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

Identification of the substance or preparation

LOR A Series Resist

Use of the substance/preparation

Organic Polymer Solution

Company/undertaking identification

Manufacturer

Company name: MicroChem Corporation

Street: 90 Oak Street

Place: USA-MA 02464-1418 Newton

Post-office box: PO Box 426

USA-MA 02464-0002 Newton

Telephone: +1 617 965 5511 Telefax: +1 617 965 5818

e-mail: productsafety@microchem.com

Internet: www.microchem.com

Supplier

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

Emergency telephone: Chemtrec (International): +1 703 527 3887

2. Hazards identification

Classification

Indications of danger: Irritant

R-phrases: Flammable.

Irritating to eyes and skin.

Vapours may cause drowsiness and dizziness.

3. Composition/information on ingredients

Chemical characterization (Mixture)

Hazardous components

EC-No.	CAS-No.	Chemical name	Quantity	Classification
204-435-9	120-92-3	cyclopentanone	65-90 %	Xi R10-36/38
203-539-1	107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether	10-15 %	R10-67

Full text of each relevant R phrase can be found in heading 16.

4. First aid measures

After inhalation

Provide fresh air. In case of breathing difficulties administer oxygen. If victim is at risk of losing

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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

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Consult an ophthalmologist.

After ingestion

Make affected person vomit if conscious. Rinse mouth thoroughly with water. Immediately get medical attention.

5. Fire-fighting measures

Suitable extinguishing media

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

Extinguishing media which must not be used for safety reasons

High power water jet.

Special exposure hazards arising from substance or preparation itself, combustion products, resulting gases

Concentrated vapours are heavier than air. Vapours may form explosive mixtures with air. In case of fire and/or explosion do not breathe fumes. Beware of reignition.

Special protective equipment for fire-fighters

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

Additional information

Use water spray/stream to protect personnel and to cool endangered containers. Heating causes rise in pressure with risk of bursting. Contaminated fire-fighting water must be collected separately.

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

Do not empty into drains or the aquatic environment. Explosion hazard.

Methods for cleaning up/taking 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.

7. Handling and storage

Handling

Advice on safe handling

Use only in well-ventilated areas. Keep away from sources of ignition - No smoking.

Advice on protection against fire and explosion

Take precautionary measures against static discharges.

Storage

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Suitable material for Container: polyethylene. Glass.

Further information on storage conditions

Protect against: heat. UV-radiation/sunlight.

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Storageclass (VCI): 3

8. Exposure controls/personal protection

Exposure limit values

Exposure limits (EH40)

CAS-No.	Chemical name	ml/m³	mg/m³	F/ml	Category	Origin
107-98-2	1-Methoxypropan-2-ol	100	375		TWA (8 h)	WEL
		150	560		STEL (15 min)	WEL

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. German Industry Norms (DIN) / European Norms (EN): 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

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).

9. Physical and chemical properties

General information

Physical state: liquid
Colour: light yellow
Odour: characteristic

Important health, safety and environmental information

Test method

Changes in the physical state

Boiling point: 120-130 °C

Flash point: 30 °C TCC

Lower explosion limits: 1,3 vol. %

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Upper explosion limits: not determined

Ignition temperature: 278 °C

Vapour pressure: 12 hPa

(at 20 °C)

Density (at 25 °C): 0,965-0,995 g/cm³ Water solubility: partially miscible

Other information

10. Stability and reactivity

Conditions to avoid

UV-radiation/sunlight. heat. Remove all sources of ignition. Take precautionary measures against static discharges.

Materials to avoid

Oxidizing agents, strong. Reducing agents, strong. acid, concentrated. Alkalis (alkalis), concentrated. Iron.

Hazardous decomposition products

Carbon monoxide. Carbon dioxide.

Additional information

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

11. Toxicological information

Acute toxicity

Acute toxicity, oral LD50: >2000 mg/kg species: Rat. (cyclopentanone)

Acute toxicity, oral LD50: >5000 mg/kg species: Rat. (1-methoxy-2-propanol; monopropylene glycol methyl ether)

Acute toxicity, inhalant LC50: >19,5 mg/l /4 h species: Rat. (cyclopentanone)

Acute toxicity, inhalant LC50: >6 mg/l /4 h species: Rat. (1-methoxy-2-propanol; monopropylene glycol methyl ether)

12. Ecological information

Ecotoxicity

1-methoxy-2-propanol; monopropylene glycol methyl ether:

Acute fish toxicity LC50: 4600-10000 mg/l /96 h species: Leuciscus idus Acute Daphnia toxicity EC50: >500 mg/l /48 h species: Daphnia magna Algae toxicity IC50: >1000 mg/l /72 h species: Selenastrum capricornutum

cyclopentanone:

Acute fish toxicity LC50: 2950 mg/l /48 h species: Leuciscus idus Acute Daphnia toxicity EC50: 1435 mg/l /24 h species: Daphnia magna

Bioaccumulative potential

1-methoxy-2-propanol; monopropylene glycol methyl ether:

Distribution coefficient (n-octanol / water) (log P O/W): -0,437 Method: calculated.

Due to the n-octanol-water partition coefficient, a bio-accumulation in organisms is not to be expected.

cyclopentanone:

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Distribution coefficient (n-octanol / water) (log P O/W): 0.24 Method: calculated.

Due to the n-octanol-water partition coefficient, a bio-accumulation in organisms is not to be expected.

Further information

product has not been tested. Do not allow uncontrolled leakage of product into the environment.

13. Disposal considerations

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: 1866
ADR/RID class: 3
Classification code: F1

Warning plate

Hazard-no.: 30 Hazard label: 3



ADR/RID packing group:

Limited quantity:

LQ7

Tunnel restriction code:

D/E

Description of the goods

Resin solution

Other applicable information (land transport)

Special provisions: 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: 1866
IMDG code: 3
Marine pollutant: NO
Hazard label: 3



IMDG packing group:

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

Description of the goods

Resin solution

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Other applicable information (marine transport)

Special provisions: 223, 944, 955

Excepted Quantity: E1

Air transport

UN/ID number: 1866 ICAO/IATA-DGR: 3 Hazard label: 3



ICAO packing group: III
Limited quantity Passenger: 10 L

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

Description of the goods

Resin solution

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

10 Flammable.

36/38 Irritating to eyes and skin.

Vapours may cause drowsiness and dizziness.

S phrases

Do not breathe vapour .

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

37 Wear suitable gloves.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where

possible).

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: 81-98 % (820-945 g/l)

National regulatory information

Employment restrictions: Observe employment restrictions for young people.

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

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16. Other information

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

10 Flammable.

36/38 Irritating to eyes and skin.

Vapours may cause drowsiness and dizziness.

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.

Changes

Chapter: 1, 2, 3, 7, 15, 16

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