



SAFETY DATA SHEET

Revision date: 07-Aug-2024

Revision Number 7

Section 1: Identification

Product identifier

Product Name N-METHYL-2-PYRROLIDONE

Product Code(s) 000000014786

Other means of identification

CAS No. 872-50-4

Synonyms 1-Methyl-2-pyrrolidone; 1-Methylpyrrolidone; N-Methyl pyrrolidinone; 1-Methylazacyclopentan-2-one; NMP; METAL CLEANER 800; ZIP CLEAN 800.

Recommended use of the chemical and restrictions on use

Recommended use Solvent.

Uses advised against Cosmetics; Toiletries; Personal care products; Carrier solvent (or excipient) in veterinary medicines/drugs; Pharmaceutical excipient.

Details of the supplier of the safety data sheet

Supplier

IXOM Operations Pty Ltd (Incorporated in Australia)
NZBN: 9429041465226
Street Address: 166 Totara Street
Mt Maunganui South
New Zealand

Telephone Number: +64 9 368 2700

Facsimile: +64 9 368 2710

Emergency telephone number

Emergency Telephone 0 800 734 607 (ALL HOURS)

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

Section 2: Hazard identification

Not classified as a Dangerous Good under NZS 5433 Transport of Dangerous Goods on Land; NON-DANGEROUS GOODS.

Classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

GHS Classification

Flammable liquids	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3

Label elements



Signal word
Danger

Hazard statements H227 - Combustible liquid
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H360D - May damage 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid breathing dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash face, hands and any exposed skin thoroughly after handling.
Wash eyes thoroughly after handling.
Wear protective gloves/clothing and eye/face protection.

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention.
Specific treatment (see First aid on this SDS).

Eyes

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.

Skin

IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.

Fire

In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish..

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

Other hazards which do not result in classification

No information available.

Section 3: Composition/information on ingredients

Chemical name	CAS No.	Weight-%
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Chemical name	CAS No.	Weight-%
N-methyl-2-pyrrolidone	872-50-4	>=99.0

Section 4: First-aid measures

Description of first aid measures

General advice	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air. If breathing is difficult, (trained personnel should) give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash skin with soap and water. (Call a physician if symptoms occur).
Ingestion	Clean mouth with water. Do NOT induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms	Irritation. May cause redness and tearing of the eyes. Swelling of tissue. Erythema (skin redness). Coughing and/ or wheezing. Difficulty in breathing.
Effects of Exposure	No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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Section 5: Fire-fighting measures

Suitable Extinguishing Media

Suitable Extinguishing Media	Dry chemical, CO ₂ , water spray or regular foam.
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Unsuitable extinguishing media	High volume water jet.
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Specific hazards arising from the chemical

Specific hazards arising from the chemical	Combustible liquid. Most vapors are heavier than air. Vapors may spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapours can form an explosive mixture with air.
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Hazardous combustion products	Carbon oxides. Nitrogen oxides.
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Special protective actions for fire-fighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with flooding quantities of water until well after fire is out.
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Section 6: Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions Stop leak if you can do it without risk. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid contact with skin and eyes. Avoid breathing vapors or mists. Evacuate personnel to safe areas. Do not touch or walk through spilled material. Use personal protective equipment as required. Wash thoroughly after handling.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Never return spill or leaks to original containers for re-use. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. After cleaning, flush away traces with water.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: Handling and storage**Precautions for safe handling**

Advice on safe handling Avoid contact with skin and eyes. Avoid breathing vapors or mists. Ensure adequate ventilation. Use personal protection equipment. Wash thoroughly after handling. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking. All equipment may need to be explosion-proof based on a risk assessment. Not to be used by pregnant workers and workers who have recently given birth or who are breastfeeding.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep container closed when not in use. Protect from direct sunlight. Store away from sources of heat or ignition. Protect from moisture.

Incompatible materials Strong oxidizing agents. Strong reducing agents. Moisture. Humidity.

Section 8: Exposure controls/personal protection**Control parameters****Exposure Limits**

Chemical name	New Zealand	Australia	ACGIH TLV	United Kingdom
N-methyl-2-pyrrolidone	TWA: 25 ppm	TWA: 25 ppm	-	TWA: 10 ppm

872-50-4	TWA: 103 mg/m ³ STEL: 75 ppm STEL: 309 mg/m ³ Sk*	TWA: 103 mg/m ³ STEL: 75 ppm STEL: 309 mg/m ³		TWA: 40 mg/m ³ STEL: 20 ppm STEL: 80 mg/m ³ Sk*
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Chemical name	New Zealand	ACGIH
N-methyl-2-pyrrolidone 872-50-4	-	100 mg/L

As published by the New Zealand Workplace Health & Safety Authority.

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

WES - STEL (Workplace Exposure Standard - Short Term Exposure Limits) - The 15 minute average exposure standard. Applies to any 15 minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both short-term and eight-hour, time-weighted average exposures should be determined.

'Skin' Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls

Engineering controls

Ensure adequate ventilation, especially in confined areas. Apply technical measures to comply with the occupational exposure limits.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as personal protective equipment

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES, RESPIRATOR.



Eye/face protection

Goggles.

Hand protection

Impervious gloves.

Skin and body protection

Overalls. Boots. Wear suitable protective clothing.

Respiratory protection

If determined by a risk assessment an inhalation risk exists, wear an organic vapour/particulate respirator or an air supplied mask meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Environmental exposure controls No information available.

Section 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colourless
Odor	Amine -like
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	None known
Melting point / freezing point	-24.2°C at 1013 hPa	None known
Boiling point / boiling range	204°C at 1013 hPa	None known
Flash point	91°C	CC (closed cup)
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	~9.5 vol%	
Lower flammability or explosive limits	~1.3 vol%	
Vapor pressure	0.32 hPa at 20°C	None known
Vapor density	~3.4 at 15.5-32.2°C (air=1.0)	None known
Relative density	1.03 g/cm ³ at 25°C	None known
Water solubility	No data available	None known
Solubility(ies)	1,000 g/L at 20°C; completely miscible in water	None known
Partition coefficient	log Pow: -0.46 at 25°C	None known
Autoignition temperature	245°C at 1013 hPa	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

Particle characteristics

Section 10: Stability and reactivity

Reactivity

Reactivity Hygroscopic: absorbs moisture or water from surrounding air. Non-reactive under normal conditions of use, storage and transport.

Chemical stability

Stability Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. On exposure to air, NMP is slowly oxidized with the formation of hydroperoxides; this process is accelerated by sunlight.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions**Possibility of hazardous reactions** None under normal processing.**Conditions to avoid****Conditions to avoid** Heat, flames and sparks. Moisture. Humidity.**Incompatible materials****Incompatible materials** Strong oxidizing agents. Strong reducing agents. Moisture. Humidity.**Hazardous decomposition products****Hazardous decomposition products** Carbon oxides. Nitrogen oxides.**Section 11: Toxicological information****Acute toxicity****Information on likely routes of exposure****Product Information** No adverse health effects expected if the chemical is handled in accordance with this Safety Data Sheet and the chemical label. Symptoms or effects that may arise if the chemical is mishandled and overexposure occurs are:**Inhalation** Irritating to respiratory system. In confined or poorly ventilated areas, vapors can readily accumulate and can cause unconsciousness and death.**Eye contact** Causes serious eye irritation.**Skin contact** Causes skin irritation.**Ingestion** Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.**Symptoms** Irritation. May cause redness and tearing of the eyes. Swelling of tissue. Erythema (skin redness). Coughing and/ or wheezing. Difficulty in breathing.**Acute toxicity****Numerical measures of toxicity**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
N-methyl-2-pyrrolidone	= 3914 mg/kg (Rat)	= 8 g/kg (Rabbit)	> 5.1 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Skin corrosion/irritation** Causes skin irritation.**Serious eye damage/eye irritation** Causes serious eye irritation.**Respiratory or skin sensitization** No information available.

Germ cell mutagenicity	No information available.
Carcinogenicity	Not listed as carcinogenic according to IARC. (IARC - International Agency for Research on Cancer).
Reproductive toxicity	May damage the unborn child.
STOT - single exposure	May cause respiratory irritation.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.
Chronic effects:	For N-Methyl-2-pyrrolidone: In a two-year rat feeding study, males showed signs of chronic progressive nephropathy; no treatment related tumors were seen. At very high repeated inhalation doses (1.0 mg/L), NMP caused focal pneumonia, bone marrow hypoplasia and atrophy of lymphoid tissue, 0.5 mg/L was the no effect level.
Data used to identify the health effects	Refer to Section 16 for Key literature references and sources for data used to compile the SDS.

Section 12: Ecological information

Ecotoxicity

Aquatic ecotoxicity Keep out of waterways.

Chemical name	Algae/aquatic plants	Fish	Crustacea
N-methyl-2-pyrrolidone	EC50: >500mg/L (72h, <i>Desmodesmus subspicatus</i>)	LC50: =832mg/L (96h, <i>Lepomis macrochirus</i>) LC50: =1072mg/L (96h, <i>Pimephales promelas</i>) LC50: =1400mg/L (96h, <i>Poecilia reticulata</i>)	EC50: =4897mg/L (48h, <i>Daphnia magna</i>)

Terrestrial ecotoxicity There is no data for this product.

Chemical name	Earthworm	Avian	Honeybees
N-methyl-2-pyrrolidone	-	LD50 = 2212 mg/kg (<i>Colinus virginianus</i>)	-

Persistence and degradability Readily biodegradable.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
N-methyl-2-pyrrolidone	-0.46

Mobility in soil

Mobility No information available.

Other adverse effects

No information available.

Section 13: Disposal considerations**Waste treatment methods**

Waste from residues/unused products Dispose of product in packaging in a way that is consistent with the EPA Consolidation 30 April 2021 of the Hazardous Substances (Disposal) Notice 2017 and the Act. Treat the substance using a method that changes the characteristics or composition of the substance so that the substance is no longer a hazardous substance; or export the substance from New Zealand as waste.

Contaminated packaging For packages that have been in direct contact with hazardous substances, the person must ensure that the package is rendered incapable of containing any substance. It must be disposed of in a manner that is consistent with the requirements for disposal of the substance that it contained, taking into account the material the package is manufactured from.
Packages may only be reused or recycled if:
- the substance has a physical hazard other than corrosive to metal, and has been treated to remove any residual contents of the hazardous substance;
- or for substances that have a health or environmental hazard, or corrosive to metal, the contents of the residue in the package are below the threshold for the substance to be classified as hazardous in the Hazardous Substances (Hazard Classification) Notice 2020.

Section 14: Transport information

ROAD AND RAIL TRANSPORT Not classified as a Dangerous Good under NZS 5433 Transport of Dangerous Goods on Land; NON-DANGEROUS GOODS.

IATA Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

IMDG Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No information available

Special precautions for user
Please refer to the applicable dangerous goods regulations for additional information

Section 15: Regulatory information**Safety, health and environmental regulations/legislation specific for the substance or mixture**

EPA New Zealand HSNO approval code or group standard To be determined

National regulations There are no applicable tolerable exposure limits or environmental exposure limits according to the EPA Controls for Hazardous Substances

Certified handlers, tracking and controlled substance license requirements

Certified handlers are required for some substances. This includes substances requiring a controlled substance license, and most explosives, vertebrates toxic agents, and certain fumigants. Acutely toxic substances which are a Category 1 or 2, such as pesticides also require Certified handlers. Please check the Health and Safety at Work Act 2015 for further information

Tracking is required for some highly hazardous substances. These substances need to be under the control of an appropriately trained person or appropriately secured. Please check the Health and Safety at Work Act 2015 for further information

Controlled substance licenses are required to possess certain explosives, vertebrate toxic agents and fumigants. See Part 7 of the Health and Safety at Work Regulation 2017 for more information

Other Regulations

Approval Number: HSR001384.

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

NZIoC

This material is listed on the New Zealand Inventory of Chemicals.

TSCA

Contact supplier for inventory compliance status.

DSL/NDSL

Contact supplier for inventory compliance status.

EINECS/ELINCS

Contact supplier for inventory compliance status.

ENCS

Contact supplier for inventory compliance status.

IECSC

Contact supplier for inventory compliance status.

KECL

Contact supplier for inventory compliance status.

PICCS

Contact supplier for inventory compliance status.

AIIIC

This material is listed on the Australian Inventory of Industrial Chemicals.

TCSI

Contact supplier for inventory compliance status.

Legend:

NZIoC - New Zealand Inventory of Chemicals

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AIIIC- Australian Inventory of Industrial Chemicals

TCSI - Taiwan Chemical Substance Inventory

Section 16: Other information

Supplier Safety Data Sheet 10/ 2019

Prepared By

This Safety Data Sheet has been prepared by IXOM Operations Pty Ltd (Toxicology and SDS Services).

Revision date:

07-Aug-2024

Reason(s) For Issue:

5 Yearly Revised Primary SDS

Revision Note:

***Indicates updated data since last publication.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend

SVHC: Substances of Very High Concern for Authorization:
 PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
 vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
 STOT: Specific Target Organ Toxicity
 ATE: Acute Toxicity Estimate
 LC50: 50% Lethal Concentration
 LD50: 50% Lethal Dose

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
**	Hazard Designation	+	Sensitizers
C	Carcinogen		

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 Environmental Protection Agency
 Acute Exposure Guideline Level(s) (AEGl(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 National Institute of Technology and Evaluation (NITE)
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Library of Medicine's PubMed database (NLM PUBMED)
 U.S. National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 World Health Organization

Disclaimer

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since IXOM Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their IXOM representative or IXOM Operations Pty Ltd at the contact details on page 1.

IXOM Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.

End of Safety Data Sheet