1. Identification

Product identifier
ma-N 2400 Negative-tone Photoresist Series

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

Use of the substance/mixture
Photoresist
Product Categories [PC]: Photochemical
Sector of uses [SU]: Manufacture of computer, electronic and optical products, electrical equipment.

Uses advised against
Do not use for private purposes (household).

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 number: Chemtrec (International - 24 h): +1 703 527 3887

2. Hazard identification

Classification of the substance or mixture

WHMIS 2015

- Flammable liquid: Flam. Liq. 3
- Acute toxicity: Acute Tox. 4 (inhalation)
- Skin corrosion/irritation: Skin Irrit. 2
- Serious eye damage/eye irritation: Eye Irrit. 2A
- Specific target organ toxicity - single exposure: STOT SE 3 (narcotic effects)

Label elements

WHMIS 2015

Signal word: Warning

Pictograms:

Hazard statements
Flammable liquid and vapour.
Causes skin irritation.
Causes serious eye irritation.
Harmful if inhaled.
May cause drowsiness or dizziness.

Precautionary statements
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use dry sand to extinguish.
Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container to an appropriate recycling or disposal facility.

**Other hazards**
Flammable liquid and vapour.
The components in this formulation do not meet the criteria for classification as PBT or vPvB.

### 3. Composition/information on ingredients

#### Mixtures

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS No</td>
<td>Chemical name</td>
</tr>
<tr>
<td>100-66-3</td>
<td>Anisole</td>
</tr>
<tr>
<td>120-92-3</td>
<td>cyclopentanone</td>
</tr>
<tr>
<td></td>
<td>aromatic diazido compound</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

#### Description of first aid measures

**General information**
In case of accident or unwellness, seek medical advice immediately (show directions for use or 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 respiratory tract irritation, consult a physician.

**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 plenty of water. Caution if victim vomits: Risk of aspiration! Medical treatment necessary.

**Most important symptoms and effects, whether acute or delayed**
Causes skin irritation.
Causes serious eye irritation.
5. Fire-fighting measures

Extinguishing media

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

Unsuitable extinguishing media
- Water.

Specific hazards arising from the hazardous product
- In case of fire and/or explosion do not breathe fumes.

Special protective equipment and precautions for fire-fighters
- Wear a self-contained breathing apparatus and chemical protective clothing. Full protective suit.

Additional information
- Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

General advice
- Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Wear personal protection equipment.

Environmental precautions
- Do not allow to enter into surface water or drains.

Methods and material for containment and cleaning up

Other information
- Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Collect in closed containers for disposal. Clean contaminated articles and floor according to the environmental legislation.

Reference to other sections
- Treat the recovered material as prescribed in the section on waste disposal.
- See protective measures under point 7 and 8.

7. Handling and storage

Precautions for safe handling

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

Advice on protection against fire and explosion
- Take precautionary measures against static discharges. Keep away from sources of ignition - No smoking.

Advice on general occupational hygiene
- Remove contaminated, saturated clothing immediately. Protect skin by using skin protective cream. After work, wash hands and face. When using do not eat or drink.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
- Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.
- Suitable floor material: Solvent-proof.
- Keep container tightly closed in a cool, well-ventilated place.
- Further information concerning storage conditions: Observe technical data sheet.: Processing Guidelines
Hints on joint storage
Do not store together with:
- Oxidising agent
- Self-heating substances and mixtures

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

8. Exposure controls/Personal protection

Control parameters

Additional advice on limit values
- No data available

Exposure controls

- Appropriate engineering controls
  - If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Wear personal protection equipment. Provide adequate ventilation.

Individual protection measures, such as personal protective equipment

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

Hand protection
- When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Tested protective gloves are to be worn: German Industry Norms (DIN) / European Norms (EN): EN ISO 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

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

  For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

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

Respiratory protection
- If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be
worn. Respiratory protection necessary at: aerosol or mist generation. Filtering device (full mask or mouthpiece) with filter: a

Environmental exposure controls
Do not empty into drains.

9. Physical and chemical properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>yellow brown</td>
</tr>
<tr>
<td>Odour</td>
<td>hydrocarbons, aromatic.</td>
</tr>
</tbody>
</table>

Changes in the physical state

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point or initial boiling point and boiling range</td>
<td>131 °C (cyclopentanone)</td>
</tr>
<tr>
<td>Sublimation point</td>
<td>No data available</td>
</tr>
<tr>
<td>Softening point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>35 °C DIN EN ISO 13736</td>
</tr>
</tbody>
</table>

Flammability

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid/liquid</td>
<td>No data available</td>
</tr>
<tr>
<td>Gas</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Explosive properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>445 °C (cyclopentanone)</td>
</tr>
</tbody>
</table>

Self-ignition temperature

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>No data available</td>
</tr>
<tr>
<td>Gas</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>pH-Value</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity / dynamic</td>
<td>1-15 mPa·s</td>
</tr>
<tr>
<td>(at 25 °C)</td>
<td></td>
</tr>
<tr>
<td>Viscosity / kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Flow time</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>not miscible</td>
</tr>
</tbody>
</table>

Solubility in other solvents

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partition coefficient n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density (at 25 °C)</td>
<td>0,98-1,08 g/cm³</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
</tbody>
</table>
10. Stability and reactivity

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. Ignition hazard.

Incompatible materials
Oxidizing agents. Reducing agent

Hazardous decomposition products
Carbon monoxide. Carbon dioxide.

Further information
Formation of explosive mixtures with: Air.

11. Toxicological information

Information on toxicological effects

Acute toxicity
Harmful if inhaled.

ATEmix calculated
ATE (inhalation dust/mist) 2,836 mg/l
# Safety Data Sheet

According to WHMIS

## ma-N 2400 Negative-tone Photoresist Series

**Revision date:** 01.01.2022
**Product code:** ma-N_2400_Serie

### Chemical name and CAS No

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Route of exposure</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-66-3</td>
<td>Anisole</td>
<td>oral</td>
<td>LD50</td>
<td>3700 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>&gt;5000 mg/kg</td>
<td>Rabbit</td>
<td></td>
</tr>
<tr>
<td>120-92-3</td>
<td>cyclopentanone</td>
<td>oral</td>
<td>LD50</td>
<td>&gt;2000 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>&gt;2000 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation (4 h) vapour</td>
<td>LC50</td>
<td>&gt;19,5 mg/l</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>aromatic diazido compound</td>
<td>oral</td>
<td>ATE</td>
<td>1,5 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation vapour</td>
<td>ATE</td>
<td>11 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation dust/mist</td>
<td>ATE</td>
<td>1,5 mg/l</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Irritation and corrosivity
- Causes skin irritation.
- Causes serious eye irritation.

### Sensitizing effects
Based on available data, the classification criteria are not met.

### Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.

### STOT-single exposure
May cause drowsiness or dizziness. (Anisole)

### STOT-repeated exposure
Based on available data, the classification criteria are not met.

### Aspiration hazard
Based on available data, the classification criteria are not met.

### Information on likely routes of exposure
- Inhalation, ingestion, skin contact, eye contact

### Information on other hazards
- Endocrine disrupting properties
  - No data available
- Name of toxicologically synergistic products
  - No data available

## 12. Ecological information

### Ecotoxicity
There are no data available on the mixture itself.

### Persistence and degradability
No data available

### Bioaccumulative potential
There are no data available on the mixture itself.
Mobility in soil
No data available

Endocrine disrupting properties
This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.
No data available

Other adverse effects
No data available

13. Disposal considerations

Waste treatment methods

Disposal recommendations
Do not allow to enter into surface water or drains.
Dispose of waste according to applicable legislation.
Consult the local waste disposal expert about waste disposal.

Contaminated packaging
Dispose of waste according to applicable legislation.
Consult the local waste disposal expert about waste disposal.

14. Transport information

Canadian TDG

UN number: UN 1866
Proper shipping name: Resin solution
Hazard classes: 3
Packing group: III
Hazard label: 3
Limited quantity: 5 L

Marine transport (IMDG)

UN number or ID number: UN 1866
United Nations proper shipping name: Resin solution
Transport hazard class(es): 3
Packing group: III
Hazard label: 3
Special Provisions: 223, 955
Limited quantity: 5 L
Excepted quantity: E1
EmS: F-E, S-E

Air transport (ICAO-TI/IATA-DGR)

UN number or ID number: UN 1866
United Nations proper shipping name: Resin solution
Transport hazard class(es): 3
Packing group: III
Hazard label: 3

Special Provisions: A3
Limited quantity Passenger: 10 L
Passenger LQ: Y344
Excepted quantity: E1

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

Environmental hazards
ENVIRONMENTALLY HAZARDOUS: No

15. Regulatory information

Canadian regulations

16. Other information

Abbreviations and acronyms
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

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.)