Safety Data Sheet

N-Methylpyrrolidone

SECTION 1: Identification

1.1 GHS Product identifier

Product name	N-Methylpyrrolidone

1.2 Other means of identification

NMP

1.3 Recommended use of the chemical and restrictions on use

For laboratory and manufacturing use only.

1.4 Supplier's details

Name	High Purity Products
Address	14546 N. Lombard Street Portland OR 97203 United States of America
Telephone	503-227-1616
email	help.desk@highpp.com

1.5 Emergency phone number

CHEMTREC: 1-800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200)

- Flammable liquids, Cat. 4
- Skin irritation, Cat. 2
- Eye irritation, Cat. 2A
- Respiratory tract irritation, Cat. 3
- Reproductive toxicity, Cat. 1B
- Target Organ Toxicity (Single Exposure), Cat. 3

2.2 GHS label elements, including precautionary statements

Pictogram

Signal word **Danger**

Hazard statement(s)target

H227	Combustible liquid
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360	May damage fertility or the unborn child (dermal exposure)

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240:	Ground and bond container and receiving equipment.
P243:	Take action to prevent static discharges.
P260	Do not breathe vapors.
P263	Avoid contact during pregnancy and while nursing.
P302+P350	IF ON SKIN: Gently wash with plenty of soap and water.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P270	Do not eat, drink or smoke when using this product.
P405	Store locked up.

SECTION 3: Composition/information on ingredients

3.1 Mixture

Constituents	CAS Number	Concentration (Weight)
1-Methyl-2-pyrrolidinone	872-50-4	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
In case of skin contact	Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes, Call a physician. Wash contaminated clothing before reuse.
In case of eye contact	Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open or until all material has been removed. Get medical attention without delay, preferably from an ophthalmologist.

If swallowed	If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed
Chronic Effects: Minor skin irritation on repeated contact.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use regular foam, dry chemical, or carbon dioxide (CO2).

5.2 Specific hazards arising from the chemical
Above the flash point, explosive vapor-air mixtures may be formed.

5.3 Special protective actions for fire-fighters
Fire fighters should wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective clothing.

SECTION 6: Accidental release measures

6.1 General Procedures:
Remove all sources of ignition and provide ventilation. Wear protective clothing as given in section 8. Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover free product, if possible. Cover spill with inert, non-combustible absorbent material and remove to closed containers for disposal using non-sparking equipment. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal. Report spill as per regulatory requirements. Leaking drum should be emptied or placed into an oversized (recovery) drum.

SECTION 7: Handling and storage

7.1 General procedures:
Wash thoroughly after handling. Follow all SDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Never use pressure to empty a container.

7.2 Precautions for safe handling:
Keep in a tightly closed container. Store in a cool, dry, ventilated area away form sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product..

Comments:
KEEP OUT OF REACH OF CHILDREN! Empty containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks static electricity, or other sources of ignition; they may explode and cause injury or death. Observe all federal, state, and local regulations and National Fire Protection Association (NFPA) Codes with pertain to the specific local conditions of stage and use, including OSHA 29 CFR 1910.106 and NFPA 30, 70, 77, and 497.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Constituents	CAS Number	OSHA TWA
1-Methyl-2-pyrrolidinone	872-50-4	No Limit

8.2 Individual protection measures, such as personal protective equipment (PPE)

Pictograms

Personal Protective Equipment

Eyes and Face: Use chemical safety goggles and full face shield where splashing is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work areas.

Skin: Wear resistant gloves (consult your safety equipment supplier). To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Respiratory: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If use conditions generate vapors or mists, wear a NIOSH-approved respirator appropriate for those emission levels. Appropriate respirators may be a full facepiece air-purifying cartridge respirator equipped for organic vapors/mists., a self-contained breathing apparatus in the pressure demand mode, or a supplied-air respirator.

Other use precautions: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Appearance	Clear Liquid
Color	Colorless
Odor	Slight amine odor
Odor threshold	No data available.
pH	7.7
Melting point/freezing point	No data available
Boiling point or initial boiling point and boiling range	396 °F
Flash point	204 °C
Evaporation rate	No data available
Lower explosion limit / flammability limit	0.99%
Upper explosion limit / flammability limit	9.5%
Vapor Pressure	0.5 mmHg at 25°C
Relative vapor density	3.4
Density and/or relative density	0.81
Solubility	Miscible
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Kinematic viscosity	No data available.
Explosive properties	No data available.

Particle characteristics No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
Avoid heat, flames, ignition sources and incompatibles.

10.5 Incompatible materials
Strong oxidants and acids. Reacts with chlorinating agents to form the amide. Reacts with sulfur or carbon disulfide at high temperatures and pressures.

10.6 Hazardous decomposition products
Burning may produce carbon dioxide, carbon monoxide, nitrogen oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute Toxicity
1-Methyl-2-pyrrolidinone:
LD50 – oral – rabbit – 3500 mg/kg

Skin corrosion/irritation
May cause skin irritation.

Serious eye damage/irritation
Causes serious eye irritation.

Germ cell mutagenicity
No data available.

Carcinogenicity
Not classifiable as a human carcinogen.

Reproductive toxicity
Animal tests show that this substance possibly causes toxic effects upon human reproduction.

STOT-single exposure
Kidney, Liver, spleen, Blood

STOT-repeated exposure
No data available.

Aspiration hazard
No data available.

SECTION 12: Ecological information

Toxicity
1-Methyl-2-pyrrolidinone:
LC50; Species: Daphnia magna (Water Flea) age <24 hr; Conditions: freshwater, static, 23 °C, pH 7, dissolved oxygen 7.8 mg/L; Concentration: 2500 ug/L for 24 hr (95% confidence interval: 1800-3500 ug/L) />99.9% purity

Persistence and degradability
Vapor-phase 1-methyl-2-pyrrolidone will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals.

Bioaccumulative potential
the potential for bioconcentration in aquatic organisms is low

Mobility in soil
1-methyl-2-pyrrolidone is expected to have very high mobility in soil

SECTION 13: Disposal considerations

Product disposal
Product disposal Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies, if necessary, before disposing of waste product container or residue.

SECTION 14: Transport information

DOT (US)
UN Number: NA1993
Class: N/A
Packing Group: III
Proper Shipping Name: Combustible Liquid, N.O.S., (1-Methyl-2-Pyrrolidinone)

IMDG
UN Number: NA1993
Class: N/A
Packing Group: III
Proper Shipping Name: Combustible Liquid, N.O.S., (1-Methyl-2-Pyrrolidinone)

IATA
UN Number: NA1993
Class: N/A
Packing Group: III
Proper Shipping Name: Combustible Liquid, N.O.S., (1-Methyl-2-Pyrrolidinone)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

California Prop. 65 Components
1-Methyl-2-pyrrolidinone: Developmental Toxicity

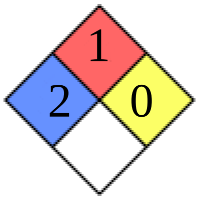
Canadian Domestic Substances List (DSL)
Chemical name: 1-Methyl-2-pyrrolidinone

EPCRA Section 313 Toxic chemicals
1-Methyl-2-pyrrolidinone

HMIS Rating

N-Methylpyrrolidone	
HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

NFPA Rating



SECTION 16: Other information

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