



Microlithography Chemical Corp.

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MATERIAL SAFETY DATA SHEET

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SECTION 1. CHEMICAL IDENTIFICATION -----

CHEMICAL NAME: Negative Radiation Resist Thinner
TRADE NAME: GBL Thinner
PRODUCT #: Y030100

SECTION 2. COMPOSITION-----

INGREDIENTS: Gamma Butyrolactone (CAS:96-48-0); 100%.

SECTION 3. HAZARD DATA-----

INFLAMMABILITY: Combustible liquid.
SKIN CONTACT: May cause skin irritation.
EYE CONTACT: Severe eye irritant.
INGESTION: May be harmful if swallowed in large quantities.
INHALATION: May cause irritation..
MUTAGENICITY: Not known to be mutagenic.
CARCINOGENICITY: Not considered carcinogenic by NTP, IARC and OSHA
OTHER:
TARGET ORGANS: Eyes, Epidermis.

SECTION 4. FIRST AID MEASURES-----

INHALATION: No occupational exposure limits have been developed for this material. Where exposure through inhalation may occur from use, NIOSH approved respiratory equipment is recommended.
INGESTION: If a large quantity swallowed, give lukewarm water. DO NOT induce vomiting. Risk of damage to lungs exceeds poisoning risk. 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. Prompt action is essential.

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EXTINGUISHING

SPECIAL FIRE FIGHTING
PRECAUTIONS:

UNUSUAL FIRE OR
EXPLOSION HAZARDS:

Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition source, vapors can burn in open or explode if confined. Vapors may be heavier than air. May travel long distances along the ground before igniting and flashing back to vapor source. Fine sprays/mists may be combustible at temperatures below normal flash point.

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.

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

HANDLING: Keep away from heat, sparks, and flames.
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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RESPIRATORY

VENTILATION: Local or general mechanical ventilation is required.

SKIN PROTECTION: Rubber gloves are recommended.

EYE PROTECTION: Safety goggles are highly recommended.

APPEARANCE:	Pale yellow to clear
ODOR:	Slightly sweet
BOILING POINT:	204 °C (400 °F)
SPECIFIC GRAVITY:	1.10
VAPOR PRESSURE:	2 mm @ 20 °C (68 °F)
H ₂ O SOLUBILITY:	Insoluble
EVAPORATION RATE:	1 (BuAc=1)
FLASH POINT:	95 °C (203 °F) TCC
AUTOIGNITION TEMP:	437 °C (820 °F)
EXPLOSION LIMITS:	3.6 lower 16 upper

STABILITY:	Stable
INCOMPATIBILITY:	Strong Oxidizing Agents, Strong Bases, Strong Acids
HAZARDOUS POLYMERIZATION:	Will not occur
HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS:	Carbon Monoxide

Gamma Butyrolactone

In animal studies, due to the rate of dermal absorption of GBL, dermal toxicity is assumed to be essential equal to oral toxicity. In humans, oral ingestion of solutions containing high concentrations of GBL has caused reversible coma.

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SECTION 12. ECOLOGICAL DATA-----

No data available at this time.

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:	Not Regulated
SHIPPING NAME:	Not Regulated
UN NUMBER:	Not Regulated
PACKING GROUP	Not Regulated

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: 1100 g/l; vapor pressure 2 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 GBL THINNER

Gamma Butyrolactone

Product No.
Expiration

Y030100
Nov-98

Lot No.
Manufactured

97002
Oct-97

CERTIFICATE OF ANALYSIS

MICROLITHOGRAPHY CHEMICAL CORP. has completed the analysis of the above lot of material with the results listed below.

Appearance	Clear, colorless
Solvent by GC	>99% Gamma Butyrolactone
Evaporation Residue	<0.01%
Filtration Level	0.1 μ m

Certified by:

John Trautner
Chemist

27-Oct-97