



SAFETY DATA SHEET

N-Methyl-2-Pyrrolidone

1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product name:	N-Methyl-2-Pyrrolidone
Recommended use:	Chemical for industrial
Manufacturer/Supplier:	MODERN CHEMICAL CO.,LTD. 82/80 Soi Ekamai 22 (Nuannoi), Sukhumvit 63, Klong Tan Nuea, Watthana, Bangkok 10110
Telephone No:	0-2715-0897-9, 0-2392-3410-3
Fax No:	0-2715-0908-9, 0-2391-1571-2
Emergency Telephone No:	0-2715-0897-9, 0-2392-3410-3

2. HAZARDS IDENTIFICATION

Label elements

Pictogram



Signal word

Danger

Hazard statement(s)

- 1.) Causes skin irritation.
- 2.) May be fatal if swallowed and enters airways.
- 3.) May cause drowsiness or dizziness.
- 4.) Toxic to aquatic life with long lasting effects.
- 5.) May damage the unborn child. Suspected of damaging fertility.



Precautionary statement(s)

- 1.) Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
- 2.) Avoid release to the environment.
- 3.) IF SWALLOWED: call a doctor/physician. Do NOT induce vomiting.
- 4.) IF IN EYES: Rinse cautiously with water for 15 minutes.
- 5.) IF ON SKIN Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonym: n-Methylpyrrolidinone; 1-Methyl-2-Pyrrolidinone; N-methyl-2-pyrrolidone

Ingredients	% (w/w)	CAS NO.
N-Methyl-2-Pyrrolidone	100	872-50-4

4. FIRST AID MEASURES

General advice:

Immediately remove any clothing soiled by the product. Show this safety data sheet to the doctor in attendance.

Inhalation:

Move to fresh air in case of accidental inhalation of vapors. Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.

Skin contact:

Remove contaminated clothing and wash affected skin with soap and water. If signs of poisoning appear, treat as for inhalation. Wash contaminated clothing before reuse. Contaminated combustible material, e.g. clothing ignites more readily and burns fiercely.

Eye contact:

If substance has got into the eyes, immediately wash out with plenty of water for at least 15 minutes. Obtain medical attention.

Ingestion:

Rinse mouth. **Do not induce vomiting.** Keep patient warm. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus. Obtain medical attention. Never give anything by mouth to an unconscious person.



5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:

Extinguish with carbon dioxide, dry chemical or foam. In the event of fire, cool tanks with water spray.

Unsuitable Extinguishing Media:

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from Chemicals:

Vapors may form explosive mixture with air. Flash back possible over considerable distance.

Special protective equipment for fire-fighters:

Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Remove all sources of ignition. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

Environmental precautions:

Contain or absorb leaking liquid with sand or earth, consult an expert. Prevent liquid entering sewers, basements and work pits. If substance has entered a water course or sewer or contaminated soil or vegetation, advise police.

Methods and Material for Containment and Clean Up:

Soak up with inert absorbent material (e.g. sand, silica gel). Prevent liquid entering sewers, basements and work pits; vapor may create explosive atmosphere.

Transfer to covered steel drums. Dispose of promptly.

7. HANDLING AND STORAGE

Precautions for Safe Handling & Product Transfer:

Keep container tightly closed. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist. Avoid contact with skin, eyes and clothing. Do not empty into drains.

Conditions for Safe Storage & Unsuitable Materials:

Keep tightly closed at room temperature in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep out of direct sunlight and away from incompatible material. Store in original container. Electrical equipment should be protected to the appropriate standard.



8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits: No data available

Appropriate Engineering Controls: The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Ventilation hoods and fans required when working with organic solvents or in hot melt applications.

Individual Protection Measures

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter AX (EN371)

Hand protection: Handle with gloves. In case full contact wear gloves from butyl rubber material, in splash contact wear gloves from natural rubber material. The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Eye protection: Goggles giving complete protection to eyes.

Skin and body Protection: Chemical resistant apron / flame retardant antistatic protective clothing, heavy duty work shoes.

Hygiene measure: Ventilation hoods and fans required when working with organic solvents or in hot melt applications. Keep working clothes separately. Keep away from food, drink and animal feeding stuffs.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Color and Odor: liquid, colorless, characteristic	Evaporation rate: 6 (n-Bu Acetate = 1)
Melting Point: -24°C	Specific gravity: 1.02-1.04 g/cm ³ at 20 °C
pH: N/A	Solubility in water: Soluble
Boiling point: 202 °C	Viscosity: 1.796 mPa.s (20°C)
Vapour pressure: 0.5 hPa at 20 °C	Vapour density: 3.4 g/l
Lower explosion limits: 1.3%Vol	Upper explosive limit: 9.5%Vol
Auto-ignition temperature: 270 °C	Flash point: 91°C
Odour threshold: N/A	Flammability (solid, gas): N/A
Decomposition temperature: N/A	Solubility in other solvents: N/A
n-octanol/water partition coefficient (log P_{ow}): N/A	



10. STABILITY AND REACTIVITY

- Chemical Stability:** Stable under recommended storage conditions.
- Reactions:** Light-sensitive; sensitive to air, solvent. Unsuitable working materials are various plastics, rubber. Exposable with air in a vaporous/gaseous state.
- Possibility of Hazardous Reactions:** No data available
- Conditions to avoid:** Heat, flames and sparks.
- Materials to be avoided:** Alkali hydroxides, halogen and halogen compounds, strong oxidizing and strong reducing agent peroxi compounds, alkali metals, activated charcoal
- Hazardous Decomposition Products:** Peroxide, Carbon monoxides, Carbon dioxides

11. TOXICOLOGICAL INFORMATION

- Acute toxicity:** LD₅₀ (oral, rat): 4150 mg/kg
- Sensitization:** Irritant effect on eyes. Risk of corneal clouding. Slight irritant to skin. Slight irritant to respiratory system. After inhalation of vapors; mucosal irritations, drowsiness. In high dose; headache, salivation, nausea, vomiting. Dizziness narcosis can not be exclude coma. After swallowing; gastrointestinal complaints, headache, salivation, nausea, vomiting, dizziness, narcosis, coma.
- Chronic toxicity:** Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons. Non carcinogenic in animal experiments. No impairment of reproductive performance in animal experiments. Sensitization test (guinea pig) is negative.

Further toxicological information: The product should be handled with the care usual when dealing with chemicals

12. ECOLOGICAL INFORMATION

Toxicity

- Toxicity to fish: LC₅₀ - P. Gold orfe – 230 mg/l - 96h
- Toxicity to daphnia and other aquatic invertebrates:
EC₅₀ - Daphnia – 4897 mg/l - 48h
- Toxicity to bacteria: EC₅ – >9000 mg/l/ - 48h
- Biodegradability remark: No data available
- Bioaccumulative potential: No data available



Mobility: No data available

Affected in any other way: No ecological problem is to be expected when the product is handled and used with due care and attention.

13. DISPOSAL CONSIDERATIONS

Material Disposal: There are no uniform EC Regulations for the disposal of chemicals or residues. Chemical residues generally count as special waste. The disposal of the latter is regulated in the EC member countries through corresponding law and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste or burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Container Disposal: Disposal in compliance with official regulations. Handle contaminated packaging as hazardous waste in the same way of the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

14. TRANSPORT INFORMATION

ADR/RID

No data available

IMDG

No data available

IATA

No data available

15. REGULATORY INFORMATION

GHS-Labeling

Hazard statement(s):

H319 Causes serious eye irritation.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.



H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

Precautionary statement(s)

None

Hazard symbol(s)

Xn Harmful

R-phrase(s)

R21/22 Harmful in contact with skin and if swallowed.

R36/37 Irritating to eyes and respiratory system.

S-phrase(s)

S13 Keep away from food, drink and animal feedingstuffs.

S23 Do not breathe gas/fumes/vapour/spray.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S46 If swallowed, seek medical advice immediately and show this container or label.

16. OTHER INFORMATION

Modern Chemical Co., Ltd. provides the information contained herein in good faith but makes no representation as to its comprehensive or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

MODERN CHEMICAL CO., LTD. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MODERN CHEMICAL CO.,LTD. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.