# 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
20 Clough Road, Severalls Industrial Park
Colchester, Essex, CO4 9QS
United Kingdom

**Telephone:** +44 (0) 333 242 0100
**Email:** info@eastharbourgroup.com

### 1.4 Emergency telephone number

**Emergency telephone:** 0800 246 1274

## 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: | C5H9NO |
| 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<br>EC-No. 212-828-1<br>Index-No. 606-021-00-7 | Skin Irrit. 2; Eye Irrit. 2; Repr. 1B; STOT SE 3; H315, H319, H360D, H335 Concentration limits: >= 5 %: Repr. 1B, H360D; >= 10 %: STOT SE 3, H335 | <= 100 % |

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

# N-Methyl-2-Pyrrolidone

## 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<br>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)<br>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)<br>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.

# N-Methyl-2-Pyrrolidone

## 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