

1 Identification of the substance/mixture and of the company

- **Product identifier**
- **Trade name:** Remover PG
- **Product number:** G050200
- **Application of the substance / the preparation** Photoresist remover
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
MicroChem Corp.
90 Oak Street
P.O. Box 426
Newton, MA 02464-0002 USA
- **Information department:**
Product Safety
Email: productsafety@microchem.com
- **Emergency telephone number:**
MicroChem Corp : 617-965-5511
Chemtrec USA Emergency : 800-424-9300
Chemtrec International Emergency : 703-527-3887

2 Hazards identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

H227 Combustible liquid.

- **Label elements**
- **GHS label elements** The product is classified and labelled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS07 GHS08

- **Signal word** *Danger*
- **Hazard-determining components of labelling:**
N-methyl-2-pyrrolidinone
- **Hazard statements**
H227 Combustible liquid.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

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H360 May damage fertility or the unborn child.

H335 May cause respiratory irritation.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P201 Obtain special instructions before use.

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P370+P378 In case of fire: Use for extinction: CO₂, powder or water spray.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**· **NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 1

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = *2

Fire = 1

Reactivity = 0

· **Other hazards**· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.**3 Composition/information on ingredients**· **Description:** Mixture of the substances listed below with nonhazardous additions.· **Dangerous components:**

872-50-4	N-methyl-2-pyrrolidinone ⚠ Repr. 1B, H360; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335; H227	99-99.5%
	Proprietary Surfactant ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	0.1-1.0%

· **SVHC**

872-50-4	N-methyl-2-pyrrolidinone
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4 First aid measures· **Description of first aid measures**· **After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

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- **After swallowing:**
Do not induce vomiting unless instructed to do so by a physician. Wash out mouth with water and keep person at rest. Seek immediate medical attention.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Wear SCBA.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Keep away from ignition sources
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Dispose contaminated material as waste according to Section 13.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaust at the workplace.
Open and handle container with care.
Prevent formation of aerosols.
Store in cool, dry place in tightly closed containers.
- **Information about protection against explosions and fires:**
Keep respirator available.
Keep ignition sources away - Do not smoke.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:**
Store in a cool location.
Suitable material for receptacles and pipes: steel or stainless steel.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
Keep container tightly sealed.

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- This product is hygroscopic.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Control parameters

Components with limit values that require monitoring at the workplace:

872-50-4 N-methyl-2-pyrrolidinone

WEEL	10 ppm
	Skin

Ingredients with biological limit values:

872-50-4 N-methyl-2-pyrrolidinone

BEI	100 mg/L
	Medium: urine
	Time: end of shift
	Parameter: 5-Hydroxy-N-methyl-2-pyrrolidone

- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls
- Personal protective equipment:
- General protective and hygienic measures:
 - Keep away from food and beverages.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes and skin.
 - Do not inhale gases / fumes / aerosols.
 - Pregnant women should strictly avoid inhalation or skin contact.
- Respiratory equipment:
 - In case of low exposure, use cartridge respirator. In case of intensive or longer exposure, use SCBA.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Contact glove manufacturer for break-through time.

- Material of gloves Butyl rubber, BR
- Penetration time of glove material Contact glove manufacture for break-through time.
- Eye protection:



Tightly sealed goggles

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9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Color:	Clear to light yellow
Odor:	Amine-like
Odour threshold:	Not determined.

· pH-value at 20 °C (68 °F): l. basisch

· Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	202 °C (396 °F)

· Flash point: 86 °C (187 °F)

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 270 °C (518 °F)

· Decomposition temperature: Not determined.

· Auto igniting: Product is not selfigniting.

· Danger of explosion: Not determined.

· Explosion limits:

Lower:	1.3 Vol %
Upper:	9.5 Vol %

· Vapor pressure at 20 °C (68 °F): 0.39-0.43 hPa (0-0 mm Hg)

· Density at 25 °C (77 °F): 1.030 g/cm³ (8.595 lbs/gal)

· Relative density: Not determined.

· Vapour density: Not determined.

· Evaporation rate: 0.03 (BuAc=1)

· Solubility in / Miscibility with

Water: Fully miscible.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

· Other information: No further relevant information available.

10 Stability and reactivity

· Reactivity

· Chemical stability: Stable under normal use conditions

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· Possibility of hazardous reactions: No dangerous reactions known.

· Conditions to avoid: No further relevant information available.

· Incompatible materials: Strong oxidizing agents

· Hazardous decomposition products:

Carbon monoxide and carbon dioxide

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Nitrogen oxides

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11 Toxicological information· **Information on toxicological effects**· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:****872-50-4 N-methyl-2-pyrrolidinone**

Oral	LD50	3914 mg/kg (rat)
Dermal	LD50	8000 mg/kg (rabbit)
Inhalative	LC50/4 h	>5.0 mg/l (rat)

· **Primary irritant effect:**· **on the skin:** Irritant to skin and mucous membranes.· **on the eye:** Irritating effect.· **Sensitization:** No sensitizing effects known.· **Experience with humans:** No further relevant information available.· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**· **IARC (International Agency for Research on Cancer)**

None of the ingredients are listed.

· **NTP (National Toxicology Program)**

None of the ingredients are listed.

12 Ecological information· **Toxicity**· **Aquatic toxicity:****872-50-4 N-methyl-2-pyrrolidinone**

EC50/24 h	>1000 mg/l (daphnia magna)
LC50/96 h	>500 mg/l (Leuciscus idus)

· **Persistence and degradability** No further relevant information available.· **Behavior in environmental systems:**· **Bioaccumulative potential** No further relevant information available.· **Mobility in soil** No further relevant information available.· **Additional ecological information:**· **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

· **Results of PBT and vPvB assessment**· **PBT:** Not applicable.· **vPvB:** Not applicable.· **Other adverse effects** No further relevant information available.

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13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.
Disposal must be made in accordance with Federal, State, and Local regulations.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made in accordance with Federal, State, and Local regulations.

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Void
· Packing group	
· DOT, ADR, IMDG, IATA	Void
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	Not Regulated
· UN "Model Regulation":	-

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
· Sara
· Section 355 (extremely hazardous substances):
None of the ingredients are listed.
· Section 313 (Specific toxic chemical listings):
872-50-4 N-methyl-2-pyrrolidinone
· TSCA (Toxic Substances Control Act):
All ingredients are listed or comply with TSCA regulations.
· Proposition 65
· Chemicals known to cause cancer:
None of the ingredients are listed.
· Chemicals known to cause reproductive toxicity for females:
None of the ingredients are listed.

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· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

872-50-4 | N-methyl-2-pyrrolidinone

· **Carcinogenic categories**· **EPA (Environmental Protection Agency)**

None of the ingredients are listed.

· **TLV (Threshold Limit Value established by ACGIH)**

None of the ingredients are listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

· **Massachusetts State Right To Know List**

872-50-4 | N-methyl-2-pyrrolidinone

· **New Jersey State Right To Know List**

872-50-4 | N-methyl-2-pyrrolidinone

· **Pennsylvania Hazardous Substances List**

872-50-4 | N-methyl-2-pyrrolidinone

· **California SCAQMD Rule 443.1 VOC's:** 1026 g/l; vapor pressure 0.3 mm Hg 20C· **GHS label elements** The product is classified and labelled according to the Globally Harmonized System (GHS).· **Hazard pictograms**

GHS07 GHS08

· **Signal word** Danger· **Hazard-determining components of labelling:**

N-methyl-2-pyrrolidinone

· **Hazard statements**

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H360 May damage fertility or the unborn child.

H335 May cause respiratory irritation.

· **Precautionary statements**

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· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Product safety department· **Contact:** Mr. Weber· **Last Revision Date:**

8/15/2013 Revised precautionary statements. Updated component toxicology data and US State Right to Know listings.

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent