

# Material Safety Data Sheet

## Negative Resist NR22-20000P

### Section 1 - Chemical Product and Company Identification

Trade Name: **Negative Resist NR22-20000P**

**Company Identification:**

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

**For information, call: 1-888-999-4188, E-mail: info@futurrex.com**

**Emergency Number: 1-800-535-5053 (U.S. and Canada),  
1-352-323-3500 (International)**

Recommended use and restrictions:

**Industry sector: semiconductor industry photolithography sector**

**Type of use: light-sensitive emulsion for photolithography application**

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

### Section 2 - Hazards Identification

**GHS CLASSIFICATION:**

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

**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.

### Section 3 - Composition, Information on Ingredients

CAS#	Chemical Name	Other Name	Percent
110-43-0	2-heptanone	Methyl pentyl ketone	40-50
	Resins		30-40
	Sensitizers		1-10

### Section 4 - First Aid Measures

**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 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.

## Section 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)

Autoignition Temperature: 423 deg C (793.4 deg F)

Explosion Limits, Lower: 1.1 vol %

Upper: 12.75 vol %

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

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Provide ventilation.

## Section 7 - Handling and Storage

**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.

**Storage:** Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Maintain vapor levels below the recommended TLV's and/or PEL's by use of adequate local or general exhaust system at product transfer/use areas.

### Exposure Limits

Chemical Name	ACGIH TLV	NIOSH	OSHA - Final PELs
2-heptanone	50 ppm (TWA)-Skin	none listed	100 ppm (TWA)-Skin

### Personal Protective Equipment

**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.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** Yellow color

**Odor:** Banana-like, fruity odor

**Odor threshold:** Not available.

**pH:** Not available.

**Vapor Pressure:** 2.1 mm Hg @ 20 deg C

**Vapor Density:** 3.94 (air=1)

**Evaporation Rate:** Not available.

**Viscosity:** 3500-4000 cSt @ 23 deg C

**Boiling Point:** 149 deg C

**Freezing/Melting Point:** -35 deg C

**Flash Point:** 41 deg C (106 deg F)

**Autoignition Temperature:** not available

**Decomposition Temperature:** Not available.

**Explosion Limits, Lower:** 1.11 vol % **Upper:** 7.9 vol %

**Solubility in water:** Insoluble.

**Specific Gravity/Density:** >1

**N-octanol/water partition coefficient:** Not available.

**Molecular Weight:** Not available.

## Section 10 - Stability and Reactivity

**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.

## Section 11 - Toxicological Information

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

### Potential Health Effects

**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): 1670 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/m<sub>3</sub>). Blood and bone marrow effects reported in rats, dogs and monkeys injected with 142-284 mg/kg

**OTHER DATA:**

None.

## Section 12 - Ecological Information

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

## Section 13 - Disposal Considerations

**RCRA**

**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.

## Section 14 - Transport Information

	<b>US DOT</b>
<b>Shipping Name:</b>	Resin Solution
<b>Hazard Class:</b>	3
<b>UN Number:</b>	1110
<b>Packing Group:</b>	III
<b>Marine Pollutant</b>	NO

	IATA
Shipping Name:	Resin Solution
Hazard Class:	3
UN Number:	1100
Packing Group:	III
Marine Pollutant	NO

	RID/ADR
Shipping Name:	Resin Solution
Hazard Class:	3
UN Number:	1100
Packing Group:	III
Hazard Label	3
Marine Pollutant	NO

## Section 15 - Regulatory Information

### Risk Phrases:

R 10 Flammable.

### Safety 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.

### ADDITIONAL REGULATORY INFORMATION:

#### US FEDERAL

##### TSCA

All ingredients in NR22-20000P are listed on the TSCA inventory.

##### 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**

2-heptanone: 5000 lbs.

**SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

**SOCMI chemical:**

Absent from the list of Chemicals Known to the State of California to Cause Cancer or Reproductive Toxicity

**WHMIS CLASSIFICATION (CANADA):**

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.

**FOREIGN INVENTORY STATUS:**

Canadian DSL (Domestic Substance List)

EINECS (European Inventory of Existing Commercial Chemical Substances)

**EINECS # 203-767-1**

Mexico Hazard Identification Guidance List (NOM-018-STPS-2000).

European Labeling in Accordance with EC Directives

Hazard Symbol:



Harmful

**DSCL (EEC):**

R10- Flammable

R20- Harmful by inhalation

S25- Avoid contact with eyes



**HMIS (U.S.A.):**

**Health Hazard:** 1

**Fire Hazard:** 2

**Reactivity:** 0

**Personal Protection:** h

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

**Health:** 1

**Flammability:** 2

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

**Section 16 - Additional Information**

**MSDS Creation Date:** 01/08/2013

**Latest Revision Date and Revision Number:** 01/08/2013 V1.0

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