

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Remover for Photoresist mr-Rem 660

Print date: 02.05.2013

Product code: R843000

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

Product identifier

Remover for Photoresist mr-Rem 660

Product group: Remover

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

Use of the substance/mixture

Manufacture of computer, electronic and optical products, electrical equipment.

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

Classification of the substance or mixture

Indications of danger : Toxic, Irritant
R-phrases:
May cause harm to the unborn child.
Irritating to eyes, respiratory system and skin.

GHS classification

Hazard categories:
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Reproductive toxicity: Repr. 1B
Specific target organ toxicity - single exposure: STOT SE 3
Hazard Statements:
Causes skin irritation.
Causes serious eye irritation.
May damage the unborn child.
May cause respiratory irritation.

Label elements

Hazardous components which must be listed on the label

N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone

Signal word: Danger
Pictograms: GHS07-GHS08



Hazard statements

H315

Causes skin irritation.

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H319	Causes serious eye irritation.
H360D	May damage the unborn child.
H335	May cause respiratory irritation.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Other hazards

No data available

SECTION 3: Composition/information on ingredients

Mixtures

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification	
Index No	GHS classification	
REACH No		
212-828-1	N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone	50 - 100 %
872-50-4	Repr. Cat. 2, Xi R61-36/37/38	
606-021-00-7	Repr. 1B, Eye Irrit. 2, STOT SE 3, Skin Irrit. 2; H360D *** H319 H335 H315	

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

Further Information

It is a substance in a concentration equal to or greater contain 0.1 wt%, which is listed on the candidate list according to Article 59 (1.10) of the REACH Regulation EC No 1907/2006

N-Methyl-2-pyrrolidon

EINECS 212-828-1

CAS 872-50-4

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

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medical advice.

After contact with skin

After contact with skin, wash immediately with: Water. 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.

Most important symptoms and effects, both acute and delayed

Causes skin irritation.

Causes serious eye irritation.

May damage the unborn child.

May cause respiratory irritation.

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.

Special hazards arising from the substance or mixture

Vapours may form explosive mixtures with air. Vapours are heavier than air and will spread at floor level. Heating may cause an explosion. Formation of potentially explosive mixtures with: Air. Use water spray/stream to protect personnel and to cool endangered containers.

In case of fire and/or explosion do not breathe fumes.

Can be released in case of fire: Nitrogen oxides (NO_x).

Advice for firefighters

Wear a self-contained breathing apparatus and chemical resistant suit.

Additional information

Use a water spray jet to knock down vapours/gases/mists. Contaminated fire-fighting water must be collected separately. Do not empty into drains or the aquatic environment.

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

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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.

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: of °C: 18 up to °C: 25 Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Suitable material for floor covering: Solvent-proof.

Specific end use(s)

No data available

SECTION 8: Exposure controls/personal protection

Control parameters

Exposure limits (EH40)

CAS No	Chemical name	ml/m ³	mg/m ³	F/ml	Category	Origin
872-50-4	1-Methyl-2-pyrrolidone	25	103		TWA (8 h)	WEL
		75	309		STEL (15 min)	WEL

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

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: NR (Natural rubber (Caoutchouc), Natural latex).

Thickness of glove material: 0.6 mm

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penetration time (maximum wearing period): > 60 min
 Recommended protective gloves brand: KCL 706 Lapren, Manufacturer: KCL GmbH, D-36124 Eichenzell, Source of supply: www.kcl.de

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

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
 Colour: colourless - light yellow
 Odour: characteristic

Test method

pH-Value: No data available

Changes in the physical state

Melting point: No data available
 Boiling point: 202 °C
 Flash point: 91 °C
 Lower explosion limits: 1,3 vol. %
 Upper explosion limits: 9,5 vol. %
 Ignition temperature: 245 °C
 Vapour pressure: 0,32 hPa
 (at 20 °C)
 Vapour pressure: 1,33 hPa
 (at 40 °C)
 Density (at 20 °C): 1,03 g/cm³
 Water solubility: 1000 g/L
 (at 25 °C)
 Partition coefficient: No data available
 Viscosity / dynamic: <7 mPa·s
 (at 20 °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

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Reactivity

No data available

Chemical stability

No data available

Possibility of hazardous reactions

No data available

Conditions to avoid

UV-radiation/sunlight.

Keep away from heat. Keep away from sources of ignition - No smoking.

Ignition hazard.

Take precautionary measures against static discharges.

Incompatible materials

 Oxidizing agents.
acid.

Hazardous decomposition products

 Carbon monoxide. Carbon dioxide. nitrogen oxides (NO_x).

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute toxicity, oral LD50: 3598 mg/kg species: Rat. (IUCLID)

Acute toxicity, dermal LD50: 8000 mg/kg species: Rabbit. (IUCLID)

CAS No	Chemical name				
	Exposure routes	Method	Dose	Species	Source
872-50-4	N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone				
	oral	LD50	3598 mg/kg	Rat.	
	dermal	LD50	8000 mg/kg	Rabbit.	

Irritation and corrosivity

Irritating to eyes. Following inhalation: Lung irritation. Coughing. shortage of breath. After skin contact: irritant.

SECTION 12: Ecological information

Toxicity

 Acute fish toxicity *Lepomis macrochirus* LC50: 832 mg/l/96h (IUCLID)

 Acute Daphnia toxicity *Daphnia magna* EC50: ~4897 mg/l/48h (IUCLID)

 Algae toxicity *Scenedesmus subspicatus* IC50: >500 mg/l/72h (OECD 201)

Bacterial toxicity: EC50: >9000 mg/l/48h

CAS No	Chemical name					
	Aquatic toxicity	Method	Dose	h	Species	Source
872-50-4	N-methyl-2-pyrrolidone; 1-methyl-2-pyrrolidone					
	Acute fish toxicity	LC50	832 mg/l	96	<i>Lepomis macrochirus</i>	(IUCLID)
	Acute algae toxicity	ErC50	500 mg/l	72	<i>Scenedesmus subspicatus</i>	(OECD 201)
	Acute crustacea toxicity	EC50	4897 mg/l	48	<i>Daphnia magna</i>	(IUCLID)

Persistence and degradability

Easily biodegradable (concerning to the criteria of the OECD)

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Bioaccumulative potential

Distribution coefficient (n-octanol / water) (log P O/W):

-0,46 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**Environmental hazards**

Dangerous for the environment: no

Special precautions for user

No data available

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

not applicable

Other applicable information

Not a hazardous material with respect to these transportation regulations.

SECTION 15: Regulatory information**Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

1999/13/EC (VOC): 99 % (1019,7 g/l)

National regulatory information

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.

Water contaminating class (D): 1 - slightly water contaminating

Chemical Safety Assessment

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

SECTION 16: Other information**Changes**

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

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

36/37/38 Irritating to eyes, respiratory system and skin.
61 May cause harm to the unborn child.

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

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H360D May damage the unborn child.

Further Information

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.)