Date of issue: 2016/02/04
Date of revision: 2026/02/12

Safety Data Sheet

Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:
Product name: N-Methyl-2-pyrrolidone
SDS No. : 5048E-6
Relevant identified uses of the substance or mixture and uses advised against
Research and Development
Details of the supplier of the safety data sheet
Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN
Division: Chemical Safety Management Department
Telephone number: +81-6-6946-8061
FAX: +81-6-6946-1607

Section 2. Hazards identification

GHS classification and label elements of the product
Classification of the substance or mixture
PHYSICAL AND CHEMICAL HAZARDS
Flammable liquids: Category 4
HEALTH HAZARDS
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2A
Reproductive toxicity: Category 1B
Specific target organ toxicity - single exposure: Category 3 (Narcotic effects)
Specific target organ toxicity - repeated exposure: Category 2 (bone marrow, liver, nervous system, lungs)
(Note) GHS classification without description: Not classified/Classification not possible
Label elements

Signal word: Danger
HAZARD STATEMENT
H227 Combustible liquid
H315 Causes skin irritation
H319 Causes serious eye irritation
H360 May damage fertility or the unborn child
H336 May cause drowsiness or dizziness
H373 May cause damage to organs through prolonged or repeated exposure (bone marrow, liver, nervous system, lungs)
PRECAUTIONARY STATEMENT
Prevention
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P271 Use only outdoors or in a well-ventilated area.
P264 Wash contaminated parts thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P370 + P378 In case of fire: Use appropriate media to extinguish.
P314 Get medical advice/attention if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P312 Call a POISON CENTER/doctor/physician if you feel unwell.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/attention.

Storage

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

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name	Content (%)	CAS RN	ENCS	Chemical formula
N-Methyl-2-pyrrolidone	≧99	872-50-4	5-113	C5H9NO

Note : The figures shown above are not the specifications of the product.

Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

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

IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.
Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.

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 SWALLOWED

Rinse mouth.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.
In case of fire, use spraying loaded liquid, foam (water-soluble liquid: alcohol-resistant foam), inactive gases, dry powder, dry sand to extinguish.
*Fire Service Act Group 4 Hazardous Materials

Unsuitable extinguishing media

Indoor Fire Plug System or Outdoor Fire Plug System
Sprinkler System
Dry Chemical Extinguishing System-Others (except for phosphates etc., Hydrogen Carbonates etc.)
Fire Extinguisher Discharging Jet Water/Spraying Water
Fire Extinguisher Discharging Jet Loaded Liquid
Fire Extinguisher Discharging Dry Extinguishing agents-Others (except for phosphates etc., Hydrogen Carbonates etc.)
Water Bucket or Water Tank
*Cabinet Order Concerning the Control of Hazardous Materials (Attached Table 5) Group 4 Hazardous Materials

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.
Runoff from fire control or dilution water may cause pollution.
See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.
Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.
Ventilate area until material pick up is complete.
Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Liquid: Absorb spill with inert material (dry sand, earth, et al), then place in a chemical

waste container.
Solid: Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident
Collect spillage.

Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)
Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)
Exhaust/ventilator should be available.

(Precautions)
Avoid contact with skin.
Avoid contact with eyes.

Safety Measures
Do not handle until all safety precautions have been read and understood.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands and contaminated parts thoroughly after handling.
When using do not eat, drink or smoke.

Any incompatibilities
See "10.Stability and Reactivity".

Advice on general occupational hygiene
Wash contaminated parts thoroughly after handling.
Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage
Keep container tightly closed.
Store locked up. (P405)
Store in a cool, dry place. Do not store in direct sunlight.
Storage in accordance with local/national regulation.

Container and packaging materials for safe handling
Use closed unbreakable containers.

Section 8. Exposure controls/personal protection

Control parameters

Administrative Control Levels and Concentration standard value
Concentration standard value TWA: 1ppm (effective from 1 October 2026)

Occupational Exposure Limit

The Japan Society for Occupational Health
1ppm; 4mg/m3 (skin)

Exposure controls

Appropriate engineering controls
Do not use in areas without adequate ventilation.

Eye wash station should be available.
Washing facilities should be available.

Individual protection measures

Recommend to use protective equipment in conformity with the standards.
Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid
Color: Colorless to practically colorless
Odor: Practically characteristic odour
Melting point/Freezing point: -24.4℃
Boiling point or initial boiling point: (N-Methyl-2-pyrrolidone)202℃
Boiling range data is not available.
Flammability data is not available.
Lower and upper explosion limit/flammability limit:
Lower explosion limit: 1.3 vol %
Upper explosion limit: 9.5 vol %
Flash point: (N-Methyl-2-pyrrolidone)86℃
Auto-ignition temperature: (N-Methyl-2-pyrrolidone)245℃
Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity: 1.62mm2/s(25℃)
Solubility:
Solubility in water: Miscible
Solubility in solvent data is not available.
Partition coefficient n-octanol/water: log Pow-0.38
Vapor pressure: 39 Pa(25℃)
Density and/or relative density: 1.03
Relative vapor density (Air=1): 3.4
Relative density of the Vapor/air - mixture at 20℃ (Air = 1): 1
Particle characteristics data is not available.

Other information

Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Turn color slowly.

Possibility of hazardous reactions

Decomposes on heating and on burning. This produces toxic fumes including nitrogen oxides.
It reacts violently with strong acids and strong bases. Attacks copper and its alloys.
(ICSC 0513)

Conditions to avoid

Contact with incompatible materials.
Contact with fire source.

Incompatible materials

Strong acids, Strong bases

Hazardous decomposition products

Carbon oxides, Nitrogen oxides

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[NITE-CHRIP]

rat LD50: 3500 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Data for components of the product]

[NITE-CHRIP]

rat LD50: > 5000 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Data for components of the product]

[NITE-CHRIP]

aerosol: rat LC50: > 5.1 mg/L (4-hour) (source: NITE)

Irritant properties

Skin corrosion/irritation

[Product]

Category 2, Causes skin irritation

[Data for components of the product]

[NITE-CHRIP]

Category 2 (source: NITE)

Serious eye damage/irritation

[Product]

Category 2A, Causes serious eye irritation

[Data for components of the product]

[NITE-CHRIP]

Category 2A (source: NITE)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity

[Product]

Category 1B, May damage fertility or the unborn child

[Data for components of the product]

[NITE-CHRIP]

Category 1B (source: NITE)
Specific target organ toxicity (STOT)
STOT-single exposure
[Product]
Category 3, May cause drowsiness or dizziness
[Data for components of the product]
[NITE-CHRIP]
Category 3 (Narcotic effects) (source: NITE)
STOT-repeated exposure
[Product]
Category 2, May cause damage to organs through prolonged or repeated exposure
[Data for components of the product]
[NITE-CHRIP]
Category 2 (bone marrow, liver, nervous system, lungs) (source: NITE)
Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity
Aquatic toxicity
[Data for components of the product]
Hazardous to the aquatic environment, short-term (acute)
[NITE-CHRIP]
Algae (Desmodesmus subspicatus) 72-hour EC50: > 500 mg/L (source: NITE)
Crustacea (Daphnia magna) 24-hour EC50: > 1000 mg/L (source: NITE)
Fish (Oncorhynchus mykiss) 96-hour LC50: > 500 mg/L (source: NITE)
Hazardous to the aquatic environment, long-term (chronic)
[NITE-CHRIP]
Crustacea (Daphnia magna) 21-day NOEC (reproduction, lethal): 12.5 mg/L (source: NITE)
Water solubility
not poorly water-soluble (100000 mg/L) (source: NITE)
Persistence and degradability
[Data for components of the product]
Rapidly degradable (Degradation rate: 73%, 94% (by BOD); 96% (by TOC); 100% (by GC)) (source: NITE)
Bioaccumulative potential
[Data for components of the product]
log Pow: -0.38 (source: ICSC, 2014)
Mobility in soil
Mobility in soil data is not available.
Other adverse effects
Ozone depleting chemical data is not available.

Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging
Waste treatment methods
Dispose of contents/container as industrial waste. Accordance with local/national regulation.

Section 14. Transport Information

UN Number or ID Number : Not regulated

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : Not regulated

IATA (Dangerous Goods Regulations)

UN Number or ID Number : Not regulated

Environmental hazards

Marine pollutants (yes/no) : no

Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Applicable

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 23rd edit., 2023 UN
IMDG Code, 2024 Edition (Incorporating Amendment 42-24)
IATA Dangerous Goods Regulations (67th Edition) 2026
2024 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2025 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
Recommendation of occupational exposure limits (2024-2025) (JSOH)
Supplier's data/information

General Disclaimer

Please provide SDS to customers for selling or transferring.
All chemicals have unknown hazard. Handle the product with care.
This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.
The GHS classification data given here is based on current Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2024).