

**Safety Data Sheet**

according to Regulation (EU) No. 1907/2006

**Remover for Photoresist mr-Rem 400**

Print date: 30.11.2010

Product code: R844500

Page 1 of 6

**1. Identification of the substance/preparation and of the company/undertaking****Identification of the substance or preparation**

Remover for Photoresist mr-Rem 400

**Use of the substance/preparation**

Chemical Speciality

**Company/undertaking identification**

Company name:	micro resist technology GmbH	
Street:	Koepenicker Str. 325, Haus 211	
Place:	D-12555 Berlin	
Telephone:	+49 30 65762192	Telefax: +49 30 65762193
e-mail:	mrt@microresist.de	
Internet:	www.microresist.de	

**2. Hazards identification****Classification**

Indications of danger : Irritant  
 R-phrases:  
 Risk of serious damage to eyes.

GHS: Hazard categories:  
 Flammable liquid: Flam. Liq. 3  
 Serious eye damage/eye irritation: Eye Dam. 1  
 Hazard Statements:  
 Flammable liquid and vapour.  
 Causes serious eye damage.

**3. Composition/information on ingredients****Chemical characterization ( Mixture )****Hazardous components**

EC-No.	Chemical name	Quantity
CAS-No.	Classification	
REACH-No.	GHS classification	
220-250-6	1-Ethylpyrrolidin-2-One	70 - 90 %
2687-91-4	Xi R41	
	Eye Dam. 1; H318	
212-112-9	Ethyl 3-ethoxypropionate	15 - 35 %
763-69-9	R10-19	
	Flam. Liq. 3; H226	

Full text of R- and H-phrases: see section 16.

**4. First aid measures****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.

# Safety Data Sheet

according to Regulation (EU) No. 1907/2006

## Remover for Photoresist mr-Rem 400

Print date: 30.11.2010

Product code: R844500

Page 2 of 6

### 5. Fire-fighting measures

**Suitable extinguishing media**Foam. Carbon dioxide (CO<sub>2</sub>). ABC powder.**Extinguishing media which must not be used for safety reasons**

High power water jet.

**Special protective equipment for fire-fighters**

In case of fire: Wear self-contained breathing apparatus. Wear chemical resistant suit.

### 6. Accidental release measures

**Personal precautions**Remove all sources of ignition. The following must be prevented: inhalation. skin contact. Eye contact.  
Provide adequate ventilation.**Environmental precautions**

Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches.

### 7. Handling and storage

**Handling****Advice on protection against fire and explosion**

Take precautionary measures against static discharges.

**Storage****Further information on storage conditions**

Protect against: heat. UV-radiation/sunlight.

### 8. Exposure controls/personal protection

**Exposure limit values****Exposure controls****Protective and hygiene measures**

When using do not eat, drink or smoke. Protect skin by using skin protective cream. After work, wash hands and face. Immediately remove any wetted clothing, shoes or stockings.

**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.

Type of chemical protective gloves to choose depends on the concentration and quantity of dangerous substances as well as on work place specifications.

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

Breakthrough times and swelling characteristics of the material must be taken into consideration.

Before using check leak tightness / impermeability.

**Eye protection**

Suitable eye protection: Tightly sealed safety glasses.

# Safety Data Sheet

according to Regulation (EU) No. 1907/2006

## Remover for Photoresist mr-Rem 400

Print date: 30.11.2010

Product code: R844500

Page 3 of 6

### 9. Physical and chemical properties

#### General information

Physical state: liquid  
Colour: light yellow  
Odour: hydrocarbons, aromatic.

#### Important health, safety and environmental information

Test method

#### Changes in the physical state

Boiling point: 166 °C (Ethyl 3-ethoxypropionate)  
Flash point: 59 °C (Ethyl 3-ethoxypropionate)  
Density (at 20 °C): 0,987 g/cm<sup>3</sup>

### 10. Stability and reactivity

#### Hazardous decomposition products

Peroxides. Nitrogen oxides (NO<sub>x</sub>).

### 11. Toxicological information

#### Acute toxicity

1-Ethylpyrrolidin-2-One:  
Acute toxicity, oral LD50: 3200 mg/kg species: Rat.  
Acute toxicity, dermal LD50: >2000 mg/kg species: Rat. (OECD 402)  
Acute toxicity, inhalant LC50: >5,1 mg/l /4 h species: Rat. (OECD 403)

Ethyl 3-ethoxypropionate:  
Acute toxicity, oral LD50: 5000 mg/kg species: Rat.  
Acute toxicity, dermal LD50: 9500 mg/kg species: Rabbit.

The statement is derived from the properties of the components.

#### Further information

Preparation not tested.

### 12. Ecological information

#### Ecotoxicity

1-Ethylpyrrolidin-2-One:  
Acute fish toxicity Brachydanio rerio (zebrafish) LC50: >446-999 mg/l/ 96h (OECD 203)  
Acute Daphnia toxicity Daphnia magna EC50: >100 mg/l/ 48h  
Bacterial toxicity: Pseudomonas putida EC50: >1000 mg/l/ 16h

Ethyl 3-ethoxypropionate:  
Acute fish toxicity Pimephales promelas LC50: 50 mg/l/ 96h  
Acute Daphnia toxicity Daphnia magna EC50: > 480 mg/l/ 48h  
Algae toxicity EC50: > 115 mg/l/ 72h

#### Further information

The ecotoxicological properties of this mixture are determined by the ecotoxicological properties of the single components (see chapter 3).  
product has not been tested. Do not allow uncontrolled leakage of product into the environment.

### 13. Disposal considerations

**Safety Data Sheet**

according to Regulation (EU) No. 1907/2006

**Remover for Photoresist mr-Rem 400**

Print date: 30.11.2010

Product code: R844500

Page 4 of 6

**Advice on disposal**

Appropriate disposal / Product: Remove according to the regulations.  
Contaminated packaging: Cleaned containers may be recycled.

**14. Transport information****Land transport (ADR/RID)**

UN number: 1993  
ADR/RID class: 3  
Classification code: F1  
Warning plate  
Hazard-no.: 30  
Hazard label: 3



ADR/RID packing group: III  
Limited quantity: LQ7  
Tunnel restriction code: D/E

**Description of the goods**

FLAMMABLE LIQUID, N.O.S. (ethyl-3-ethoxypropionate, mixture)

**Other applicable information (land transport)**

Special provisions: 274 601 640E  
Excepted Quantity: E1  
Transport category: 3

**Inland waterways transport****Other applicable information (inland waterways transport)**

Not classified for this carrier.

**Marine transport**

UN number: 1993  
IMDG code: 3  
Marine pollutant: •  
Hazard label: 3



IMDG packing group: III  
EmS: F-E, S-E  
Limited quantity: 5 L

**Description of the goods**

FLAMMABLE LIQUID, N.O.S. (ethyl-3-ethoxypropionate, mixture)

**Other applicable information (marine transport)**

Special provisions: 223, 330, 274, 944, 955  
Excepted Quantity: E1

**Air transport**

UN/ID number: 1993  
ICAO/IATA-DGR: 3

# Safety Data Sheet

according to Regulation (EU) No. 1907/2006

## Remover for Photoresist mr-Rem 400

Print date: 30.11.2010

Product code: R844500

Page 5 of 6

Hazard label: 3



ICAO packing group: III  
Limited quantity Passenger: 10 L

IATA-packing instructions - Passenger: 309  
IATA-max. quantity - Passenger: 60 L  
IATA-packing instructions - Cargo: 310  
IATA-max. quantity - Cargo: 220 L

### Description of the goods

FLAMMABLE LIQUID, N.O.S. (ethyl-3-ethoxypropionate, mixture)

### Other applicable information (air transport)

Excepted Quantity: E1  
Passenger-LQ: Y309  
Special provisions: A3

## 15. Regulatory information

### Labelling

Danger symbols: Xi - Irritant



Xi - Irritant

### R phrases

41 Risk of serious damage to eyes.

### S phrases

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
39 Wear eye/face protection.  
46 If swallowed, seek medical advice immediately and show this container or label.

### GHS labelling

Signal word: Danger  
Pictograms: flame; corrosion



### Hazard statements

H226 Flammable liquid and vapour.  
H318 Causes serious eye damage.

### Precautionary statements

P233 Keep container tightly closed.  
P403+P235 Store in a well-ventilated place. Keep cool.  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

## Safety Data Sheet

according to Regulation (EU) No. 1907/2006

### Remover for Photoresist mr-Rem 400

Print date: 30.11.2010

Product code: R844500

Page 6 of 6

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

#### EU regulatory information

1999/13/EC (VOC):

This chemical is a VOC according to 99/13/EC. Volatile organic compounds (VOC) in percentage by weight: 100 % (987 g/l)

#### National regulatory information

Employment restrictions:

Observe employment restrictions for young people.

Water contaminating class (D):

1 - slightly water contaminating

### 16. Other information

#### Full text of R-phrases referred to under sections 2 and 3

- 10 Flammable.
- 19 May form explosive peroxides.
- 41 Risk of serious damage to eyes.

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

- H226 Flammable liquid and vapour.
- H318 Causes serious eye damage.

#### Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.

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.)*