

**MICRO • CHEM**  
**SAFETY DATA SHEET**

PAGE 1 of 7

Rev. Date: 06 November 2008

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION** -----

PRODUCT USE:           Organic Solvent Mixture  
TRADE NAME:           Remover PG  
                              Photoresist Remover  
PRODUCT #:             G050200

SUPPLIER:               MicroChem Corporation  
                              90 Oak Street, PO Box 426  
                              Newton, MA 02464-0002

TELEPHONE:           (617) 965-5511  
FAX:                    (617) 965-5818  
CHEMTREC USA  
EMERGENCY #:         (800) 424-9300  
CHEMTREC INTL  
EMERGENCY #:         (703) 527-3887  
MSDS DATE:            06 November 2008

**SECTION 2. HAZARDS IDENTIFICATION** -----

**Hazardous Classification**

Acute toxicity (inhalation – gas/vapour) – Category 3  
Flammable liquids – Category 4  
Serious eye damage/eye irritation - Category 2A  
Skin corrosion/irritation - Category 3  
Target organ systemic toxicant single exp - Category 3



Signal Word: **DANGER!**

**Hazards**

Combustible liquid.  
Toxic if inhaled.  
Causes serious eye irritation.  
Causes mild skin irritation.  
May cause drowsiness and dizziness.  
May cause respiratory irritation.

**Precautions**

Use only outdoors or in a well-ventilated area.  
Keep away from flames and hot surfaces.  
Avoid breathing mists and vapors.  
Wear protective gloves and eye/face protection.  
If skin irritation occurs, seek medical advice/attention.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
Call a POISON CENTRE or doctor/physician if you feel unwell.  
Use extinguishing measures that are appropriate to local circumstances

CHEMICAL NAME: Organic Solvent Mixture  
TRADE NAME: Remover PG  
Photoresist Remover  
PRODUCT #: G050200

---

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS -----

INGREDIENTS: N-Methyl Pyrrolidinone (CAS: 872-50-4); >99%  
Proprietary Surfactant; <1%

### SECTION 4. FIRST AID MEASURES-----

INHALATION: If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention promptly.

INGESTION: If large quantity swallowed, give lukewarm water (pint/ ½ liter) if victim is completely conscious /alert. Do not induce vomiting. Risk of damage to lungs exceeds poisoning risk. Obtain emergency medical attention.

SKIN CONTACT: Immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Flush with lukewarm water for 15 minutes. If sticky, use waterless cleaner first. Seek medical attention if ill effect or irritation develops.

EYE CONTACT: Thoroughly flush the eyes with large amounts of clean low pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

### SECTION 5. FIRE-FIGHTING MEASURES-----

EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, foam, water spray.

SPECIAL FIRE FIGHTING PRECAUTIONS: Wear self-contained breathing apparatus (SCBA) and personal protective equipment.

UNUSUAL FIRE OR EXPLOSION HAZARDS: When heated above the flash point, releases flammable vapors. 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.

### SECTION 6. ACCIDENTAL RELEASE MEASURES-----

EVACUATION PROCEDURES & SAFETY: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8. Eliminate all sources of ignition. Do not touch or walk through spilled material.

CLEANUP & DISPOSAL OF SPILL: Absorb with an inert absorbent. Sweep up and place in an appropriate closed container (see Section 7). Use clean, non-sparking tools to collect absorbed material.

# SAFETY DATA SHEET

PAGE 3 of 7  
Rev. Date: 06 November 2008

CHEMICAL NAME: Organic Solvent Mixture  
TRADE NAME: Remover PG  
                  Photoresist Remover  
PRODUCT #: G050200

---

ENVIRONMENTAL &  
REGULATORY REPORTING: Do not flush to drain. If required proper authorities should be notified.

## SECTION 7. HANDLING AND STORAGE-----

PRECAUTIONS: Store locked up. Store container tightly closed in well-ventilated place.

STORAGE: Store in tightly closed container away from heat, sparks, open flames, strong oxidizing agents and 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.  
Avoid prolonged or repeated exposure.  
Wear butyl rubber gloves.  
Wash with soap and water after handling.  
Have safety shower and eye wash available.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION-----

OCCUPATIONAL  
EXPOSURE LIMITS; None Established.

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: Butyl rubber gloves are highly recommended. When skin protection is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection should be worn.

EYE PROTECTION: Chemical splash goggles and face shield must be worn when possibility exists for eye contact due to splashing/spraying liquid, airborne particles, or vapor.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES-----

APPEARANCE: Colorless Liquid to slightly yellow

ODOR: Amine-like

BOILING POINT: 202 °C (396 °F)

SPECIFIC GRAVITY: 1.030 @ 25 °C (77 °F)

VAPOR PRESSURE: 0.3 mm Hg @ 20 °C (68 °F)

H<sub>2</sub>O SOLUBILITY: Complete

% VOLATILES: 100% by weight

EVAPORATION RATE: 0.03 (BuAc=1)

# SAFETY DATA SHEET

PAGE 4 of 7  
Rev. Date: 06 November 2008

CHEMICAL NAME: Organic Solvent Mixture  
TRADE NAME: Remover PG  
Photoresist Remover  
PRODUCT #: G050200

---

FLASH POINT: 86 °C (187 °F) CC  
AUTOIGNITION TEMP: 270 °C (518 °F)  
EXPLOSION LIMITS: 1.3 lower (vol%) 9.5 upper (vol%)

## SECTION 10. STABILITY AND REACTIVITY-----

STABILITY: Stable  
INCOMPATIBILITY: Severe oxidizing conditions  
HAZARDOUS POLYMERIZATION: Not expected to occur  
HAZARDOUS COMBUSTION OR  
DECOMPOSITION PRODUCTS: Carbon Monoxide and Nitrogen Oxide fumes emitted  
when heated to decomposition

## SECTION 11. TOXICOLOGICAL INFORMATION-----

**Routes of Entry:** Inhalation, ingestion, eye and skin contact

**Symptoms of Exposure:** Causes severe eye irritation. Causes mild skin irritation. May cause upper respiratory tract irritation, central nervous system depression, shortness of breath, drowsiness and confusion. May be harmful if inhaled.

### Acute Toxicity

#### Acute Oral Toxicity

Component: N-Methyl Pyrrolidinone  
LD50 rat 3914 mg/kg

#### Acute Dermal Toxicity

Component: N-Methyl Pyrrolidinone  
LD50 rabbit >2000 mg/kg

#### Acute Inhalation Toxicity

Component: N-Methyl Pyrrolidinone  
LC50 rat >5.0 mg/l, aerosol, 4 hours

### Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity:

0% Acute oral toxicity  
0% Acute dermal toxicity  
0% Acute inhalation toxicity

### Skin corrosion/irritation

Component: N-Methyl Pyrrolidinone  
Acute Skin Irritation: Slight skin irritant

### Serious eye damage/eye irritation

Component: N-Methyl Pyrrolidinone  
Acute Eye Irritation: Eye Irritant

CHEMICAL NAME: Organic Solvent Mixture  
TRADE NAME: Remover PG  
                  Photoresist Remover  
PRODUCT #: G050200

---

**Respiratory or Skin Sensitisation**

Component: N-Methyl Pyrrolidinone  
Skin sensitization: Guinea Pig – not a sensitizer

**Carcinogenicity**

Component: N-Methyl Pyrrolidinone  
In laboratory animal studies, this chemical is not carcinogenic.

**Germ Cell Mutagenicity**

Component: N-Methyl Pyrrolidinone  
Negative Ames Test with and without activation

**Specific Target Organ Systemic Toxicity (single exposure)**

Component: N-Methyl Pyrrolidinone  
Central Nervous system

**Specific Target Organ Systemic Toxicity (repeated exposure)**

Component: N-Methyl Pyrrolidinone  
Central Nervous System

**Toxicity to Reproduction**

Component: N-Methyl Pyrrolidinone  
Reproductive effects were observed in laboratory animals at levels causing maternal toxicity. Relevance to humans is unknown.

**Aspiration Hazards**

No data found.

**SECTION 12. ECOLOGICAL INFORMATION**

---

**Acute aquatic toxicity****Acute toxicity to fish**

Component: N-Methyl Pyrrolidinone  
96 hr LC50 Bluegill: 832 mg/L

**Acute toxicity to aquatic invertebrates**

Component: N-Methyl Pyrrolidinone  
24 hr EC50 Daphnia magna: >1000 mg/L

**Acute toxicity to algae**

Component: N-Methyl Pyrrolidinone  
72 hr EC50 scenedesmus subspicatus >500 mg/l

CHEMICAL NAME: Organic Solvent Mixture  
TRADE NAME: Remover PG  
Photoresist Remover  
PRODUCT #: G050200

---

**Specific concentration limits**

The values listed below represent the percentages of ingredients of unknown toxicity.

0% Acute aquatic toxicity – fish

0% Acute aquatic toxicity – aquatic invertebrates

0% Acute aquatic toxicity - algae

**Chronic aquatic toxicity****Chronic toxicity to fish**

No data found

**Chronic toxicity to aquatic invertebrates**

No data found

**Chronic toxicity to algae**

No data found

**Persistence/Degradability**

Component: Gamma Butyrolactone

BOD (modified MITI method) = 73% (28 days). BOD (modified MITI method) = 92% (14 days). This material is expected to be readily biodegradable.

**Bioaccumulation**

Component: N-Methyl Pyrrolidinone

BCF=0.16. This material is not expected to bioaccumulate.

**Mobility**

Component: N-Methyl Pyrrolidinone

It is water soluble and is expected to have low volatility. It is expected to be poorly adsorbed onto soils or sediments.

**SECTION 13. DISPOSAL CONSIDERATIONS**

---

**Precautions**

CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied.

Dispose of contents/container in accordance with local regulation.

**Disposal**

Comply with applicable local, state or international regulations regarding the proper disposal of this material and/or containers.

**SECTION 14. TRANSPORTATION INFORMATION**

---

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

CHEMICAL NAME: Organic Solvent Mixture  
TRADE NAME: Remover PG  
                  Photoresist Remover  
PRODUCT #: G050200

---

## SECTION 15. REGULATORY INFORMATION-----

---

### US AND INTERNATIONAL INFORMATION

Chemical Inventories: TSCA (US) – Components are listed.  
EINECS/ELINCS/NLP (EU) – Components are listed.  
China – Components are listed.  
Japan – Components are listed.  
DSL/NDSL (Canada) – Components are listed.  
AICS (Australia) – Components are listed.  
Korea - Components are listed.

SARA Title III: This material contains the following chemicals with known CAS numbers subject to SARA Title III, Section 313 Reporting Requirements:

N-Methyl Pyrrolidinone (CAS: 872-50-4);  
Reporting Threshold: 1.0%

Calif. SCAQMD Rule 443.1 VOC's: 1026 g/l; vapor pressure 0.3 mm Hg @ 20 °C

## SECTION 16. OTHER INFORMATION-----

---

National Fire Protection Association Hazard Ratings – NFPA:

- 2 Health Hazard Rating
- 1 Flammability Rating
- 0 Reactivity Rating

For additional information contact: [productsafety@microchem.com](mailto:productsafety@microchem.com)

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.

MSDS Revision Information: NEW