



## Material Safety Data Sheet

### 1-METHYL-2-PYRROLIDINONE

#### Section 1 – PRODUCT AND COMPANY IDENTIFICATION

<b>1. Product Identifier</b>	1-Methyl-2-pyrrolidinone; n-Methylpyrrolidone;
<b>2. Recommended Use &amp; Uses advised against</b>	NMP; 1-Methyl-2-pyrrolidone Uses for Laboratory and R&D, Industrial only
<b>3. Information of Supplier</b>	SAMCHUN PURE CHEMICAL CO.,LTD ADDRESS; (Mogok-dong) 117, Sandan-ro 16Beon-gil, Pyeongtaek-si, Gyeonggi-do, Korea Emergency Phone; 82-31-668-0700/3 Department; Safety & Environment dep. Web site; <a href="http://www.samchun.com">http://www.samchun.com</a>

#### Section 2 – HAZARDS and DANGER IDENTIFICATION

<b>1.GHS Classification- Identification</b>	Skin Corrosion/Skin Irritation	Category2
	Serious Eye Damage/Eye Irritation	Category2
	Specific Target Organ Toxicity (Single Exposure)	Category3- Respiratory irritation
	Reproductive toxic	Category1B

#### 2. Label and Mark including Precautionary Statement

◦Label elements



◦Signal word

Danger

◦Hazard · Danger statement

H315 Causes skin irritation  
H319 Causes serious eye irritation  
H360 May damage fertility or the unborn child  
H335 May cause respiratory irritation

◦Precautionary statement

**Precaution**

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

**Measures**

P321 Specific treatment (see Section 4. on this label).  
P302+P352 IF ON SKIN: Wash with plenty of water / (...)  
P332+P313 If skin irritation occurs: Get medical advice/attention.  
P362+P364 Take off contaminated clothing and wash 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.  
P308+P313 IF exposed: Call a POISON CENTER or doctor/physician  
P312 Call a POISON CENTER or doctor/physician if you feel unwell.  
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

- Storage** P405 Store locked up  
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- Dispose** P501 Dispose of contents/container under related law and regulations

### 3. Other Hazard-Risk which are not included in the classification criteria

NFPA index(0~4steps) : Health=2, Fire=1, Reaction=0

## Section 3 – COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name	Other Name	CAS No.	Content (%)
1-Methyl-2-pyrrolidinone	n-Methylpyrrolidone, NMP	872-50-4	99 ~ 100
Water		7732-18-5	0 ~ 1

## Section 4 – FIRST AID MEASURES

- 1. Eye Contact** Rinse with plenty of water for at least 15minutes and get medical attention immediately.
- 2. Skin Contact** Take off contaminated cloths and shoes immediately, wash with plenty of water and soap for at least 15minutes.
- 3. Inhalation** Move victim to fresh air. If breathing is difficult, give artificial respiration and get medical attention immediately.
- 4. Ingestion** Do not induce vomiting. Get medical advice/attention immediately.
- 5. Immediate medical attention and Notes for physician** Keep the medical personnel aware of the materials involved and take protective action.

## Section 5 – FIRE-FIGHT MEASURES

- 1. Suitable extinguish media** Alcohol-resistant foam, carbon dioxide, particulate powder extinguishing agent, water spray, etc.  
Unsuitable extinguishing media: N/A
- 2. Special hazards arising from the substance** Thermal decomposition products: nitrogen oxides, carbon oxides
- 3. Special protective equipment and Precautions for fire-fighters** Move containers from fire area if you can do it without risk. When extinguishing a fire, be sure to wear personal protective equipment. If it is not possible to extinguish the fire, withdraw immediately. Keep containers cool by spraying with water for a long time, even after the fire is out. Isolate hazardous areas and deny access to people.

## Section 6 – ACCIDENTAL RELEASE MEASURES

- 1. Personal precautions and Emergency procedures** Do not touch spilled material. Avoid inhalation and skin contact. In case of confined space, wear air respirator and ventilate and remove all sources of ignition.
- 2. Environmental precautions** Minimize leak/spill, collect and keep leak/spill in container
- 3. Methods and material for containment and cleaning up** Soak up with sand, clay and other inert absorbent material

## Section 7 – HANDLING AND STORAGE

- 1. Precautions for safe Handling** Wash thoroughly after handling. Use appropriate ventilation. Do not expose or expose to welding, soldering, bonding, punching, grinding, or exposure to heat, flames, sparks, static electricity or other sources of ignition.  
Avoid contact with skin, inhalation of vapor and intrusion into eyes, all containers should be grounded
- 2. Conditions for safe storage** Keep container tightly closed in a dry, cool and well-ventilated place. Avoid contact with light. Keep away from incompatible materials.

## Section 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

### 1. Occupational exposure limit, biological exposure limit

#### National law of Safety management of

Occupational Health and Safety Act

-TWA : 10 ppm AIHA

-TWA : 19 ppm(steam), 80mg/m<sup>3</sup>(steam) MAC

-STEL : 75ppm, 309mg/m<sup>3</sup> WEL

### 2. Appropriate

#### Engineering controls

Ensure compliance with applicable exposure limits and operate local exhaust ventilation when working.

If the substance is at risk of explosion, ventilation equipment should be explosion-resistant.

### 3. Personal protective equipment

#### ◦Respiratory protection

Because it is concerned about the harmfulness of human body due to chemical substances, it is recommended to wear respiratory protective equipment with dust mask or dust filter in consideration of physical and chemical characteristics when handling.

Respiratory protection should be certified by the Health and Safety Authority.

It is concerned about the harmfulness of the human body depending on the working environment, it should wear respirator, air-purifying respirator

#### ◦Eye-protection

Wear safety glasses when handling as they may cause human health hazards due to chemicals. Install eye wash facilities and emergency eyewash stations near chemical handling sites

#### ◦Hand protection

Wear safety gloves when handling, as it is likely to harm human health due to chemicals.

#### ◦Skin and body protection

Wear chemical protective clothing when handling, as it is likely to harm human health due to chemicals

## Section 9 – PHYSICAL AND CHEMICAL PROPERTIES

1. Physical state and color	Liquid(Colorless)	2. Odor	Fishy smell
3. threshold	N/A	4. pH	7.7-8.0(10% solution)
5. Melting/Freezing point	-24°C	6. Boiling point/range	202°C
7. Flashing point	91°C	8. Evaporation speed	0.06
9. Flammability(solid, gas)	N/A	10. Flash or Explosion limit upper / lower	9.5% / 1.3%
11. Vapor pressure	0.345mmHg@25°C	12. Solubility	Slightly Soluble
13. Vapor density	3.4	14. Gravity	1.03
15. n-octanol-water Partition coefficient	-0.38	16. Self ignition temp(°C)	346°C
17. Cracking temp(°C)	N/A	18. Viscosity	N/A
19. Molecular Weight	99.13		

## Section 10 – STABILITY AND REACTIVITY

1. Chemical stability and Possibility of Hazardous Reactions Stable under normal temp. and pressure

### Reactions

#### 2. Conditions to Avoid

Avoid heat, sparks, flames and other sources of ignition.

#### 3. Incompatible Materials

Acid, oxidizing agent.

#### 4. Hazardous

#### Decomposition Products

Carbon oxides, nitrogen

## Section 11 – TOXICOLOGICAL INFORMATION

### 1. Information on the likely routes of exposure.

N/A

### 2. Health hazard information

◦Acute toxic	Oral : LD50 7725mg/kg Rat(Oral) Skin : LD50 5000mg/kg Rat Inhalation : N/A
◦Serious skin corrosive / irritation	May cause irritation and skin irritation.
◦Serious eye damage / irritation	Irritating to eyes.
◦Respiratory sensitization	N/A
◦Skin sensitization	N/A
◦Carcinogenicity	N/A
◦Germ cell Mutagenicity	Fetal toxicity and maternal toxicity were observed during Rat administration test. (Clayton & Clayton, 1994; Becci et al, 1982)
◦Reproductive toxic	N/A
◦Specific target organ toxicity (single exposure )	Irritating to the respiratory system
◦Specific target organ toxicity (repeated exposure )	N/A
◦Aspiration hazard	N/A

#### Section 12 – ECOLOGICAL INFORMATION

1.Acquatic and Terrestrial eco toxicity	Fish toxicity : LC50 832mg/l 96hr Invertebrate toxicity : LC50 1.23mg/l 48hr Sea algae : EC50 > 500mg/l 72hr
2.Persistence and degradability	Persistence : log Kow -0.54 Degradability : BOD5/COD 0.68
3.Bioaccumulative potential	Concentrations : BCF 0.16 Bioaccumulative : 73(%)28day
4.Mobility in soil	N/A
5.Other adverse effects	May cause long-term adverse effects in the aquatic environment.

#### Section 13 – Disposable considerations

1.Waste methods	Dispose in accordance with local regulations.
2.Waste warning	Dispose prohibited substances and waste separately from others.

#### Section 14 – TRANSPORT INFORMATION

1. UN No.	Non-described
2.Proper shipping Name	Non-described
3.Hazard class	Non-described
4.Packing group	Non-described
5.Marine pollutant	Non-described
6.Particular safety Measures for transportation	Non-described

#### Section 15 – REGULATORY INFORMATION

1.Occupation safety and health acts	Non-described
2. Chemical Substances Control Act	Toxic
3. National law of Safety management of hazardous material	4 Class 3 Petroleum Water-soluble liquid 4000L
4.National law of management of Wastes	Designated Waste
5.Other domestic and	EU classification information (confirmed classification result)

foreign law

Repr.Cat.2: R61, Xi; R36 / 37/38

EU classification information (Risk phrases) R61, R36 / 37/38

EU classification information (Safety phrases) S53, S45

## Section 16 – OTHER INFORMATION

- 1. Material source** A chemical information MSDS Safety and Health Agency  
National Institute of Environmental Research Chemical Information Systems  
Korea Industrial Technology National Fire Hazardous Materials Information System
- 1. The 1<sup>st</sup> edition** 2002.07.30
- 2. Revision and** 8 / 2019.01.03  
**The final revision**
- . Other references**

**\* The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.**