1-Methyl-2-pyrrolidinone

494496-2.5L

SECTION 1. IDENTIFICATION

Product name	:	1-Methyl-2-pyrrolidinone
Number	:	000000020269
Product Use Description	:	Laboratory chemicals
Manufacturer or supplier's details	:	Honeywell International Inc. 1953 South Harvey Street Muskegon, MI 49442
For more information call	:	1-800-368-0050 +1-231-726-3171 (Monday-Friday, 9:00am-5:00pm)
In case of emergency call	:	**Medical: 1-800-498-5701 or +1-303-389-1414**
	:	**Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
	:	
	:	(24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	liquid
Color	:	colourless
Odor	:	amine-like

Classification of the substance or mixture

Classification of the substance or mixture	:	Flammable liquids, Category 4 Skin irritation, Category 2 Eye irritation, Category 2A Reproductive toxicity, Category 1B Specific target organ toxicity - single exposure, Category 3, Respiratory system

GHS Label elements, including precautionary statements

Symbol(s) :

Signal word : Danger

Hazard statements : Combustible liquid.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May damage fertility or the unborn child.

Precautionary statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove victim to fresh air and keep at rest in a

position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this label).
If skin irritation occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
Store locked up.

Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C5H9NO

Chemical nature : Substance

Chemical name	CAS-No.	Concentration
N-methyl-2-pyrrolidone	872-50-4	100.00 %

SECTION 4. FIRST AID MEASURES

General advice	:	First aider needs to protect himself. Move out of dangerous area. Take off all contaminated clothing immediately.
Inhalation	:	If breathed in, move person into fresh air. If symptoms persist, call a physician.
Skin contact	:	After contact with skin, wash immediately with plenty of soap and water. Take off all contaminated clothing immediately.
Eye contact	:	Rinse thoroughly with plenty of water, also under the eyelids. Protect unharmed eye. Call a physician immediately.
Ingestion	:	When swallowed, allow water to be drunk. Do NOT induce vomiting. Call a physician immediately.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during firefighting	:	Combustible liquid and vapour. In case of fire hazardous decomposition products may be produced such as: carbon oxides (CO, CO2), nitrogen oxides (NOx).
Special protective equipment for firefighters	:	Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.
Further information	:	Use extinguishing measures that are appropriate to local

circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Evacuate personnel to safe areas. Wear personal protective equipment. Unprotected persons must be kept away. Ensure adequate ventilation. Remove all sources of ignition.
Environmental precautions	:	Should not be released into the environment.
Methods and materials for containment and cleaning up	:	Ventilate the area. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Wear personal protective equipment. Use only in well-ventilated areas. Avoid exposure - obtain special instructions before use.
Advice on protection against fire and explosion	:	Keep away from sources of ignition - No smoking. Normal measures for preventive fire protection.

Storage

Conditions for safe storage, including any incompatibilities	:	Store in area designed for storage of flammable liquids. Protect from physical damage. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.
Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment.
Avoid breathing vapours, mist or gas.

Engineering measures : Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use.

Eye protection : Safety goggles

Hand protection : Impervious butyl rubber gloves
Gloves must be inspected prior to use.
Replace when worn.

Skin and body protection : Protective suit

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
Avoid contact with skin, eyes and clothing.
Avoid inhalation of vapour or mist.
When using, do not eat, drink or smoke.
Wash thoroughly after handling.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
N-methyl-2-pyrrolidone	872-50-4	TWA : Time weighted average	40 mg/m3 (10 ppm)	2007	WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide

N-methyl-2-pyrrolidone	872-50-4	SKIN_DES : Skin designation:	Can be absorbed through the skin.	2007	WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	colourless
Odor	:	amine-like
pH	:	8.5 - 10 at 100.00 g/l, 20 °C
Melting point/range	:	-24 °C
Boiling point/boiling range	:	204 °C at 1,013 hPa
Flash point	:	196 °F (91 °C) Method: DIN 51758
Flammability	:	not auto-flammable
Lower explosion limit	:	1.3 %(V)
Upper explosion limit	:	9.5 %(V)
Vapor pressure	:	0.32 hPa at 20 °C(68 °F)

Density	:	1.028 g/cm3 at 20 °C
Water solubility	:	Note: completely miscible
Solubility in other solvents	:	Note: Soluble in most organic solvents
Partition coefficient: n-octanol/water	:	log Pow: -0.46
Ignition temperature	:	245 °C
Decomposition temperature	:	Note: No decomposition if used as directed.
Viscosity, dynamic	:	1.661 mPa.s at 25 °C
Molecular weight	:	99.13 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Vapours may form explosive mixture with air. Hazardous polymerisation does not occur.
Conditions to avoid	:	Keep away from heat and sources of ignition.
Incompatible materials	:	Oxidizing agents Acids Bases
Hazardous decomposition products	:	In case of fire hazardous decomposition products may be produced such as: carbon oxides (CO, CO2) and nitrogen oxides (NOx).

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50: 4,150 mg/kg Species: Rat Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50: > 5.1 mg/l , dust/mist Exposure time: 4 h Species: Rat Method: OECD Test Guideline 403 Note: Aerosol
Acute dermal toxicity	:	LD50: > 5,000 mg/kg Species: Rat Method: OECD Test Guideline 402
Skin irritation	:	Result: Irritating to skin.
Eye irritation	:	Result: Irritating to eyes.
Sensitisation	:	Note: no data available
Further information	:	Note: May cause harm to the unborn child.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish	:	LC50: > 500 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates	:	Note: Not classified due to data which are conclusive although insufficient for classification.
Toxicity to algae	:	ErC50: 673 mg/l Exposure time: 72 h Species: scenedesmus subspicatus Method: DIN 38412
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 12.5 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Elimination information (persistence and degradability)

Bioaccumulation	:	Note: No bioaccumulation is to be expected (log Pow <= 4).
Biodegradability	:	Result: Readily biodegradable Value: 73 % Method: OECD Test Guideline 301C

Further information on ecology

Biochemical Oxygen Demand (BOD)	:	Value: < 2 mg/g
Chemical Oxygen Demand (COD)	:	Value: ca. 1,600 mg/g Method: DIN 38409-H-41
Additional ecological information	:	Bioaccumulation is unlikely. Do not flush into surface water or sanitary sewer system.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT Not dangerous goods

TDG Not dangerous goods

IATA Not dangerous goods

IMDG Not dangerous goods

SECTION 15. REGULATORY INFORMATION

Inventories

US. Toxic Substances Control Act	:	On TSCA Inventory
Australia. Industrial Chemical (Notification and Assessment) Act	:	On the inventory, or in compliance with the inventory
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	:	All components of this product are on the Canadian DSL
Japan. Kashin-Hou Law List	:	On the inventory, or in compliance with the inventory
Korea. Existing Chemicals Inventory (KECI)	:	On the inventory, or in compliance with the inventory

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	:	On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances	:	On the inventory, or in compliance with the inventory
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	:	On the inventory, or in compliance with the inventory

National regulatory information

SARA 302 Components	:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
	:	N-methyl-2-pyrrolidone 872-50-4
SARA 311/312 Hazards	:	Fire Hazard Acute Health Hazard Chronic Health Hazard
California Prop. 65	:	**WARNING:** This product can expose you to chemicals, listed below, known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov. N-methyl-2-pyrrolidone 872-50-4
Massachusetts RTK	:	N-methyl-2-pyrrolidone 872-50-4
New Jersey RTK	:	N-methyl-2-pyrrolidone 872-50-4

Pennsylvania RTK	:	N-methyl-2-pyrrolidone	872-50-4

SECTION 16. OTHER INFORMATION

		HMIS III	NFPA
Health hazard	:	2*	2
Flammability	:	2	2
Physical Hazard	:	0	
Instability	:		0

* - Chronic health hazard
Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

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