



## Safety Data Sheet

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

Product identifier:

Product name: N-Methyl-2-pyrrolidone

SDS No. : 5048E-5

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

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e-mail address: kagakuhinanzenkanri@kishida.co.jp

### 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(Narcosis)

Specific target organ toxicity – repeated exposure: Category 2(nerve/nervous system; lung; liver; marrow)

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Danger

HAZARD STATEMENT

Combustible liquid

Causes skin irritation

Causes serious eye irritation

May damage fertility or the unborn child

May cause drowsiness or dizziness

May cause damage to organs through prolonged or repeated exposure(nerve/nervous system; lung; liver; marrow)

PRECAUTIONARY STATEMENT

Prevention

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.



Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

In case of fire: Use appropriate media to extinguish.

Get medical advice/attention if you feel unwell.

**IF INHALED:** Remove person to fresh air and keep comfortable for breathing.

**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.

**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.

**Storage**

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

**Disposal**

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

**Specific Physical and Chemical hazards**

Heating may cause fire.

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**3. Composition/information on ingredients****Mixture/Substance selection:****Substance**

Ingredient name:N-Methyl-2-pyrrolidone

Content (%):99(min)

Chemical formula:C<sub>5</sub>H<sub>9</sub>NO

Chemicals No, Japan:5-113

CAS No.:872-50-4

MW:99.13

ECNO:212-828-1

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

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**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 ON SKIN (or hair)**

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.

Call a POISON CENTER/doctor/physician if you feel unwell.



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## 5. Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO2 to extinguish.

#### Unsuitable extinguishing media

Indoor firefighting equipment or outdoor firefighting equipment

Sprinkler equipment

Dry-powder firefighting equipment – except for phosphate etc.,hydrogen carbonate etc.

Straight stream water extinguisher

Water mist extinguisher

Reinforcing liquid jet extinguisher

Dry-powder extinguisher – except for phosphate etc.,hydrogen carbonate etc.

Bucket of water or tank of water

### Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

### 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 full face piece operated positive pressure mode.

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## 6. Accidental release measures

### Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

### Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

### Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

### Preventive measures for secondary accident

Collect spillage.

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## 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.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

#### Safety Measures



Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

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 in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Polyethylene

Iron

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## 8. Exposure controls/personal protection

Control parameters

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

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

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## 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Practically characteristic odour

Melting point/Freezing point: -24.4°C

Boiling point or initial boiling point: 202°C

Boiling range data is not available.

Flammability (gases, liquids and solids) 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: (C.C.)(N-Methyl-2-pyrrolidone)86°C

Auto-ignition temperature: 245°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity: 1.62mm<sup>2</sup>/s (25°C)

Solubility:

Solubility in water: Miscible

n-Octanol/water partition coefficient: log Pow=0.38



Vapor pressure: 39 Pa (25C)  
Density and/or relative density: 1.03  
Relative vapor density (Air=1): 3.4  
Relative density of the Vapor/air – mixture at 20°C (Air = 1): 1  
Particle characteristics data is not available.

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## 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

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## 11. Toxicological Information

### Information on toxicological effects

#### Acute toxicity

##### Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

rat LD50=3500mg/kg (DFGOT vol.10, 1998)

#### Irritant properties

##### Skin corrosion/irritation

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

human mild to moderate transient irritation (SIDS, 2009)

##### Serious eye damage/irritation

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

rabbit moderate to severe irritation (DFGOT vol.10, 1998)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

#### Reproductive toxicity

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

cat. 1B; SIDS, 2009

#### STOT

##### STOT-single exposure

[cat.3 (drow./dizz.)]

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

narcosis (CICAD 35, 2001)



STOT-repeated exposure

[cat.2]

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

nerve/nervous system; lung; liver; marrow (CICAD 35, 2001)

Aspiration hazard data is not available.

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## 12. Ecological Information

Ecotoxicity

Aquatic toxicity

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(N-Methyl-2-pyrrolidone)

Algae (Scenedesmus) EC50 >500mg/L/72hr (SIDS, 2009)

Water solubility

(N-Methyl-2-pyrrolidone)

100 g/100 ml (SRC, 2005)

Persistence and degradability

(N-Methyl-2-pyrrolidone)

Degrade rapidly(BOD\_NO2\_Degradation : 73%/28 days; BOD\_NH3\_Degradation : 94%/28 days;

TOC\_Degradation: 96%/28 days; GC\_Degradation : 100%/28 days (MITI official bulletin))

Bioaccumulative potential

(N-Methyl-2-pyrrolidone)

log Pow=-0.38 (ICSC, 2014)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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## 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 in accordance with local/national regulation.

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## 14. Transport Information

Not applicable to IMDG Code

Not applicable to IATA Dangerous Goods Regulations

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

MARPOL Annex V – Prevention of pollution by garbage discharge

Reproductive toxicity: cat.1, 1A, 1B

N-Methyl-2-pyrrolidone

Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Y

N-Methyl-2-pyrrolidone



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**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

N-Methyl-2-pyrrolidone

Other regulatory information

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

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**16. Other information**

GHS classification and labelling

Flam. Liq. 4: H227 Combustible liquid

Skin Irrit. 2: H315 Causes skin irritation

Eye Irrit. 2A: H319 Causes serious eye irritation

Repr. 1B: H360 May damage fertility or the unborn child

STOT SE 3: H336 May cause drowsiness or dizziness

STOT RE 2: H373 May cause damage to organs through prolonged or repeated exposure

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2022 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

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 Japan official data (NITE published in 2020).