

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



AZ MiR(TM) 701 Photoresist (14 CPS)

Substance No.: 000000100048
Version 3.0 DE-GHS

Revision Date 09.04.2015

Print Date 13.08.2015

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

1.1 Product identifier

Trade name : AZ MiR(TM) 701 Photoresist (14 CPS)

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

Use of the Substance/Mixture : Electronic industry
Intermediate for electronic industry

1.3 Details of the supplier of the safety data sheet

Company : Merck Performance Materials GmbH
Rheingastrasse 190-196 ,
65203 Wiesbaden Germany

Telephone : +49 (0)611 962 8563

E-mail address of person responsible for the SDS : PSE@merckgroup.com

1.4 Emergency telephone number

Emergency telephone number : +49 69 305 6418 (24/7, English and German)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

GHS Classification

Flammable liquids, Category 3	H226: Flammable liquid and vapour. On basis of test data.
Serious eye damage, Category 1	H318: Causes serious eye damage. Calculation method
Specific target organ toxicity - single exposure, Category 3	H335: May cause respiratory irritation. Respiratory system Calculation method

2.2 Label elements

GHS-Labeling

SAFETY DATA SHEET

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Symbol(s)	:	  
Signal word	:	Danger
Hazard statements	:	H226 Flammable liquid and vapour. H318 Causes serious eye damage. H335 May cause respiratory irritation.
Precautionary statements	:	Prevention: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P280 Wear protective gloves/ eye protection/ face protection. Response: P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

- 97-64-3 ethyl lactate
- 123-86-4 n-butyl acetate

2.3 Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical characterization

Preparation of polymers and diazo compounds in organic solvents (halogenfree).

Hazardous components

ethyl lactate

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CAS-No. : 97-64-3
EC-No. : 202-598-0
Classification : Flam. Liq. 3; H226
(REGULATION (EC) No 1272/2008) STOT SE 3; H335
Eye Dam. 1; H318

Concentration [%] : $\geq 50 - < 70$

4,4'-(1-{4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl}ethylidene)diphenol

CAS-No. : 110726-28-8
EC-No. : 425-600-3
Registration number : 01-0000017200-87-0001
Classification : Aquatic Chronic 4; H413
(REGULATION (EC) No 1272/2008)
Concentration [%] : $\geq 2,5 - < 10$

Substances with a workplace exposure limit :

n-butyl acetate

CAS-No. : 123-86-4
EC-No. : 204-658-1
Registration number : 01-2119485493-29-xxxx
Classification : Flam. Liq. 3; H226
(REGULATION (EC) No 1272/2008) STOT SE 3; H336
Concentration [%] : $\geq 10 - < 15$

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Take off all contaminated clothing immediately.
If symptoms persist, call a physician.
Show this safety data sheet to the doctor in attendance.
First aider needs to protect himself.
- Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a physician immediately.
Show this safety data sheet to the doctor in attendance.
- Skin contact : Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
- Eye contact : Rinse thoroughly with plenty of water for at least 15 minutes

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Ingestion : and consult a physician.
: Do NOT induce vomiting.
: Call a physician immediately.
: Show this safety data sheet to the doctor in attendance.
: Immediately give large quantities of water to drink.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : alcohol-resistant foam
dry powder
carbon dioxide
water spray jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : In case of fires, hazardous combustion gases are formed:
Carbon monoxide (CO)
Carbon dioxide (CO₂)
Nitrogen oxides (NO_x)
Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : Use self-contained breathing apparatus
Well closed full protective clothing (coat and pants) including helmet.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

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6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.
Clean contaminated floors and objects thoroughly while observing environmental regulations.

6.4 Reference to other sections

Additional advice : Information regarding Safe handling, see chapter 7.
Information regarding personal protective measures see, chapter 8.
Information regarding Waste Disposal, see chapter 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
Advice on protection against fire and explosion : Normal measures for preventive fire protection.

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.
Protect against light.
Advice on common storage : Keep away from food and drink.

7.3 Specific end use(s)

: No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

Components	:	n-butyl acetate
CAS-No.	:	123-86-4

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Version 3.0 DE-GHS

Value	:	AGW
Control parameters	:	62 ppm 300 mg/m ³
Category short-time exposure	:	2;(I)
Update	:	2012-09-13
Basis	:	DE TRGS 900
Further information	:	AGS: Commission for dangerous substances When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

n-butyl acetate

: End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute effects
Value: 960 mg/m³

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 480 mg/m³

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Acute effects
Value: 859,7 mg/m³

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 102,34 mg/m³

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

n-butyl acetate

: Fresh water
Value: 0,18 mg/l

Marine water
Value: 0,018 mg/l

Fresh water sediment
Value: 0,981 mg/kg

Marine sediment
Value: 0,0981 mg/kg

Soil
Value: 0,0903 mg/kg

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



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Substance No.: 000000100048
Version 3.0 DE-GHS

Revision Date 09.04.2015

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8.2 Exposure controls

Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

Personal protective equipment

- Respiratory protection : Use respiratory protection in case of insufficient exhaust ventilation or prolonged exposure
Recommended Filter type:
ABEK-filter
- Hand protection : Break through time: > 10 min
Glove thickness: > 0,4 mm
For short-term exposure (splash protection):
Nitrile rubber gloves.
Remarks: These types of protective gloves are offered by various manufacturers. Please note the manufacturers' detailed statements, especially about the minimum thickness and the minimum breakthrough time. Consider also the particular working conditions under which the gloves are being used.
- Eye protection : Tightly fitting safety goggles
- Skin and body protection : protective clothing
- Hygiene measures : At work do not eat, drink, smoke or take drugs.
Keep away from foodstuffs and beverages.
Wash hands before breaks and after work.
Use barrier skin cream.
- Protective measures : Do not breathe vapours or spray mist.
Avoid contact with skin and eyes.
Observe the usual precautions for handling chemicals.

Environmental exposure controls

- General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Form : Liquid
Colour : yellow to red

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Version 3.0 DE-GHS

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Odour : characteristic

Safety data

Flash point : 49 °C
Ignition temperature : not determined
Thermal decomposition : No decomposition if used as prescribed.
Lower explosion limit : not determined
Upper explosion limit : not determined
Flammability (solid, gas) : not determined
Oxidizing properties : not determined
Auto-ignition temperature : not determined
Burning number : not determined
pH : Not applicable
Freezing point : not determined
Starts to boil : 155 °C
Sublimation point : not determined
Vapour pressure : app. 5,3 hPa
Density : 1,05 g/cm³
Water solubility : The solvent is partially water soluble but the product forms two layers.
Partition coefficient: n-octanol/water : not reasonable
Solubility in other solvents : not determined
Viscosity, dynamic : not determined
Viscosity, kinematic : not determined
Relative vapour density : not determined
Corrosive in contact with metals : not determined
Evaporation rate : not determined

9.2 Other information

Further information : Remarks: No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : Reactions with acids, alkalies and oxidizing agents.

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Substance No.: 000000100048
Version 3.0 DE-GHS

Revision Date 09.04.2015

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10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents
Strong acids
Bases

10.6 Hazardous decomposition products

Hazardous decomposition products : when handled and stored appropriately no dangerous decomposition products are known

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Product

Acute oral toxicity : no data available
Acute inhalation toxicity : no data available
Acute dermal toxicity : no data available
Skin corrosion/irritation : no data available
Serious eye damage/eye irritation : no data available
Respiratory or skin sensitisation : no data available
Further information : no data available

Components:

4,4'-(1-{4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl}ethylidene)diphenol :

Acute oral toxicity : LD50: > 5.000 mg/kg, rat
Skin corrosion/irritation : rabbit, Result: No skin irritation, OECD 404
Serious eye damage/eye irritation : rabbit, Result: No eye irritation, OECD 405
Respiratory or skin sensitisation : Buehler Test, guinea pig, Result: Did not cause sensitisation on laboratory animals.
Germ cell mutagenicity
Genotoxicity in vitro : Ames test, with or without metabolic activation, Result: negative

SAFETY DATA SHEET

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n-butyl acetate :

- Acute oral toxicity : LD50: > 10.000 mg/kg, rat
- Acute inhalation toxicity : LC50: > 21,1 mg/l, 4 h, rat, vapour, OECD Test Guideline 403
- Acute dermal toxicity : LD50: > 14.000 mg/kg, rabbit
- Skin corrosion/irritation : rabbit, Result: No skin irritation, OECD Test Guideline 404
- Serious eye damage/eye irritation : rabbit, Result: No eye irritation, OECD Test Guideline 405
- Respiratory or skin sensitisation : Maximisation Test, guinea pig, Result: Did not cause sensitisation on laboratory animals.
- STOT - single exposure : Assessment: May cause drowsiness or dizziness.
- Further information : Has a degreasing effect on skin

SECTION 12: Ecological information

12.1 Toxicity

Components:

4,4'-(1-{4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl}ethylidene)diphenol:

- Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 1.000 mg/l
Exposure time: 48 h
- Toxicity to daphnia and other aquatic invertebrates : (Daphnia magna (Water flea)): Exposure time: 96 h
Method: OECD 202
Remarks: No observable toxic effect in saturated solution.

n-butyl acetate:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 18 mg/l
Exposure time: 96 h
Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp.): 44 mg/l
Exposure time: 48 h
Test Type: static test
- Toxicity to algae : EC50 (Scenedesmus subspicatus): 675 mg/l
End point: growth rate
Exposure time: 72 h
Method: DIN 38412 T.9
- Toxicity to bacteria : IC50 (activated sludge): 356 mg/l
Exposure time: 40 h
Test Type: aquatic

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



AZ MiR(TM) 701 Photoresist (14 CPS)

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Version 3.0 DE-GHS

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12.2 Persistence and degradability

Components:

4,4'-(1-{4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl}ethylidene)diphenol :

Biodegradability : Result: Not readily biodegradable.
Biodegradation: < 10 %
Exposure time: 28 d
Method: Modified Sturm Test

n-butyl acetate :

Biodegradability : Result: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

4,4'-(1-{4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl}ethylidene)diphenol :

Partition coefficient: n- : log Pow: 3,3
octanol/water Method: OECD Guide-line 117

n-butyl acetate :

Bioaccumulation : Remarks: Does not accumulate in organisms.

Partition coefficient: n- : log Pow: 1,85 (20 °C)
octanol/water

12.4 Mobility in soil

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:

n-butyl acetate :

Assessment : The substance does not fulfill the PBT criteria.. The substance does not fulfill the vPvB criteria..

12.6 Other adverse effects

Product:

Additional ecological : no data available
information

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Product : Dispose of contents/ container to an approved waste disposal plant.
- Contaminated packaging : Dispose of as unused product.

SECTION 14: Transport information

ADR

- UN number : 1993
Description of the goods : FLAMMABLE LIQUID, N.O.S.
(Ethyl lactate, n-Butyl acetate)
Class : 3
Packing group : III
Classification Code : F1
Labels : 3
Environmentally hazardous : no

IATA

- UN number : 1993
Description of the goods : Flammable liquid, n.o.s.
(Ethyl lactate, n-Butyl acetate)
Class : 3
Packing group : III
Labels : 3
Environmentally hazardous : no

IMDG

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

RID

- UN number : 1993
Description of the goods : FLAMMABLE LIQUID, N.O.S.
(Ethyl lactate, n-Butyl acetate)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



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Revision Date 09.04.2015

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Version 3.0 DE-GHS

Class : 3
Packing group : III
Classification Code : F1
Labels : 3
Environmentally hazardous : no

SECTION 15: Regulatory information

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

International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors : Neither banned nor restricted

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : 123-86-4

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Neither banned nor restricted

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

REACH - List of substances subject to authorisation (Annex XIV) : Neither banned nor restricted

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Neither banned nor restricted

Regulation (EC) No 850/2004 on persistent organic pollutants : Neither banned nor restricted

Water contaminating class (Germany) : 2 water polluting
Remarks: Data in accordance with the VwVsS regulation for mixtures.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for a mixture.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

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H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H413	May cause long lasting harmful effects to aquatic life.

Decimal notation: "Thousands" places are identified with a dot (example: 2.000 mg/kg means "two thousand mg/kg"). Decimal places are identified with a comma (example: 1,35 g/cm³)

Further information

Further information : Observe national and local legal requirements

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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