

N-Methyl-2-Pyrrolidone

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name:	N-Methyl-2-Pyrrolidone
CAS Number:	872-50-4
EC Number:	212-828-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended use: Laboratory chemicals, Industrial & for professional use only

1.3 Details of the supplier of the safety data sheet

Company name:	East Harbour Group Ltd Miranda House, The Quay Harwich, Essex, CO12 3HH United Kingdom
Telephone:	+44 (0) 333 242 0100
Email:	info@eastharbourgroup.com

1.4 Emergency telephone number

Emergency telephone:	0800 246 1274
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Section 2: Hazardous identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Skin irritation (Category 2), H315

Eye irritation (Category 2), H319

Reproductive toxicity (Category 1B), H360D

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger



N-Methyl-2-Pyrrolidone

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360D	May damage the unborn child.

Precautionary statement(s)

P201	Obtain special instructions before use.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.

Supplemental Hazard Statements

None

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

Section 3: Composition/information on ingredients

3.1 Substances

Synonyms:	N-Methyl-2-pyrrolidone 1-Methyl-2-pyrrolidone NMP M-PYROL™
Formula:	C ₅ H ₉ NO
Molecular weight:	99.13 g/mol
CAS-No.:	872-50-4
EC-No.:	212-828-1
Index-No.:	606-021-00-7

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
N-methyl-2-pyrrolidone	Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)	
CAS-No. 872-50-4	Skin Irrit. 2; Eye Irrit. 2; Repr.	<= 100 %
EC-No. 212-828-1	1B; STOT SE 3; H315, H319,	
Index-No. 606-021-00-7	H360D, H335	Concentration limits: >= 5 %: Repr. 1B, H360D; >= 10 %: STOT SE 3, H335

For the full text of the H-Statements mentioned in this Section, see Section 16



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Section 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician. In case of eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5: Fire-fighting measures

5.1 Fire Fighting Media and Instructions:

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.



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6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and material for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

Section 7: Handling and storage

7.1 Precautions for safe handling

Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store under inert gas. Moisture sensitive. Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8: Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Application Area	Exposure Routes	Health effect	Value
Workers	Skin contact	Acute systemic effects	208mg/kg
BW/d Workers	Inhalation	Acute systemic effects	80 mg/m3
Workers	Skin contact	Long-term systemic effects	19.8mg/kg
BW/d Workers	Inhalation	Long-term systemic effects	40 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Water	5 mg/l
Soil	0.138 mg/kg
Marine water	0.025 mg/kg
Fresh water	0.25 mg/l
Fresh water sediment	0.805 mg/kg
Onsite sewage treatment plant	10 mg/l



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8.2 Exposure controls /

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Impervious clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineer protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Form: liquid
	Colour: colourless
Odor	No data available
Odor Threshold	No data available
pH	7.7 - 8
Melting Point/freezing point	Melting point/range: -24 °C
Initial Boiling Point and Boiling Range	202 °C 81 - 82 °C at 13 hPa
Flash Point	91 °C - closed cup
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability or Explosive Limits	Upper explosion limit: 9.5 %(V) Lower explosion limit: 1.3 %(V)
Vapor Pressure	0.29 - 0.32 mmHg at 20 °C 0.99 mmHg at 40 °C
Vapor Density	3.42 - (Air = 1.0)
Relative Density	1.028 g/mL at 25 °C
Water Solubility	No data available



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Partition Coefficient: n-octanol/water	log Pow: -0.46
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other safety information

Surface tension	40.7 mN/m
Relative vapour density	3.42 - (Air = 1.0)

Section 10: Stability and Reactivity

10.1 Reactivity	No data available
10.2 Chemical Stability	Stable under recommended storage conditions
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	Heat, flames and sparks
10.5 Incompatible materials	Strong acids, Strong oxidizing agents, Strong reducing agents
10.6 Hazardous decomposition products	Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)
Other decomposition products	No data available
In the event of fire: see section 5	

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 3,914 mg/kg(N-methyl-2-pyrrolidone)
 LDLO Inhalation - Rat - 4 h - > 5100 ppm(N-methyl-2-pyrrolidone)
 LD50 Dermal - Rabbit - 8,000 mg/kg(N-methyl-2-pyrrolidone)

Skin corrosion/irritation

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) (N-methyl-2-pyrrolidone)

Serious eye damage/eye irritation

Eyes – Rabbit (N-methyl-2-pyrrolidone)
 Result: Eye irritation

Respiratory or skin sensitisation

No data available (N-methyl-2-pyrrolidone)

Germ cell mutagenicity

No data available (N-methyl-2-pyrrolidone)



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Carcinogenicity

Reproductive toxicity

Damage to fetus possible (N-methyl-2-pyrrolidone)

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. (N-methyl-2-pyrrolidone)

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available (N-methyl-2-pyrrolidone)

Additional Information

RTECS: UY5790000

prolonged or repeated exposure can cause: Vomiting, Diarrhoea, Abdominal pain, Rats exposed to 1- methyl-2-pyrrolidinone at a concentration of 1 mg/L as a cell in the bone marrow and atrophy of the lymphoid tissues of the thymu (N-methyl-2-pyrrolidone)

Bone marrow - Irregularities - Based on Human Evidence(N-methyl-2-pyrrolidone)

Section 12: Ecological Information

12.1 Toxicity

Toxicity to fish

LC50 - other fish - 4,000 mg/l - 96 h(N-methyl-2-pyrrolidone)

LC50 - Leuciscus idus (Golden orfe) - > 500 mg/l - 96 h (N-methyl-2-pyrrolidone)

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - > 1,000 mg/l - 24 h(N-methyl-2-pyrrolidone)

Toxicity to bacteria

LC50 - Bacteria - > 9,000 mg/l (N-methyl-2-pyrrolidone)

12.2 Persistence and degradability

Biodegradability

Result: 90 % - Readily biodegradable.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available(N-methyl-2-pyrrolidone)

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available



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Section 13: Disposal considerations

13.1 Waste treatment methods

Product

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

Section 14: Transport Information

14.1 UN Number

ADR/RID: -

IMDG: -

IATA: -

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4 Packaging group

ADR/RID: -

IMDG: -

IATA: -

14.5 Environmental hazards

ADR/RID: No

IMDG Marine Pollutant: No

IATA: No

14.6 Special precautions for user

No data available

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006. Authorisations and/or restrictions on use

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.



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Section 16: Other Information

Full text of H-Statements referred to under sections 2 and 3.

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360D	May damage the unborn child.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product