

MATERIAL SAFETY DATA SHEET**Product Name:** N-Methyl-2-pyrrolidinone**CAS No.:** 872-50-4**Version:** 0**1. Identification**

Product Code : 90715, 90196, 90475
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2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
N-METHYL-2-PYRROLIDINONE	872-50-4	99-100%

3. Hazards Identification**Hazard classification****Health hazards**

Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 2
Toxic to reproduction : Category 1
Specific target organ toxicity - single exposure : Category 3

Labels elements**Hazard symbol**

Signal word : Danger
Hazard statement : Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May damage fertility or the unborn child.

Precautionary statement

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
Wash hands thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area.

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- Response** : Call a POISON CENTER/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF exposed or concerned: Get medical advice/attention. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Storage** : Store in a well-ventilated place. Keep container tightly closed. Store locked up.
- Disposal** : Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
- Other hazards which do not result in GHS classification** : None.

4. First Aid Measures

- General information** : Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion** : Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.
- Inhalation** : Move to fresh air. Get medical attention if symptoms persist.
- Skin contact** : Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
- Eye contact** : Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.
- Most important symptoms/effects, acute and delayed** : Irritating to eyes, respiratory system and skin.
- Indication of immediate medical attention and special treatment needed** : Treat symptomatically. Symptoms may be delayed.

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- General fire hazards** : In case of fire and/or explosion do not breathe fumes.
- Suitable (and unsuitable) extinguishing media**
- Suitable extinguishing media** : Water spray, foam, dry powder or carbon dioxide.
- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : This product is not flammable. May burn, but does not ignite readily.
- Special protective equipment and precautions for firefighters**
- Special fire fighting procedures** : Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
- Special protective equipment for fire-fighters** : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures** : Keep unauthorized personnel away. Ventilate closed spaces before entering them. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Methods and material for containment and cleaning up** : Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.
- Notification Procedures** : Inform authorities if large amounts are involved.
- Environmental precautions** : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

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7. Handling and Storage

- Precautions for safe handling** : Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Do not eat, drink or smoke when using the product. Wash hands thoroughly after handling. Do not handle until all safety precautions have been read and understood.
- Conditions for safe storage, including any incompatibilities** : Keep container tightly closed. Store in a well-ventilated place. Store in a dry place.

8. Exposure Controls Personal Protection

Control parameters

Occupational exposure limits

Chemical identity	Type	Exposure Limit values	Source
1-METHYL-2-PYRROLIDONE	TWA	10 ppm 40 mg/m ³	US. AIHA Workplace Environmental Exposure Level (WEEL) Guides (2010)

Biological limit values

Chemical identity	Exposure Limit values	Source
1-METHYL-2-PYRROLIDONE (5-Hydroxy-N-methyl-2-pyrrolidone: Sampling time: End of shift.)	100 mg/l (Urine)	ACGIH BEL (2011)

Appropriate engineering controls : No data available.

Individual protection measures, such as personal protective equipment

General information : Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

Eye/face protection : Wear safety glasses with side shields (or goggles).

Hand protection : Chemical resistant gloves.

Other : Wear suitable protective clothing and gloves.

Respiratory protection : In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapor cartridge.

Hygiene measures : Provide eyewash station and safety shower. Always observe good

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personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and Chemical Properties

Appearance	:	Colorless Liquid.
Odor	:	Amines.
pH	:	7.7 - 8
Melting point/freezing point	:	-25 °C
Initial boiling point and boiling range	:	202 °C (101.3 kPa)
Flash Point	:	96 °C (Open Cup)
Vapor pressure	:	0.05 kPa (25 °C)
Vapor density	:	3.4 AIR=1
Relative density	:	1.03 (20 °C)
Solubility in water	:	Miscible with water.
Solubility (other)	:	No data available.
Formula	:	C ₅ H ₉ NO
Molecular Weight	:	99.13 g/mol

10. Stability and Reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Material is stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur.
Conditions to avoid	:	Excessive heat.
Incompatible materials	:	Strong oxidizing agents. Strong acids. Amines.
Hazardous decomposition products	:	Thermal decomposition may produce oxides of carbon and nitrogen.

11. Toxicological Information**Information on likely routes of exposure**

Ingestion	:	May be harmful if swallowed.
Inhalation	:	Spray mist may irritate the respiratory system.
Skin contact	:	Causes skin irritation.
Eye contact	:	Causes serious eye irritation.

Information on toxicological effects**Acute toxicity (list all possible routes of exposure)**

Oral Product	:	LD 50 (Mouse): 5,130 mg/kg LD 50 (Rat): 3,914 mg/kg
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Dermal Product	:	LD 50 (Rabbit): 8,000 mg/kg
Inhalation Product	:	No data available.
Repeated dose toxicity Product	:	No data available.
Skin corrosion/irritation Product	:	Causes skin irritation.
Serious eye damage/eye irritation Product	:	Causes serious eye irritation.
Respiratory or skin sensitization Product	:	Not a skin sensitizer.
Carcinogenicity Product	:	This substance has no evidence of carcinogenic properties.
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans DIOXANE	:	No carcinogenic components identified
US. National Toxicology Program (NTP) Report on Carcinogens DIOXANE	:	No carcinogenic components identified
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)	:	No carcinogenic components identified
Germ cell mutagenicity In vitro Product	:	No mutagenic components identified
In vivo Product	:	No mutagenic components identified
Reproductive toxicity Product	:	May cause harm to the unborn child.
Specific target organ toxicity - single exposure Product	:	Respiratory tract irritation.
Specific target organ toxicity - repeated exposure Product	:	None known.
Aspiration hazard Product	:	Not classified.
Other effects	:	None known.

12. Ecological Information**Ecotoxicity****Acute hazards to the aquatic environment :****Fish Product** : No data available.**Aquatic invertebrates Product** : No data available.**Chronic hazards to the aquatic environment :****Fish Product** : No data available.**Aquatic invertebrates Product** : No data available.**Toxicity to Aquatic Plants Product:** : No data available.**Persistence and degradability****Biodegradation Product** : The product is not expected to be biodegradable.**BOD/COD ratio Product** : No data available.**Bioaccumulative potential**

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- Bioconcentration factor (BCF) Product** : No data available on bioaccumulation.
- Partition coefficient n-octanol / water (log Kow) Product** : Log Kow: -0.54
- Mobility in soil** : The product is water soluble and may spread in water systems.
- Other adverse effects** : The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal consideration

- Disposal instructions** : Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
- Contaminated packaging** : Since emptied containers retain product residue, follow label warnings even after container is emptied.

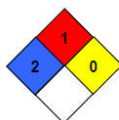
14. Transport Information

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
DOT			Not regulated.		
IMDG			Not regulated.		
IATA			Not regulated.		

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

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Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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