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## Section 01 Identification

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<b>Product Identifier</b>	N-methyl-2-pyrrolidone
<b>Other Means of Identification</b>	NMP, N-Methylpyrrolidone, Methylazacyclopentane-2-one
<b>Product Use and Restrictions on Use</b>	Solvent for industrial use.
<b>Initial Supplier Identifier</b>	ClearTech Industries Inc 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7  Phone: 800.387.7503 Fax: 888.281.8109 <a href="http://www.cleartech.ca">www.cleartech.ca</a>
<b>Prepared By</b>	ClearTech Industries Inc. technical writer
<b>24-Hour Emergency Phone</b>	306.664.2522

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## Section 02 Hazard Identification

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### Physical Hazards

This product does not qualify for any physical hazard class under WHMIS 2015

### Health Hazards

<b>Skin corrosion / irritation</b>	Category 2
<b>Serious eye damage / eye irritation</b>	Category 2
<b>Reproductive toxicity</b>	Category 1B
<b>Specific target organ toxicity - single exposure</b>	Category 3

### Signal Word

**Danger**

### Hazard Statements

- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H335 May cause respiratory irritation.
- H360 May damage the unborn child by inhalation.

### Pictograms



## Precautionary Statements

### Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing vapours, fumes, and mists.
- P264 Wash affected body parts thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves, protective clothing, eye protection, face protection

### Response

- P303 P352 P332 IF ON SKIN (or hair): Wash with plenty of water. If skin irritation occurs: Get medical advice / attention. Take off contaminated clothing and wash it before reuse.
- P313 P362 P364
- P304 P340 P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
- P305 P351 P338 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 or attention.
- P337 P313
- P308 P313 IF exposed or concerned: Get medical advice or attention.

### Storage

- P403 Store in a well-ventilated place.
- P233 Keep container tightly closed.
- P405 Store locked up.

### Disposal

- P501 Dispose of contents / container in accordance with all federal, provincial and / or local regulations including the Canadian Environmental Protection Act.

## Hazards Not Otherwise Classified

Not available

## Supplemental Information

Not available

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## Section 03 Composition / Information on Ingredients

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### Hazardous Ingredients:

Chemical name	Common name(s)	CAS number	Concentration (w/w%)
2-Pyrrolidinone, 1-methyl-	NMP, N-methyl-2-pyrrolidone	872-50-4	>99.5

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## Section 04 First-Aid Measures

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### Description of necessary first-aid measures

- Inhalation** Take precautions to ensure your own safety before attempting a rescue (wear appropriate protective equipment, use the buddy system). Remove source of exposure or move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. If exposed or concerned: Get medical advice / attention.

<b>Ingestion</b>	Rinse mouth. Get medical advice / attention if you feel unwell or are concerned. If exposed or concerned: Get medical advice / attention.
<b>Skin contact</b>	Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately contaminated clothing, shoes and leather goods. Rinse skin with lukewarm, gently flowing water / shower for 15 to 20 minutes. Get medical advice / attention. Wash contaminated clothing before re-use, or discard. If exposed or concerned: Get medical advice / attention.
<b>Eye contact</b>	Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 15 to 20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists: Get medical advice / attention.

## **Most important symptoms and effects, both acute and delayed**

<b>Inhalation</b>	May cause respiratory irritation. May damage the unborn child.
<b>Ingestion</b>	May cause discomfort or nausea.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Further information</b>	For further information see Section 11 Toxicological Information.

## **Section 05 Fire Fighting Measures**

<b>Suitable extinguishing media</b>	Extinguish fire using extinguishing agents suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	Water jets are not recommended in fires involving chemicals.
<b>Specific hazards arising from the chemical</b>	In the event of a fire oxides of carbon and nitrogen may be released.
<b>Special protective equipment for fire-fighters</b>	Wear NIOSH-approved self-contained breathing apparatus and chemical-protective clothing.

## **Section 06 Accidental Release Measures**

<b>Personal Precautions / Protective Equipment / Emergency Procedures</b>	Wear appropriate personal protective equipment (See Section 08 Exposure Controls and Personal Protection). Stay upwind, ventilate area. Avoid breathing vapours, fumes, and mists.
<b>Environmental Precautions</b>	Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes.
<b>Methods and Materials for Containment and Cleaning Up</b>	SMALL SPILLS: Stop or reduce leak if safe to do so. Clean up spill with non-reactive absorbent and place in suitable, covered, labeled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. LARGE SPILLS: Contact fire and emergency services and supplier for advice.

## **Section 07 Handling and Storage**

<b>Precautions for Safe Handling</b>	Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Avoid generating vapours, fumes, and mists. Inspect containers for damage or leaks before handling. If the original label is damaged or missing replace with a workplace label. Have suitable emergency equipment for fires, spills and leaks readily available.
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<b>Conditions for Safe Storage</b>	Store in a cool, dry, well-ventilated area, out of direct sunlight, away from heat sources and incompatible materials. Always store in original labeled container. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues. Protect label and keep it visible.
<b>Incompatibilities</b>	Acids, such as sulphuric, nitric, hydrochloric, phosphoric, fluosilicic (HFSA), sulphonic, acetic, citric, oxalic, and formic. Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates.

## Section 08 Exposure Controls and Personal Protection

### Exposure limits

There are no known exposure limits for this product.

### Engineering controls

<b>Ventilation Requirements</b>	Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.
<b>Other</b>	A soak hose and eyewash station or emergency shower and eyewash station should be available, tested, and be in close proximity to the product being handled in accordance with provincial regulations.

### Protective equipment

The following are recommendations only. It is the responsibility of the employer / user to conduct a hazard assessment of the process in which this product being used and determine the proper engineering controls and PPE for their process. Additional regulatory and safety information should be sought from local authorities and, if needed, a professional industrial hygienist.

<b>Eye and face protection</b>	Where there is potential eye or face exposure, tightly fitting chemical goggles are recommended. Contact lenses are not recommended; they may contribute to severe eye injury.
<b>Hand and body protection</b>	Disposable latex or nitrile gloves are recommended to prevent incidental contact. Butyl rubber or neoprene skin protection is recommended for extended contact. Leather gloves are not recommended for chemical protection. Refer to manufacturer's specifications for breakthrough times and permeability information; note that breakthrough times and permeability vary with temperature, application and age of material. Continued use of contaminated safety gear or clothing is not recommended; wash before reuse or discard.
<b>Respiratory protection</b>	In case of insufficient ventilation wear suitable respiratory equipment.
<b>Thermal hazards</b>	Not available

## Section 09 Physical and Chemical Properties

### Appearance

<b>Physical state</b>	Liquid
<b>Colour</b>	Colourless to light yellow
<b>Odour</b>	Not available
<b>Odour threshold</b>	Not available

### Property

<b>pH</b>	7-10 @ 10%
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<b>Melting point / freezing point</b>	-24.4 °C
<b>Initial boiling point and boiling range</b>	202 °C
<b>Flash point</b>	95 °C
<b>Evaporation rate</b>	0.08
<b>Flammability</b>	Not applicable
<b>Upper flammable limit</b>	9.5%
<b>Lower flammable limit</b>	1.3%
<b>Vapour pressure</b>	0.32 hPa @ 20 °C
<b>Vapour density</b>	3.4
<b>Relative density</b>	Not applicable
<b>Solubility</b>	Miscible in water
<b>Partition coefficient: n-octanol/water</b>	-0.46
<b>Auto-ignition temperature</b>	245 °C
<b>Decomposition temperature</b>	Not available
<b>Viscosity</b>	1.66 mPa s
<b>Specific gravity</b>	1.03 g/mL @ °C
<b>Formula</b>	C <sub>4</sub> H <sub>7</sub> NO
<b>Molecular weight</b>	99.15 g/mol

## Section 10 Stability and Reactivity

<b>Reactivity</b>	Not available
<b>Stability</b>	This product is stable if stored according to the recommendations in Section 07.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization is not known to occur.
<b>Conditions to avoid</b>	Avoid contact with incompatible materials. Do not heat.
<b>Incompatible materials</b>	Acids, such as sulphuric, nitric, hydrochloric, phosphoric, fluosilicic (HFSA), sulphonic, acetic, citric, oxalic, and formic. Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates.
<b>Hazardous decomposition products</b>	Thermal decomposition may produce oxides of carbon and nitrogen.

## Section 11 Toxicological Information

### Acute Toxicity (LD50 / LC50 values)

Component	Route	Species	Value	Exposure time
NMP	Oral	Rat	4,150 mg/kg bw	
	Dermal	Rat	>5,000 mg/kg bw	
	Inhalation	Rat	>5.1 mg/L	4 hours

### Toxic Health Effect Summary

# Safety Data Sheet

N-methyl-2-pyrrolidone  
ClearTech Industries Inc

<b>Chemical characteristics</b>	No known effects
<b>Skin</b>	Causes skin irritation.
<b>Ingestion</b>	May cause discomfort or nausea.
<b>Inhalation</b>	May cause respiratory irritation. May damage the unborn child.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Sensitization</b>	This product and its components at their listed concentration have no known sensitizing effects.
<b>Mutagenicity</b>	This product and its components at their listed concentration have no known mutagenic effects.
<b>Carcinogenicity</b>	This product and its components at their listed concentration have no known carcinogenic effects.
<b>Reproductive toxicity</b>	Studies on laboratory animals exposed to this product are associated with reduced birth weights.
<b>Specific organ toxicity</b>	This product and its components at their listed concentration have no known effects on specific organs.
<b>Aspiration hazard</b>	Not available
<b>Synergistic materials</b>	Not available

## Section 12 Ecological Information

### Ecotoxicity

Component	Type	Species	Value	Exposure Time
NMP	LC50	Fish	>500 mg/L	96 hours
	EC50	Aquatic invertebrates	1,000 mg/L	48 hours
	EC50	Algae	600.5 mg/L	72 hours

<b>Biodegradability</b>	The domestic substance list categorizes all of the components of this product as non-persistent.
<b>Bioaccumulation</b>	The domestic substance list categorizes all of the components of this product as non-bioaccumulative.
<b>Mobility</b>	This product is water soluble, is not predicted to adsorb to soil and may contaminate ground water.
<b>Other adverse effects</b>	Not available

## Section 13 Disposal Considerations

<b>Waste From Residues / Unused Products</b>	Dispose in accordance with all federal, provincial, and local regulations including the Canadian Environmental Protection Act.
<b>Contaminated Packaging</b>	Do not remove label, follow label warnings even after the container is empty. Empty containers should be recycled or disposed of at an approved waste handling facility.

## Section 14 Transport Information

<b>UN number</b>	Not available
<b>UN proper shipping name and description</b>	Not available
<b>Transport hazard class(es)</b>	Not available

<b>Packing group</b>	Not available
<b>Excepted quantities</b>	Not available
<b>Environmental hazards</b>	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
<b>Special precautions</b>	No special provisions
<b>Transport in bulk</b>	ERAP index: not available
	MARPOL 73/78 and IBC Code: This product is not listed in Chapter 17 of the IBC Code.
<b>Additional information</b>	Secure containers (full or empty) during shipment and ensure all caps, valves, or closures are secured in the closed position.

**TDG PRODUCT CLASSIFICATION:** This product has been classified on the preparation date specified at section 16 of this SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and published test data regarding the classification of this product are listed in the references at section 16 of this SDS.

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## Section 15 Regulatory Information.

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**NOTE: THE PRODUCT LISTED ON THIS SAFETY DATA SHEET HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN HAZARDOUS PRODUCTS REGULATIONS. THIS SAFETY DATA SHEET CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.**

All components of this product appear on the domestic substance list.

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## Section 16 Other Information

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**Date of latest revision: May 29, 2020**

**Note:** The responsibility to provide a safe workplace remains with the buyer / user. The buyer / user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the buyer / user to comply with all applicable laws and regulations regarding handling, using, reselling and shipping this product.

### **Attention: Receiver of the chemical goods / SDS coordinator**

As part of our commitment to the RDC Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

### **References:**

- 1) CHEMINFO
- 2) TOXNET
- 3) eChemPortal
- 4) ECHA
- 5) Transportation of Dangerous Goods Canada
- 6) HSDB
- 7) PAN