness, dizziness, inebriation, blood pressure drop, narcosis, cardiac arrhythmias.

After contact with skin: Repeated exposure may cause skin dryness or cracking.

After eye contact: Reddening, pain.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

Information about 2-Butanone:

Daphnia toxicity:

EC50 Daphnia magna (Big water flea): 308 mg/L/48h (OECD 202)

Fish toxicity:

LC50 Pimephales promelas (fathead minnow): 2993 mg/L/96h (OECD 203)

Algae toxicity:

EC50 Pseudokirchneriella subcapitata (green algae): 2029 mg/L/96h (OECD 201)

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

Algae toxicity:

EC50 Pseudokirchneriella subcapitata (green algae): > 1000 mg/L/96h

12.2 Persistence and degradability

Further details:

Biodegradability:

Information about 2-Butanone: 98 % /28 d (OECD 301 D). Easily bio-degradable

Information about 2-Methoxy-1-methylethyl acetate: 83 % /10 d (OECD 301 F). Easily bio-degradable

Effects in sewage plants:

Information about 2-Methoxy-1-methylethyl acetate:

EC10 activated sludge: >1000 mg/L/30min (OECD 209)

12.3 Bioaccumulative potential

Bioconcentration factor (BCF):

no data available

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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: 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-DGR:
UN 1993

14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR:
UN 1993, FLAMMABLE LIQUID, N.O.S. (2-Butanone)

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:
II

14.5 Environmental hazards

Marine pollutant: NO

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14.6 Special precautions for user

Land transport (ADR/RID)

Warning board:	ADR/RID: Kemmler-number 33, UN number UN 1993
Hazard label:	3
Special provisions:	274 601 640D
Limited quantities:	1 L
EQ:	E2
Contaminated packaging - Instructions:	P001 IBC02 R001
Special provisions for packing together:	MP19
Portable tanks - Instructions:	T7
Portable tanks - Special provisions:	TP1 TP8 TP28
Tank coding:	LGBF
Tunnel restriction code:	D/E

Sea transport (IMDG)

EmS:	F-E, S-E
Special provisions:	274
Limited quantities:	1 L
Excepted quantities:	E2
Contaminated packaging - Instructions:	P001
Contaminated packaging - Provisions:	-
IBC - Instructions:	IBC02
IBC - Provisions:	-
Tank instructions - IMO:	-
Tank instructions - UN:	T7
Tank instructions - Provisions:	TP1, TP8, TP28
Stowage and handling:	Category B.
Properties and observations:	-
Segregation group:	none

Air transport (IATA)

Hazard label:	Flamm. liquid
Excepted Quantity Code:	E2
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y341 - Max. Net Qty/Pkg. 1 L
Passenger and Cargo Aircraft:	Pack.Instr. 353 - Max. Net Qty/Pkg. 5 L
Cargo Aircraft only:	Pack.Instr. 364 - Max. Net Qty/Pkg. 60 L
Special provisions:	A3
Emergency Response Guide-Code (ERG):	3H

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: •3YE
No data available

National regulations - EC member states

Volatile organic compounds (VOC):
65 % by weight = 650 g/L

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Labelling of packaging with <= 125mL content



Signal word: **Danger**
Hazard statements: EUH066 Repeated exposure may cause skin dryness or cracking.
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:

H225 = Highly flammable liquid and vapour.
H226 = Flammable liquid and vapour.
H319 = Causes serious eye irritation.
H336 = May cause drowsiness or dizziness.
EUH066 = Repeated exposure may cause skin dryness or cracking.

Reason of change: Changes in section 2: Labelling
Changes in section 3: Composition / information on ingredients
General revision
Date of first version: 21/1/2011

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.

