



Safety Data Sheet – Resist Developer RD6

1. Identification of Substance / Preparation and Company

Trade name:

Resist Developer RD6

Use of the substance/Preparation:

Industry sector: semiconductor industry photolithography sector

Type of use: solution for resist development

NOT FOR RECREATIONAL OR PERSONAL USE. NEVER CONSUME THIS PRODUCT.

Identification of the company:

Futurrex, Inc.
24 Munsonhurst Rd
Franklin, NJ 07416 USA

Telephone no. 1-888-999-4188 from 8:00 am to 6:00 pm (EST)

Emergency telephone number: 1-800-535-5053 (U.S. and Canada)
1-352-323-3500 (International)

Person Responsible for SDS preparation:

Aga Rusin, e-mail: info@futurrex.com

2. Hazards identification

GHS CLASSIFICATION:

HEALTH	ENVIROMENTAL	PHYSICAL
Acute Oral Toxicity: Category 5 Eye Irritation: Category 2A Skin Irritation: Category 3 Acute(Inhalation-Vapor): Category 3	Acute Toxicity: None Known Chronic Toxicity: None Known	NOT HAZARD

GHS LABEL:

SIGNAL WORD: Warning!

Contact:

Email: info@futurrex.com

Website: www.futurrex.com

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GHS07

HAZARD STATEMENTS	PRECAUTIONARY STATEMENTS
<p>Alkaline liquid and vapor May be harmful if swallowed Causes eye irritation Causes mild skin irritation</p>	<p>Keep container in a well-ventilated place. Keep container closed. Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Wear goggles, rubber gloves, and protective clothing. Wash hands thoroughly after handling.</p>

3. Composition/information on ingredients

CAS#	EINECS	Chemical Name	Concentration	Hazard symbols	R phrases*
7732-18-5		Water	>90		
75-59-2		Tetramethylammonium hydroxide	<3		
		Surfactant	<1		

4. First aid measures

Description of necessary measures according to routes of exposure

Swallowed

If swallowed, do not induce vomiting. If person is conscious and able to swallow, have them drink a large volume of water and milk. IMMEDIATELY contact a physician. Never give anything by mouth to an unconscious person.

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Eye

NOTE: Medical and emergency response personnel should avoid direct contact with contaminated clothing of the patient. IMMEDIATELY flush with water until no evidence of chemical remains (at least 15-20 minutes). While flushing, forcibly hold the eye lids apart to ensure flushing of the entire eye surface. Immediately consult a physician.

Skin

NOTE: Medical and emergency response personnel should avoid direct contact with contaminated clothing of the patient. IMMEDIATELY remove contaminated clothing, jewelry, and shoes and flush skin with sufficient volume of water until there is no evidence of the chemical on the affected area. Wash contaminated clothing before reuse, avoiding contact prior to cleaning. Seek medical attention immediately.

Inhaled

Remove to fresh air. If breathing has stopped, give artificial respiration taking care to avoid contact with this product. Consult a physician.

Additional Information

Aggravated medical conditions caused by exposure

Carcinogenicity Information: None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen. IARC: International Agency for Research on Cancer. NTP: National Toxicology Program. OSHA: Occupational Safety and Health Administration. ACGIH: American Conference of Government Industrial Hygienist.

5. Fire Fighting Measures

Extinguishing Media

Firefighters should wear full protective clothing including self-contained breathing apparatus. In case of fire use water spray, foam, dry chemical, CO₂.

Special protective precautions and equipment for fire fighters

No Data Available

Flammability Conditions

This product is not readily combustible.

Additional Information

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This product may give rise to hazardous vapors in a fire.

Hazchem Code : N/A

6. Accidental release measures

Personal precautions:

Prevent contact with skin and clothing. Wear protective clothing.

Environmental precautions:

Prevent the material from entering drains or water courses. Do not discharge directly to a water source. Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods for cleaning up:

Take up with absorbent material and place in containers for disposal according to all local regulations. Follow all local regulations for reporting of releases

7. Handling and Storage

Precautions for safe handling

Ensure an eye bath & safety shower are available and ready for use.

Conditions for safe storage, including any incompatibles

This product is a combustible liquid with regard to AS 1940. Storage should be in accordance with applicable commonwealth, state or territory regulation. Do not mix with strong acids or alkaline materials. Store in a well ventilated place. Keep container tightly closed. Avoid breathing vapors or mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling.

8. Exposure Controls, Personal Protection

Handling:

Do not get into eyes, on skin or on clothing. Do not breathe mist. Take off all contaminated clothing and wash before reuse. In case of accident or if you feel unwell, seek medical advice immediately (show label where possible). Do not eat or drink while handling. Wash thoroughly after handling.

Storage:

Keep the container tightly closed (readily absorbs carbon dioxide from the air). Should be stored in plastic. Store away from incompatible materials.

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Personal Protection

EYE/FACE PROTECTION : Wear safety glasses. Wear coverall chemical goggles when possibility exists for eye and face contact due to splashing or spraying material. **RESPIRATOR** : An approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentration are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, exposures levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. **PROTECTIVE CLOTHING** : Wear impervious clothing, such as gloves, apron, boots or whole bodysuit as appropriate. Recommended glove and clothing material: Butyl Rubber

9. Physical and Chemical Properties

Physical State	liquid
Color	colorless
Odor	slight trimethylamine
Odor Threshold	Not available
pH	>12
Melting Point	0 °C
Boiling Point	Approx. 100°C
Flash Point	Not flammable
Evaporation Rate	Slower than ether
Flammability	Non-flammable liquid
Flammability Limits (as percentage volume in air)	
Lower Explosion Limit	n/a
Upper Explosion Limit	n/a
Vapor Pressure	17.5 mmHg (20 °C)
Vapor Density	
Specific Gravity/Relative Density	1 (water =1 at 20 °C)
Solubility in water	miscible
Partition coefficient: n-octanol/water	Not available
Decomposition temperature	Not available
Viscosity	~1 (20 °C)

10. Stability and reactivity

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Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. High heat will slowly degrade the product releasing trimethylamine and methanol.

Conditions to Avoid: Contact with incompatible materials.

Incompatibilities with Other Materials: oxidizers, acids

Hazardous Polymerization: Will not occur.

11. Toxicological information

Toxicity Data

May cause serious damage to health by prolonged exposure through inhalation, in contact with skin or eyes and if swallowed.

The following data has been reported in the RTECS database:

Subcutaneous-mouse LDLo = 19 mg/kg

Intravenous-rabbit LDLo = 1 mg/kg

Skin-guinea pig LD50 = 25 mg/kg (test conducted with solid tetramethylammonium pentahydrate, which is equivalent to 50% tetramethylammonium hydroxide)

Parenteral-frog LDLo = 5 mg/kg unreported-frog LDLo = 1515 ug/kg

Results from an experimental study in rats demonstrated lethality following one or more skin applications of tetramethylammonium hydroxide at dose levels of 30 mg/kg and higher. TMAH concentrations in excess of 0.25% have been shown to cause dermal irritation in experimental animals. Not identified as an OSHA, NTP or IARC carcinogen. No data available indicating any carcinogenic activity.

12. Ecological Information

Has been reported to be biodegradable in biological treatment facilities if adjusted to neutral pH. Rate needs to be tested using local conditions. Will be detrimental to biological treatment works at high pH. Do not discharge directly to surface waters.

Acute aquatic toxicity testing on a pH neutralized solution of this compound has been shown to be toxic to the ceriodaphnia dubia (water flea).

Acute aquatic toxicity testing on the Daphnia magna resulted in a 48 hour LC50 of 55.6 mg/l (with 95% confidence limits).

Avoid release to the environment.

13. Disposal considerations

DISPOSAL METHODS

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Dispose of waste and residues in accordance with local authority requirements.

OTHER DISPOSAL CONSIDERATIONS:

This material, when discarded, is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dispose of by incineration or recycle in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

14. Transport information

Department of Transportation (DOT) Requirements:

Not regulated as dangerous goods

General Transportation Information for Bulk Shipments

Proper Shipping Name Chemicals N.O.S.

15. Regulatory information

TSCA (Toxic Substance Control Act):

All components of this mixture are listed on the US TSCA Chemical Inventory.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

Recommended Label Information when concentrated (25% solids):

T- Toxic

R 24- Toxic in contact with skin.

R 34- Causes burns.

R 52- Harmful to aquatic organisms.

S 23- Do not breathe spray.

S 24/25- Avoid contact with skin and eyes.

S 26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 27- Take off immediately all contaminated clothing.

S 36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

S 45- In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

S 61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

16. Other information

Contact:

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This chemical is listed on the EINECS List.
Toxicity information is available in Registry of Toxic Effects of Chemical Substances.
NIOSH/RTECS Number for tetramethylammonium hydroxide - PA0875000.
BRN (Beilstein Registry Number) for tetramethylammonium hydroxide - 3558708

Alterations/supplements to the previous editions:

General update

References:

[1] Globally Harmonized System of Classification and Labeling of Chemicals (GHS), Fourth revised edition, UNITED NATIONS, New York and Geneva, 2011

Sources of key data used to compile the datasheet

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Futurrex be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Futurrex has been advised of the possibility of such damages.

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