

Safety Data Sheet

according to WHMIS

ma-D 525 - 532; ma-D 530/S - 532/S; mr-D 526/S

Revision date: 01.01.2022

Product code: ma-D_5xx_Serie

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1. Identification

Product identifier

ma-D 525 - 532; ma-D 530/S - 532/S; mr-D 526/S

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

Use of the substance/mixture

Developer liquid (Developer for Photoresists)

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

Acute toxicity: Acute Tox. 3 (oral)

Skin corrosion/irritation: Skin Irrit. 2

Serious eye damage/eye irritation: Eye Irrit. 2A

Specific target organ toxicity - single exposure: STOT SE 1

Specific target organ toxicity - repeated exposure: STOT RE 1

Label elements

WHMIS 2015

Signal word: Danger

Pictograms:



Hazard statements

Toxic if swallowed.

Causes skin irritation.

Causes serious eye irritation.

Causes damage to organs.

Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER/doctor.

Rinse mouth.

IF ON SKIN: Wash with plenty of soap and water.

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Take off contaminated clothing and wash it before reuse.
 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.
 IF exposed or concerned: Call a POISON CENTER/doctor.
 Store locked up.
 Dispose of contents/container to an appropriate recycling or disposal facility.

Other hazards

No information available.

3. Composition/information on ingredients

Mixtures

Hazardous components

CAS No	Chemical name	Quantity
75-59-2	Tetramethylammonium hydroxide	< 3 %

4. First-aid measures

Description of first aid measures

General information

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down.

After inhalation

Provide fresh air. Medical treatment necessary.

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 flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Adverse human health effects and symptoms: Gastric perforation. Call a physician immediately.

Most important symptoms and effects, whether acute or delayed

No information available.

Indication of immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

No data available

Specific hazards arising from the hazardous product

Thermal decomposition can lead to the escape of irritating gases and vapors.

Special protective equipment and precautions for fire-fighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

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Additional information

Suppress gases/vapours/mists with water spray jet. 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. Use 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). Treat the recovered material as prescribed in the section on waste disposal.

Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

7. Handling and storage**Precautions for safe handling****Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.

Hints on joint storage

Do not store together with:

Acid

Food and feedingstuffs

8. Exposure controls/Personal protection**Control parameters****Additional advice on limit values**

To date, no national critical limit values exist.

Exposure controls

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Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: goggles.

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: FKM (fluororubber).

Thickness of glove material: 0.7 mm

penetration time (maximum wearing period): > 480 min

Recommended protective gloves brand: KCL 890 Vitoject, 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): > 10 min

Recommended protective gloves brand: KCL 730 Camatril-Velours, Manufacturer: KCL GmbH, D-36124

Eichenzell, Source of supply: www.kcl.de

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).

Take off immediately all contaminated clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Filter types: A, B, E, K. Class 1: Maximum permitted contaminant concentration in inhaled air = 1000 mL/m³ (0.1 % by vol.); class 2: maximum permitted contaminant concentration in inhaled air = 5000 mL/m³ (0.5 % by vol.); class 3: maximum permitted contaminant concentration in inhaled air = 10000 mL/m³ (1.0 % by vol.)

Environmental exposure controls

Do not empty into drains.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	colourless
Odour:	Amines

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Changes in the physical state

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	100 °C
Flash point:	Non-flammable.

Flammability

Solid/liquid:	not applicable
Gas:	not applicable

Explosive properties

No data available

Lower explosive limits:	not determined
Upper explosive limits:	not determined
Auto-ignition temperature:	not determined

Self-ignition temperature

Solid:	not applicable
Gas:	not applicable

Decomposition temperature:	not determined
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pH-Value (at 20 °C):	> 11
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Viscosity / dynamic:	not determined
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Viscosity / kinematic:	not determined
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Flow time:	not determined
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Water solubility:	easily soluble
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Solubility in other solvents

not determined

Partition coefficient n-octanol/water:	not determined
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Vapour pressure:	not determined
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Density:	1 g/cm ³
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Relative vapour density:	not determined
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Other information

Information with regard to physical hazard classes

Oxidizing properties
Not oxidising.

Other safety characteristics

Solid content:	not determined
Evaporation rate:	not determined

Further Information

No data available

10. Stability and reactivity

Reactivity

No data available

Chemical stability

The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions

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Exothermic reaction with: Acid, Peroxides, Oxidising agent.

Conditions to avoid

heat. Thermal decomposition can lead to the escape of irritating gases and vapours.

Incompatible materials

Keep away from: Acid, Oxidising agent, Peroxides. metal.

Hazardous decomposition products

In case of fire may be liberated: Nitrogen oxides (NOx). Carbon monoxide. Carbon dioxide.

11. Toxicological information

Information on toxicological effects

Acute toxicity

Toxic if swallowed.

Mixture related information:

Results Toxicological Tests Acute dermal toxicity OECD 402: >2000 mg/kg

ATEmix tested

	Dose	Species	Source
LD50, dermal	>2000 mg/kg	Rat	OECD 402

ATEmix calculated

ATE (oral) 200,1 mg/kg

CAS No	Chemical name				
	Route of exposure	Dose	Species	Source	Method
75-59-2	Tetramethylammonium hydroxide				
	oral	LD50 >12,5 mg/kg	Rat	ECHA	
	dermal	LD50 >12,5 mg/kg	Rat	ECHA	

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Mixture related information

Results from in vitro test for skin corrosivity/irritancy: none Corrosion (OECD 431.)

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

Causes damage to organs. (Tetramethylammonium hydroxide)

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure. (Tetramethylammonium hydroxide)

Aspiration hazard

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

Information on other hazards

Endocrine disrupting properties

No data available

Name of toxicologically synergistic products

No data available

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12. Ecological information

Ecotoxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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 information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

13. Disposal considerations

Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging

This material and its container must be disposed of as hazardous waste. Handle contaminated packages in the same way as the substance itself.

14. Transport information

Canadian TDG

Proper shipping name:

No dangerous good in sense of this transport regulation.

Hazard classes:

Marine transport (IMDG)

UN number or ID number:

No dangerous good in sense of this transport regulation.

Transport hazard class(es):

No dangerous good in sense of this transport regulation.

Packing group:

No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

UN number or ID number:

No dangerous good in sense of this transport regulation.

Transport hazard class(es):

No dangerous good in sense of this transport regulation.

Packing group:

No dangerous good in sense of this transport regulation.

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

15. Regulatory information

Canadian regulations

16. Other information

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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.)