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

Product identifier
- Thinner for Photoresists ma-T 1050
- Verdünner

Chemical characterization (Mixture)

Details of the supplier of the safety data sheet
- Company name: micro resist technology GmbH
- Street: Koepenicker Str. 325
- Place: D-12555 Berlin
- Telephone: +49 30 641670-100
- Telefax: +49 30 641670-200
- e-mail: safety@microresist.de
- Internet: www.microresist.de

Emergency telephone: +49 30 641670-100

Further Information
This number is serviced during office hours.

SECTION 2: Hazards identification

Route(s) of Entry
- oral. dermal. inhalation.

Signs and Symptoms of Exposure
No data available

Carcinogenicity (NTP): Ingredient (name): none/none
Carcinogenicity (IARC): Ingredient (name): none/none
Carcinogenicity (OSHA): Ingredient (name): none/none

Other hazards
Flammable liquid and vapour.

SECTION 3: Composition/information on ingredients

Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Components</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-65-6</td>
<td>2-methoxy-1-methylethyl acetate</td>
<td>80-100 %</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

Description of first aid measures

General information
In case of accident or if you feel unwell, seek medical advice immediately (show safety data sheet if possible).

After inhalation
Provide fresh air. In case of breathing difficulties administer oxygen. If victim is at risk of losing consciousness, position and transport on their side. In case of irritation of the respiratory tract seek medical advice.
After contact with skin
After contact with skin, wash immediately with plenty of water and soap. Change contaminated clothing. In case of skin irritation, seek medical treatment.

After contact with eyes
Rinse immediately carefully and thoroughly with eye-bath or water. Consult an ophthalmologist.

After ingestion
Rinse mouth immediately and drink large quantities of water. Caution if victim vomits: Risk of aspiration! Medical treatment necessary.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2). Dry extinguishing powder. Foam.

Unsuitable extinguishing media
High power water jet.

Special hazards arising from the substance or mixture
In case of fire and/or explosion do not breathe fumes.

Advice for firefighters
Wear a self-contained breathing apparatus and chemical resistant suit. Full protective suit.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eye and clothing. Wear personal protection equipment.

Environmental precautions
Do not empty into drains or the aquatic environment.

Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Collect in closed containers for disposal. Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections
Treat the assimilated material according to the section on waste disposal. See protective measures under point 7 and 8.

SECTION 7: Handling and storage

Precautions for safe handling

Advice on safe handling
Use only in well-ventilated areas. Only use material in places where open light, fire and other sources of ignition can be kept away. Do not breathe vapour or spray.

Advice on protection against fire and explosion
Take precautionary measures against static discharges.

Further information on handling
In case of fire, use sand, earth, extinguishing powder or foam. Never use water.

Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
- Keep container tightly closed and in a well-ventilated place.
- Storage temperature: 18°C to 25°C.
- Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Suitable material for floor covering: Solvent-proof.

Further information on storage conditions
- Protect against: heat, UV-radiation/sunlight.

SECTION 8: Exposure controls/personal protection

Control parameters

Additional advice on limit values
- No data available

Exposure controls

Occupational exposure controls
- In case of open handling equipment with built-in suction must be used. Do not breathe gas/fumes/vapour/spray. Wear personal protection equipment. Provide adequate ventilation.

Protective and hygiene measures
- Take off immediately all contaminated clothing. Protect skin by using skin protective cream. After work, wash hands and face. When using do not eat or drink.

Respiratory protection
- If technical suction or ventilation measures are not possible or are insufficient, protective breathing apparatus must be worn. Respiratory protection required in case of: aerosol or mist generation. Filter respirator (full mask or mouth-piece) with filter: A

Hand protection
- Tested protective gloves are to be worn: Single-use gloves.
- German Industry Norms (DIN) / European Norms (EN): DIN EN 374

Duration of wearing with permanent contact:
- Suitable material: Butyl rubber.
- Thickness of glove material: 0.7 mm
- Penetration time (maximum wearing period): > 480 min
- Recommended protective gloves brand: KCL 898 Butoject, Manufacturer: KCL GmbH, D-36124 Eichenzell, Source of supply: www.kcl.de

Duration of wearing with occasional contact (splashes):
- Suitable material: NBR (Nitrile rubber).
- Thickness of glove material: 0.4 mm
- Penetration time (maximum wearing period): > 30 min

- In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer of the gloves.

Eye protection
- Suitable eye protection: Tightly sealed safety glasses.

Skin protection
- For the protection against direct skin contact, body protective clothing is essential (in addition to the
usual working clothes).

Environmental exposure controls
Do not empty into drains.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state: liquid
Color: colourless - light yellow
Odor: characteristic

Test method
pH-Value: No data available

Changes in the physical state
Melting point: No data available
Boiling point: 148 °C
Flash point: 48 °C

Explosive properties
Product is: not explosive.
In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

Lower explosion limits: 1,2 vol. %
Upper explosion limits: 10,6 vol. %
Ignition temperature: 315 °C
Vapour pressure: 5 hPa
(at 20 °C)
Vapour pressure: 21 hPa
(at 50 °C)
Density (at 20 °C): 0,97 g/cm³
Water solubility: unlöslich
Partition coefficient: No data available
Viscosity / dynamic: <7 mPa·s
(at 25 °C)
Viscosity / kinematic: No data available
Flow time: No data available
Vapour density: No data available
Evaporation rate: No data available

Other information
No data available

SECTION 10: Stability and reactivity

Stability: Stable
Possibility of Hazardous Reactions: Will not occur

Conditions to avoid
UV-radiation/sunlight.
Keep away from heat. Keep away from sources of ignition - No smoking.
Ignition hazard.

Incompatible materials
Oxidizing agents. (Ignition hazard.)
Thinner for Photoresists ma-T 1050

Violent reaction with: Peroxides, Alkalis (alkalis).

Hazardous decomposition products
No data available

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
2-methoxy-1-methylethyl acetate:
Acute toxicity, oral LD50: 8532 mg/kg species: Rat. (RTECS)
Acute toxicity, dermal LD50: 7500 mg/kg species: Rabbit.
The statement is derived from the properties of the components.

Additional information on tests
No data available

SECTION 12: Ecological information

Toxicity
2-methoxy-1-methylethyl acetate:
Acute fish toxicity LC50: 161 mg/l/96h species: Pimephales promelas (IUCLID)
Acute Daphnia toxicity EC50: 408 mg/l/48h species: Daphnia magna (IUCLID)

Persistence and degradability
Easily biodegradable (concerning to the criteria of the OECD)

Bioaccumulative potential
Distribution coefficient (n-octanol / water) (log P O/W): 0.43 at °C: 25 (literature value)
On the basis of existing data about disposal/decomposition and bio-accumulation potential, long term environmental damage is unlikely.

Mobility in soil
No data available

Results of PBT and vPvB assessment
No data available

Other adverse effects
No data available

Further information
Do not allow uncontrolled leakage of product into the environment.

SECTION 13: Disposal considerations

Waste treatment methods

Advice on disposal
Do not empty into drains or the aquatic environment. Waste disposal according to official state regulations.

Contaminated packaging
Handle contaminated packaging in the same way as the substance itself.

SECTION 14: Transport information

US DOT 49 CFR 172.101
ID Number: UN3272
Proper shipping name: Esters, n.o.s. (1-Methoxy-2-propyl acetate)
Hazard Class or Division: 3
**Material Safety Data Sheet**

Thinner for Photoresists ma-T 1050

Product code: R821000  
Print date: 01.05.2013  
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**Packing group:** III  
Label: 3

**Marine transport**

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN proper shipping name</th>
<th>Transport hazard class(es)</th>
<th>Packing group</th>
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<td>3</td>
<td>III</td>
<td>3</td>
</tr>
</tbody>
</table>

Limited quantity: 5 L  
EmS: F-E, S-D

**Other applicable information**

- Excepted Quantity: E1

**Air transport**

<table>
<thead>
<tr>
<th>UN/ID number</th>
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<td>3</td>
</tr>
</tbody>
</table>

Limited quantity Passenger: 10 L  
IATA-packing instructions - Passenger: 355  
IATA-max. quantity - Passenger: 60 L  
IATA-packing instructions - Cargo: 366  
IATA-max. quantity - Cargo: 220 L

**Other applicable information**

- Excepted Quantity: E1  
- Passenger-LQ: Y344

**Environmental hazards**

Dangerous for the environment: no

**SECTION 15: Regulatory information**

**U.S. Regulations**

- National Inventory TSCA  
  TSCA Inventory: All ingredients are listed.

- SARA  
  Ingredient (name): none/none

**Chemical Safety Assessment**

Chemical safety assessments for substances in this mixture were not carried out.

**SECTION 16: Other information**
Thinner for Photoresists ma-T 1050

Hazardous Materials Information Label (HMIS)
- Health: 2
- Flammability: 2
- Physical Hazard: 0
- Personal Protection: B

NFPA Hazard Ratings
- Health: 2
- Flammability: 2
- Reactivity: 0
- Unique Hazard: /

Changes
chapter: 1; 2; 4; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15; 16

Other data
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)