AZ P4110 Photoresist

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

1.1 Product identifier

Trade name : AZ P4110 Photoresist

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
Rheingaustrasse 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.

2.2 Label elements

GHS-Labelling

Symbol(s) :

Signal word : Warning

Hazard statements : H226 Flammable liquid and vapour.

Precautionary statements : **Prevention:**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

P403 + P235	Store in a well-ventilated place. Keep cool.

2.3 Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical characterization

A mixture of polymer resins and diazo compounds in halogen free organic solvent.

Hazardous components

2-methoxypropyl acetate

CAS-No.	:	70657-70-4
EC-No.	:	274-724-2
Classification (REGULATION (EC) No 1272/2008)	:	Flam. Liq. 3; H226 Repr. 1B; H360D STOT SE 3; H335
Concentration [%]	:	< 0,3

WEL substance :

2-methoxy-1-methylethyl acetate

CAS-No.	:	108-65-6
EC-No.	:	203-603-9
Registration number	:	01-2119475791-29-xxxx
Classification (REGULATION (EC) No 1272/2008)	:	Flam. Liq. 3; H226
Concentration [%]	:	>= 50 - <= 100

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.
Inhalation	:	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin contact	:	Wash off immediately with plenty of water. If skin irritation persists, call a physician.
Eye contact	:	Immediately flush eye(s) with plenty of water. Protect unharmed eye. Remove contact lenses.
Ingestion	:	If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

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	:	Water spray jet Foam Dry powder Carbon dioxide (CO2)

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	In case of fire hazardous decomposition products may be produced such as: Carbon dioxide (CO2) Carbon monoxide

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Well closed full protective clothing (coat and pants) including helmet. In the event of fire, wear self-contained breathing apparatus.

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.

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 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	:	**2-methoxy-1-methylethyl acetate**
CAS-No.	:	108-65-6
Value	:	AGW
Control parameters	:	50 ppm 270 mg/m3
Category short-time exposure	:	1;(I)
Update	:	2006-01-01
Basis	:	DE TRGS 900
Further information	:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).European Union (The EU has established a limit value: deviations in value and peak limit are possible)When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child

Components	:	**2-methoxypropyl acetate**
CAS-No.	:	70657-70-4
Value	:	AGW
Control parameters	:	5 ppm 28 mg/m3
Category short-time exposure	:	8;(II)
Update	:	2006-01-01
Basis	:	DE TRGS 900
Further information	:	DFG: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).Skin absorptionWhen there is compliance with the OEL and biological tolerance values, harm to the unborn child can not be excluded

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

2-methoxy-1-methylethyl acetate : End Use: Workers
Exposure routes: Skin contact
Potential health effects: Chronic effects
Value: 54,8 mg/kg

End Use: Workers
Exposure routes: Inhalation
Potential health effects: Chronic effects
Value: 33 mg/m3

End Use: Workers
Exposure routes: Ingestion
Potential health effects: Chronic effects
1,67 mg/kg

End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Chronic effects
153,5 mg/kg

End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Chronic effects
275 mg/kg

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

2-methoxy-1-methylethyl acetate	:	Fresh water Value: 0,635 mg/l Marine water Value: 0,0635 mg/l Fresh water sediment Value: 3,29 mg/kg Marine sediment Value: 0,329 mg/kg Soil Value: 0,29 mg/kg

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	:	When using do not eat, drink or smoke. Keep away from food and drink. Wash hands before breaks and at the end of workday. 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
Odour	:	ester-like

Safety data

Flash point	:	approx. 42 °C
Ignition temperature	:	not determined
Thermal decomposition	:	not determined
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	:	145 °C
Sublimation point	:	not determined
Vapour pressure	:	approx. 5 hPa, 20 °C
Density	:	1 g/cm3, 20 °C
Water solubility	:	The solvent is partially water soluble but the product forms two layers.
Partition coefficient: n-octanol/water	:	not determined
Solubility in other solvents	:	not determined
Viscosity, dynamic	:	approx. 35 mPas, 20 °C
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	:	No dangerous reaction known under conditions of normal use.

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	:	No decomposition if stored and applied as directed.

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:
2-methoxypropyl acetate :

Reproductive toxicity	:	May damage the unborn child.

2-methoxy-1-methylethyl acetate :

Acute oral toxicity	:	LD50: > 8.532 mg/kg, rat(female)
Acute inhalation toxicity	:	LC50: > 10,8 mg/l, 6 h, rat,
Acute dermal toxicity	:	LD50: > 5.000 mg/kg, rabbit

SECTION 12: Ecological information

12.1 Toxicity

Components:
2-methoxy-1-methylethyl acetate:

Toxicity to fish	:	LC50 (Oryzias latipes (Orange-red killifish)): 100 mg/l Exposure time: 96 h Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 373 mg/l Exposure time: 48 h

12.2 Persistence and degradability

Components:
2-methoxy-1-methylethyl acetate :

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 99 % Exposure time: 28 d

12.3 Bioaccumulative potential

Components:

2-methoxy-1-methylethyl acetate :

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water	:	log Pow: 1,2

12.4 Mobility in soil

Components:

2-methoxy-1-methylethyl acetate :

Distribution among environmental compartments	:	Koc: 1,7Remarks: Highly mobile in soils

12.5 Results of PBT and vPvB assessment

Components:

2-methoxy-1-methylethyl acetate :

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

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	Product should be taken to a suitable and authorized waste disposal site in accordance with relevant regulations and if necessary after consultation with the waste disposal operator and/or the competent Authorities
Contaminated packaging	:	Dispose of as unused product.

SECTION 14: Transport information

ADR

UN number	:	1993
Description of the goods	:	FLAMMABLE LIQUID, N.O.S. (2-Methoxy-1-methylethyl 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.
(2-Methoxy-1-methylethyl acetate)
Class : 3
Packing group : III
Labels : 3
Environmentally hazardous : no

IMDG
UN number : 1993
Description of the goods : FLAMMABLE LIQUID, N.O.S.
(2-Methoxy-1-methylethyl 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.
(2-Methoxy-1-methylethyl acetate)
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) : 108-65-6

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) : 1 weakly water polluting

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.

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

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.