



Safety Data Sheet – Negative Resist NR9-1000PY

1. Identification of Substance / Preparation and Company

Trade name:

Negative Resist NR9-1000PY

Use of the substance/Preparation:

Industry sector: semiconductor industry photolithography sector
Type of use: light sensitive emulsion for photolithography applications

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

Identification of the company:

Futurex, 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@futurex.com

2. Hazards identification

GHS CLASSIFICATION:

| HEALTH | ENVIROMENTAL | PHYSICAL |
|--|--|-------------------------------|
| Acute Oral Toxicity: Category 4 Eye Irritation: Category 2A Skin Irritation: Category 3 Acute(Inhalation-Vapor): Category 4 | Acute Toxicity: None Known Chronic Toxicity: None Known | Flammable Liquid – Category 3 |

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GHS LABEL:

SIGNAL WORD: Warning!



GHS07



GHS02

| HAZARD STATEMENTS | PRECAUTIONARY STATEMENTS |
|---|---|
| H 226 Flammable liquid and vapor H 302 Harmful if swallowed H 317 May cause allergic skin reaction H 319 Causes serious eye irritation | P 210 Keep away from heat, sparks, and flame. P 233 Keep container closed. P 261 Avoid breathing vapors. P 262 Do not get in eyes, on skin, or on clothing. P 280 Wear protective gloves, protective clothing, eye protection, face protection. P 264 Wash hands thoroughly after handling. P 403+235 Keep container in a cool, well-ventilated area. |

3. Composition/information on ingredients

| CAS# | EINECS | Chemical Name | Concentration | Hazard symbols | R phrases* |
|----------|-----------|---------------|---------------|----------------|------------|
| 108-94-1 | 203-631-1 | Cyclohexanone | 65-85 | | |
| | | Resins | 15-25 | | |
| | | Sensitizers | 1-10 | | |

4. First aid measures

Description of necessary measures according to routes of exposure

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical help.

Skin: Immediately wash with soap and water. Seek medical assistance for irritation or any other

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symptoms.

Ingestion: Do not induce vomiting unless advised to do so by a physician.

Inhalation: Remove to fresh air. If not breathing, apply artificial respiration, preferably mouth-to-mouth. Get medical assistance.

Notes to Physician: Treat according to symptoms present.

5. Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Combustible liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: Alcohol foam, carbon dioxide, dry chemical, or water spray. Avoid solid streams of water which may spread burning liquid.

Flash Point: 46 deg C (114.8 deg F)

Auto-ignition Temperature: 423 deg C (793.4 deg F)

Explosion Limits, Lower: 1.1 vol %

Upper: 9.4 vol %

NFPA Rating: (estimated) Health: 1; Flammability: 2; Instability: 0

Flammability Conditions

This product is a flammable liquid with regard to AS 1940. Actual autoignition temperature (AIT) can be affected by the concentration of vapors and oxygen, vapors and oxygen, vapor/air contact time, pressure, volume, catalytic impurities, etc. Process conditions should be analyzed to determine if the AIT's may be higher or lower. Vapor forms explosive mixture with air. Hazardous gases/vapors produced in fire are carbon monoxide. Auto-ignition (°C): 423

6. Accidental release measures

Emergency procedures

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Clean-up personnel should wear full protective clothing including breathing apparatus. Remove source of heat, sparks, flame, impact, friction or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas. Provide ventilation.

Methods and materials for containment and clean up

Recover free liquid for reuse or reclamation. Recover undamaged and minimally contaminated material for reuse and reclamation. Soak up with sawdust, sand, oil, dry or other absorbent material.

7. Handling and Storage

Precautions for safe handling

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation. Keep away from heat and flame.

Conditions for safe storage, including any incompatibles

This product is a flammable liquid with regard to AS 1940. Storage should be in accordance with applicable commonwealth, state or territory regulation. Do not mix with strong oxidizing agents. 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

National Exposure Standards

| Chemical Name | ACGIH TLV | NIOSH | OSHA - Final PELs |
|---------------|-------------------|-------------|-------------------|
| Cyclohexanone | 20 ppm (TWA)-Skin | none listed | 25 ppm (TWA)-Skin |

Biological Limit Values

No Data Available

Engineering Controls

Use sufficient ventilation to keep employee exposures below recommended limits.

Personal Protection

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Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

9. Physical and Chemical Properties

| | |
|--|----------------------|
| Physical State | liquid |
| Color | light yellow |
| Odor | peppermint-like |
| Odor Threshold | 0.88 ppm |
| pH | Not available |
| Melting Point | -32 °C |
| Boiling Point | 156 °C |
| Flash Point | 44 °C |
| Evaporation Rate | No data available |
| Flammability | Flammable Liquid |
| Flammability Limits (as percentage volume in air) | |
| Lower Explosion Limit | 1.1% |
| Upper Explosion Limit | 9.4% |
| Vapor Pressure | 2 mmHg (20 °C) |
| Vapor Density | 3.4 (air=1) |
| Specific Gravity/Relative Density | ≤ 1 (Water = 1) |
| Solubility in water | Not available |
| Partition coefficient: n-octanol/water | Not available |
| Auto-ignition temperature | 423 °C (at 760 mmHg) |
| Decomposition temperature | Not available |
| Viscosity | 12 – 18 cSt (23°C) |

10. Stability and reactivity

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Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Ignition sources, moisture, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide

Hazardous Polymerization: Will not occur.

11. Toxicological information

Light yellow liquid with a peppermint-like odor. Causes irritation to the skin, eyes, mucous membranes and respiratory tract. Can be absorbed through the skin causing systemic effects. Liquid is flammable

Toxicity Data

Skin: Can be absorbed through the skin causing systemic effects similar to inhalation. Prolonged or repeated contact may cause mild to moderate irritation or dermatitis.

Eyes: Severe irritant. May produce transient corneal damage.

Inhalation: Irritating to the eyes, mucous membranes and respiratory tract. May cause labored breathing, central nervous system depression, tremors and decreased heart rate. At high concentrations, death from respiratory depression may occur. Repeated or prolonged exposures to high concentrations may cause kidney and liver damage.

Ingestion: Produces systemic effects similar to inhalation.

Delayed effects: Liver and kidney damage, and blood and bone marrow effects have been reported in animals.

Immediate (acute) effects:

LD50 (oral-rat): 1535 mg/kg

LD50 (oral -mouse): 1400 mg/kg

LD50 (skin-rabbit): 948 mg/kg

Delayed (subchronic and chronic) effects: Liver and kidney damage reported in monkeys and rabbits (190 ppm) and rats (105.2 mg/m³). Blood and bone marrow effects reported in rats, dogs and monkeys injected with 142-284 mg/kg

Other data: None.

12. Ecological Information

Aquatic Toxicity

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Breakdown via chemical, photochemical and microbial degradation in natural environment. Generally not degraded by hydrolysis. 300 ppm is safe for aquatic life. Halogenation may occur in aqueous environment. Octanol/water partition coefficient - 0.01

13. Disposal considerations

DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements. Unused product is a RCRA hazardous waste with numbers U057 and D001.

OTHER DISPOSAL CONSIDERATIONS:

40 CFR Section 268 should be consulted for federal regulatory requirement.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. Transport information

| | US DOT |
|------------------|---------------|
| Shipping Name: | Not regulated |
| Hazard Class: | |
| UN Number: | |
| Packing Group: | |
| Marine Pollutant | |

| | IATA |
|------------------|----------------|
| Shipping Name: | Resin Solution |
| Hazard Class: | 3 |
| UN Number: | 1866 |
| Packing Group: | III |
| Marine Pollutant | NO |

| | RID/ADR |
|----------------|----------------|
| Shipping Name: | Resin Solution |
| Hazard Class: | 3 |

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| | |
|-------------------------|------|
| UN Number: | 1866 |
| Packing Group: | III |
| Hazard Label | 3 |
| Marine Pollutant | NO |

15. Regulatory information

Labeling in accordance with Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Hazardous component(s) to be indicated on label

R phrases

R 10 Flammable.

S phrases

S 16 Keep away from sources of ignition - No smoking.
S 24 Avoid contact with skin.
S 33 Take precautionary measures against static discharges.
S 9 Keep container in a well-ventilated place.

US FEDERAL

TSCA

Ingredients are listed on the TSCA inventory.

OSHA

None of the chemicals in this product are considered highly hazardous by OSHA.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

Cyclohexanone: 5000 lbs.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

FOREIGN INVENTORY STATUS:

WHMIS Classification (Canada)

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Creation date: 11/16/2010
Last update: 01/09/2018

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B3, D1B, D2B.

Disclosure List Item Number 467.

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Canadian DSL (Domestic Substance List)

EINECS (European Inventory of Existing Commercial Chemical Substances)

EINECS # 203-631-1

16. Other information

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 2

Reactivity: 0

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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