

MICRO • CHEM

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MATERIAL SAFETY DATA SHEET

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SECTION 1. CHEMICAL IDENTIFICATION -----

CHEMICAL NAME: Organic Solvent Mixture
TRADE NAME: NANO™ G-Thinner
PRODUCT #: Positive Radiation Resist Thinner
G012100

SECTION 2. COMPOSITION-----

HAZARDOUS
INGREDIENTS: Cyclopentanone (CAS: 120-92-3); 80-90%.
Propylene glycol methyl ether (107-98-2); 10-20%

SECTION 3. HAZARD DATA-----

INFLAMMABILITY: Flammable liquid.
SKIN CONTACT: May cause skin irritation.
EYE CONTACT: May cause serious damage to the eyes.
INGESTION: May be harmful if swallowed.
INHALATION: Irritating to mucous membranes and upper respiratory tract.
MUTAGENICITY: Data not available.
CARCINOGENICITY: Data not available.
TARGET ORGANS: Eyes, Respiratory, Behavioral, Liver.

SECTION 4. FIRST AID MEASURES-----

INHALATION: If inhaled, remove to fresh air. If patient has stopped breathing, give artificial respiration. If breathing is difficult give oxygen. Contact physician immediately.
INGESTION: Induce vomiting. Wash out mouth with water if conscious. Get medical attention immediately.
SKIN CONTACT: Rinse with water for 15 minutes while removing contaminated clothing and shoes. Wash affected area with soap and water. Wash contaminated clothing.
EYE CONTACT: Rinse immediately with water, flush for 15 min. lifting eyelids frequently. Get emergency medical assistance.

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SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, and foam.

SPECIAL FIRE FIGHTING
PRECAUTIONS:

Wear self-contained breathing apparatus (SCBA) and personal protective equipment to prevent contact with skin and eyes.

UNUSUAL FIRE OR
EXPLOSION HAZARDS:

Vapor may travel considerable distance to source of ignition and flash back. Heat will build pressure and may rupture closed containers. Forms explosive mixtures in air. Keep containers cool with water spray.

SECTION 6. ACCIDENTAL RELEASE PROCEDURES

Evacuate Area.

Eliminate all ignition sources.

Wear self-contained breathing apparatus (SCBA), rubber boots, and heavy rubber gloves. Avoid eye or skin contact. Cover with dry absorbent material and collect in closed container for disposal using non-sparking tools. Ventilate area and wash spill sites after material pickup is complete, rinse with water. All clean up should be carried out in accordance with federal, state, and local regulations. If required proper authorities should be notified.

SECTION 7. STORAGE AND HANDLING PRECAUTIONS

STORAGE: Store in tightly closed container in a cool environment away from direct sunlight.

HANDLING: Keep away from heat, sparks, and flames.
Do not breathe vapors.
Use only with mechanical exhaust.
Do not contact with skin, eyes, and clothing.
Severe eye irritant.
Avoid prolonged or repeated exposure.
Wear heavy rubber gloves.
Wash with soap and water after handling.
Have safety shower and eye wash available.

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SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

RESPIRATORY PROTECTION: In case of spills, use of self-contained breathing apparatus (SCBA) is recommended.
VENTILATION: Local or general mechanical ventilation is required.
SKIN PROTECTION: Heavy rubber gloves are highly recommended.
EYE PROTECTION: Safety goggles are highly recommended.

SECTION 9. PHYSICAL AND CHEMICAL DATA

APPEARANCE: Pale yellow to clear
ODOR: Slightly sweet
BOILING POINT: 118-131 °C (244-268 °F)
SPECIFIC GRAVITY: 0.949
VAPOR PRESSURE: 9 mm @ 20 °C (68 °F)
VAPOR DENSITY: 3 (air=1)
H₂O SOLUBILITY: 40-50% @ 20 °C, by wt.
% VOLATILES: 100% by wt
FLASH POINT: 30 °C (87 °F) TCC
AUTOIGNITION TEMP: 136 °C (278 °F)
EXPLOSION LIMITS: 1.3 lower
unk. upper

SECTION 10. REACTIVITY DATA

STABILITY: Stable
INCOMPATIBILITY: Strong Oxidizing Agents, Strong Bases, Strong Reducing Agents, Acid Chlorides, and Acid Anhydrides
HAZARDOUS POLYMERIZATION: Will not occur
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS: Carbon Monoxide, Carbon Dioxide

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SECTION 11. TOXICITY HAZARDS-----

ACUTE EFFECTS:

May be harmful if swallowed, inhaled, or absorbed through the skin.
Irritating to eyes and respiratory tract. May cause serious damage to the eyes.
Vapor or mist is irritating to the eyes, mucous membranes and upper respiratory tract.
Eye and skin contact can cause headache, nausea, vomiting, dizziness, weakness, drowsiness, narcosis, and loss of coordination in humans.
Causes moderate skin irritation in rabbits.
Prolonged and/or repeated exposure can cause absorption of harmful amounts of material.

ORAL:	LD50 (mam):	2000 mg/Kg as Cyclopentanone
	LD-50 (rat):	5660 mg/kg as Propylene glycol methyl ether
IRRITATION:	skin:	500 mg - mild as Cyclopentanone
	skin:	500 mg as Propylene glycol methyl ether
	eyes:	100 mg/ 4 sec - severe as Cyclopentanone
	eyes:	230 mg - mild as Propylene glycol methyl ether
TLV:	ACGIH (TWA)	none established
PEL:	OSHA (8hr TWA)	none established

SECTION 12. ECOLOGICAL DATA-----

As cyclopentanone:

Data not available.

As Propylene glycol methyl ether:

It has a low potential to affect aquatic organisms, a high potential to biodegrade with unacclimated microorganisms from activated sludge, a low potential to affect secondary wasted treatment microbial respiration, a low potential to persist in the environment, and a low potential to bioconcentrate.

The direct instantaneous discharge to a receiving body of water of an amount of this chemical which will rapidly produce, by dilution, a final concentration of 250 mg/l or less is not expected to cause adverse environmental effects.

Oxygen Demand Data:

ThOD: 1.95 g oxygen/g

COD: 1.84 g oxygen/g

BOD-20: 1.14-g oxygen/g

Acute Aquatic Effects Data:

48-h EC-50 (daphnia): 23,300 mg/L

96-h LC-50 (fathead minnow): 20,800 mg/L

Biodegradation: A 28 day test for ready biodegradability using unacclimated microorganisms showed 73.4% degradation of the test article as measured by carbon dioxide evolution and a loss of dissolved organic carbon.

Secondary Waste Treatment Effects: A 3 hour activated sludge respiration inhibition test showed an EC-50 of >1000 mg/L.

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SECTION 13. DISPOSAL CONSIDERATIONS-----

Burn in an EPA-licensed chemical incinerator equipped with an afterburner and scrubber at an approved waste disposal facility. Observe all federal, state, and local environmental regulations.

SECTION 14. TRANSPORTATION INFORMATION-----

HAZARD CLASSIFICATION: Flammable Liquid
SHIPPING NAME: Flammable Liquid, N.O.S.
UN NUMBER: UN 1993
PACKING GROUP: III

SECTION 15. REGULATORY INFORMATION-----

HAZARDOUS LISTINGS: All ingredients appear on the TSCA Inventory of Chemical Substances, EINECS, and the Japan Hazardous Chemical Listing.
SARA Title III: This product IS NOT subject to SARA Title III, Section 313 Reporting Requirements.

Calif. SCAQMD Rule 443.1 VOC's: 950g/l; vapor pressure 9 mm Hg @ 20 °C

SECTION 16. ADDITIONAL PRECAUTIONS AND COMMENTS-----

To the best of our knowledge, the above information is believed to be accurate but does not claim to be all-inclusive and is intended to be used only as a guide. The supplier makes no warranty of any kind, expressed or implied, concerning the use of this product and shall not be held liable for any damage resulting from handling or from contact with the above product. User assumes all risks incident to its use.

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NANOTM
G THINNER
CP/PM Solv

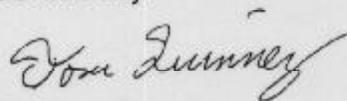
Product No.	G012100	Lot No.	02038
Expiration	Sep-03	Manufactured	Aug-02

CERTIFICATE OF ANALYSIS

MicroChem Corp. has completed the analysis of the above lot of material with the results listed below.

Appearance	Clear, colorless
Solvent by GC	85.2% Cyclopentanone
	14.9% PM Solvent
Evaporation Residue	<0.05%
Filtration Level	0.1 μ m

Certified by:



Thomas Quinney
Chemist

9-Aug-02

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G THINNER

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CERTIFICATE OF COMPLIANCE

MicroChem Corp. hereby certifies that the above material meets all specifications for this product and conforms to our Quality Assurance requirements.

Certified by:



Thomas Quinney
Chemist

9-Aug-02