1. Identification

Product identifier
ma-N 2400 Negative Tone Photoresist Series

Recommended use of the chemical and restrictions on use
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 phone number: +49 30 641670-100

Further Information
This number is serviced during office hours.

2. Hazard(s) identification

Classification of the chemical
Hazard categories:
- Flammable liquid: Flam. Liq. 3
- Skin corrosion/irritation: Skin Irrit. 2
- Serious eye damage/eye irritation: Eye Irrit. 2A

Hazard Statements:
- Flammable liquid and vapor
- Causes skin irritation
- Causes serious eye irritation

Label elements
Signal word: Warning
Pictograms: flame; exclamation mark

Hazard statements
- Flammable liquid and vapor
- Causes skin irritation
- Causes serious eye irritation

Precautionary statements
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Wear protective gloves/protective clothing/eye protection/face protection.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
- Continue rinsing.
- Store in a well-ventilated place. Keep cool.
- Dispose of waste according to applicable legislation.

Hazards not otherwise classified
No information available.
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>120-92-3</td>
<td>cyclopentanone</td>
<td>30-60 %</td>
</tr>
<tr>
<td>100-66-3</td>
<td>Anisole</td>
<td>30-60 %</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, both acute and delayed
Causes skin irritation.
Causes serious eye irritation.

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

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 chemical
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

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

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 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

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

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.

Protective and hygiene measures

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.

Eye/face protection

Suitable eye protection: Tightly sealed safety glasses.

Hand protection

Butyl rubber gloves or viton gloves are recommended. Tested protective gloves are to be worn: Single-use gloves.
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. Breakthrough times and swelling properties of the material must be taken into consideration. Before using check leak tightness / impermeability.

**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>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>yellow brown</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>hydrocarbons, aromatic.</td>
<td></td>
</tr>
<tr>
<td>pH-Value</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Changes in the physical state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range:</td>
<td></td>
<td>131 °C (cyclopentanone)</td>
</tr>
<tr>
<td>Sublimation point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Pour point:</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Sustaining combustion</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Solid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Lower explosion limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Upper explosion limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>445 °C (cyclopentanone)</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>
### 10. Stability and reactivity

#### Reactivity

No data available

#### Chemical stability

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>

#### Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>Hazardous reactions</th>
<th>May occur</th>
</tr>
</thead>
<tbody>
<tr>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>

#### Conditions to avoid

- UV-radiation/sunlight.
- Keep away from heat. Ignition hazard.

#### Incompatible materials


#### Hazardous decomposition products

- Carbon monoxide. Carbon dioxide.

#### Further information

Formation of explosive mixtures with: Air.

### 11. Toxicological information

#### Information on toxicological effects

<table>
<thead>
<tr>
<th>Route(s) of Entry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td></td>
</tr>
<tr>
<td>Skin contact</td>
<td></td>
</tr>
<tr>
<td>Eye contact</td>
<td></td>
</tr>
</tbody>
</table>

#### Acute toxicity

- Acute toxicity, oral LD50: 3700 mg/kg species: Rat (Anisole) (RTECS)
12. Ecological information

Ecotoxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects
No data available

Further information
Do not allow to enter into surface water or drains. The classification was carried out according to the calculation method of the Preparations Directive (1999/45/EC).

13. Disposal considerations

Waste treatment methods

Advice on disposal
Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

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

14. Transport information

US DOT 49 CFR 172.101

| UN/ID number: | UN 1866 |
| Proper shipping name: | Resin solution |
| Transport hazard class(es): | 3 |
| Packing group: | III |
| Hazard label: | 3 |

Marine transport (IMDG)

| UN number: | UN 1866 |
| UN proper shipping name: | Resin solution |
| Transport hazard class(es): | 3 |
Safety Data Sheet

ma-N 2400 Negative Tone Photoresist Series

Packing group: III
Hazard label: 3

Limited quantity: 5 L
Excepted quantity: E1
EmS: F-E, S-E

Air transport (ICAO)

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

Limited quantity Passenger: 10 L
Passenger LQ: Y344
Exepted 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

Special precautions for user

No data available

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
not applicable

15. Regulatory information

U.S. Regulations

National Inventory TSCA
TSCA Inventory Status: Listed

National regulatory information
SARA Section 311/312 Hazards:
Cyclopentanon (120-92-3): Fire hazard, Immediate (acute) health hazard
Anisol (100-66-3): Fire hazard, Immediate (acute) health hazard

State Regulations
Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)
This product contains no chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other information

Hazardous Materials Information Label (HMIS)
Health: 2
Safety Data Sheet

ma-N 2400 Negative Tone Photoresist Series

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Flammability: 3
Physical Hazard: 1
Personal Protection: B

NFPA Hazard Ratings

Health: 2
Flammability: 3
Reactivity: 1
Unique Hazard: /

Revision date: 06.11.2015
Revision No: 1,00

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%

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.)