Material Safety Data Sheet

ma-N 2400 Negative Tone Photoresist Series

Product code: R230XXXACP

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

Product identifier

ma-N 2400 Negative Tone Photoresist Series

Product group: Negativestres

Chemical characterization (Mixture)

Details of the supplier of the safety data sheet

Company name: micro resist technology GmbH
Street: Koenenicker 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

Route(s) of Entry
inhalation, ingestion, skin contact, eye contact

Signs and Symptoms of Exposure
Causes skin irritation.
Causes serious eye irritation.

Carcinogenicity (NTP): Ingredient (name): none
Carcinogenicity (IARC): Ingredient (name): none
Carcinogenicity (OSHA): Ingredient (name): none

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

SECTION 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>

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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According to ANSI Z400.1-2004

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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
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.

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.

Unsuitable extinguishing media
Water.

Special hazards arising from the substance or mixture
In case of fire and/or explosion do not breathe fumes.

Advice for firefighters
Wear a self-contained breathing apparatus and chemical resistant suit. Full protective suit.

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

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
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.

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
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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.

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

SECTION 8: Exposure controls/personal protection

Control parameters
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
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
Butyl rubber gloves or viton gloves are recommended.
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.

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
Color: yellow brown
Odor: hydrocarbons, aromatic.
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Test method

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH-Value</td>
<td>No data available</td>
</tr>
<tr>
<td>Changes in the physical state</td>
<td></td>
</tr>
<tr>
<td>Boiling point</td>
<td>131 °C (cyclopentanone)</td>
</tr>
<tr>
<td>Flash point</td>
<td>35 °C DIN EN ISO 13736</td>
</tr>
<tr>
<td>Lower explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>445 °C (cyclopentanone)</td>
</tr>
<tr>
<td>Vapour pressure</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>Water solubility</td>
<td>not miscible</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity / dynamic (at 25 °C)</td>
<td>1-15 mPa s</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>Vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
</tbody>
</table>

Other information

No data available

SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Possibility of Hazardous Reactions</td>
<td>May occur</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 potentially explosive mixtures with: Air.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

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

Additional information on tests

- The classification was undertaken in accordance with the calculation method governed by the Preparations Directive (1999/45/EC).

SECTION 12: Ecological information
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Toxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

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 empty into drains or the aquatic environment. The classification was undertaken in accordance with the calculation method governed by the Preparations Directive (1999/45/EC).

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

US DOT 49 CFR 172.101

ID Number: UN1866

Proper shipping name: Resin solution, flammable

Hazard Class or Division: 3

Packing group: III

Label:

Marine transport

UN number: UN1866

UN proper shipping name: Resin solution

Transport hazard class(es): 3

Packing group: III

Hazard label:

Limited quantity: 5 L

EmS:

Other applicable information
Excepted Quantity: E1

Air transport

UN/ID number: UN1866
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UN proper shipping name: Resin solution
Transport hazard class(es): 3
Packing group: III
Hazard label: 3

Limited quantity Passenger: 10 L
IATA-packing instructions - Passenger: 355
IATA-max. quantity - Passenger: 60 L
IATA-packing instructions - Cargo: 366
IATA-max. quantity - Cargo: 220 L

Other applicable information
Excepted Quantity: E1
Passenger-LO: Y344

Environmental hazards
Dangerous for the environment: no

SECTION 16: Regulatory information

U.S. Regulations
National Inventory TSCA
TSCA Inventory Status: Listed

SARA
Ingredient (name): none/none

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

SECTION 16: Other information

Hazardous Materials Information Label (HMIS)
Health: 2
Flammability: 3
Physical Hazard: 1
Personal Protection: B

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

Changes
chapter: 1; 2; 4; 12; 14; 15

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.)