



NO.2611060028

MATERIAL SAFETY DATA SHEET

Product Name: N-Methyl Pyrrolidone

Revision Date: 2011-07-20

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Shanghai Research Institute of Chemical Industry Testing Centre
Shanghai Classification and Testing Centre of Dangerous
Chemicals for State Administration of Work Safety

Shandong Qingyun Changxin Chemical
Science-Tech Co., Ltd.

SAFETY DATA SHEET

N-Methyl Pyrrolidone

SECTION1 PRODUCT AND COMPANY IDENTIFICATION

Product name: N-Methyl Pyrrolidone
Company: Shandong Qingyun Changxin Chemical Science-Tech Co., Ltd.
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SDS Number: 2611060028
SDS Date: 2011-07-20

SECTION2 HAZARDS IDENTIFICATION

GHS Classification:

Acute toxicity (Oral): Category 5

Skin corrosion/irritation: Category 2.

Serious eye damage/eye irritation: Category 2A

Reproductive Toxicity: Category 1B

Specific target organ toxicity following single exposure: Category 3 (Respiratory tract irritation)

Symbol:



Signal Word:

Danger.

Hazard Statement:

H303 May be harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

H335 May cause respiratory irritation.

General Precautionary Statement:

P102 Keep out of the reach of children.

Prevention Precautionary Statement:

- P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P233 Keep container tightly closed.
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 Wash hand thoroughly after handling.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
- Response Precautionary Statement:**
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P332 + P313 If skin irritation occurs: Get medical advice/attention.
 P362 Take off contaminated clothing and wash before reuse.
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Storage Precautionary Statement:**
 P405 Store locked up.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- Disposal Precautionary Statement:**
 P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

SECTION3 INFORMATION ON INGREDIENTS

Product name: N-Methyl Pyrrolidone

Ingredient	Concentration	CAS No.	EC No.
N-Methyl Pyrrolidone	>99.9%	872-50-4	212-828-1

SECTION4 FIRST-AID MEASURES

Skin Exposure:

In case of contact, immediately wash skin with soap and copious amounts of water. If irritation persists, call a physician.

Eye Exposure:

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Inhalation Exposure:

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

Oral Exposure:

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed:

Prolonged or repeated exposure can cause: Vomiting, Diarrhoea, Abdominal pain, Rats exposed to 1-methyl-2-pyrrolidinone at a concentration of 1 mg/L as an aerosol for 10 days showed depletion of hematopoietic cells in the bone marrow and atrophy of the lymphoid tissues of the thymus, spleen, and lymph nodes.

Indication of any immediate medical attention and special treatment needed:

No data available.

SECTION5 FIRE FIGHTING MEASURES

Extinguishing Media:

Suitable: Water spray, Dry chemical powder, Carbon dioxide or appropriate foam.

Special hazards arising from the substance or mixture:

Carbon oxides, nitrogen oxides (NO_x).

Specific methods:

Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Remove movable containers if safe to do so.

Firefighting:

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific hazards: Emit toxic fumes under fire conditions.

SECTION6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up:

Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust). In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION7 HANDLING AND STORAGE

Handling:

Wear appropriate protective clothing and safety gloves. Avoid exposure - obtain special instructions before use. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist. Handling is performed in a well ventilated place. Keep away from flames and hot surfaces. Take measures to prevent the build up of electrostatic charge. Wash hands and face thoroughly after handling. No smoking at working site.

Storage:

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Keep away from ignition sources, heat and flame. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store under inert gas. Moisture sensitive. Store away from incompatible materials such as Strong oxidizing agents, Strong acids, Strong bases.

SECTION8 EXPLOSURE CONTROL/PPE

Appropriate engineering controls:

Install a closed system or local exhaust as possible so that workers should not be exposed directly. Safety shower and eye bath.

Personal Protective Equipment:

Respiratory: Government approved respirator.
 Eye: Wear chemical safety goggles.
 Clothing: Wear appropriate protective clothing.
 Hand: Wear compatible protective gloves.

SECTION9 PHYSICAL/CHEMICAL PROPERTIES

Appearance: Colorless transparent liquid
 Odor: Weak odor
 Molecular Formula: C_5H_9NO
 Molecular Weight: 99.13
 Boiling Point/ $^{\circ}C$: $>150^{\circ}C$
 Flash Point (Closed Cup)/ $^{\circ}C$: $>95.0^{\circ}C$
 pH Value: 6.0 ($25^{\circ}C$, 50.0g/L)
 Solubility: Miscible in water
 Density/Relative Density: $1.032 \times 10^3 \text{ kg/m}^3$ ($20.0^{\circ}C \pm 0.1^{\circ}C$)
 Viscosity: $1.74 \text{ mm}^2/\text{s}$ ($20.00^{\circ}C \pm 0.02^{\circ}C$, kinematic viscosity)

SECTION10 STABILITY AND REACTIVITY

Chemical stability:
 Stable under normal temperatures and pressures.
 Possibility of hazardous reactions:
 No data available.
 Conditions to Avoid:
 Heat, flames and sparks, Exposure to air, Exposure to moist air or water, Exposure to light.
 Incompatible materials:
 Strong oxidizing agents, Strong acids, Strong bases.
 Hazardous Decomposition Products:
 Carbon oxides, Nitrogen oxides (NO_x).

SECTION11 TOXICOLOGICAL INFORMATION

Toxicity Data:

Rat	Oral	LD_{50}	3914mg/kg	Category 5
Rabbit	Skin	LD_{50}	8000mg/kg	

 Skin corrosion/irritation:
 Category 2.
 Serious eye damage/eye irritation:
 Category 2A
 Respiratory Sensitization:
 No data available.
 Skin Sensitization:
 No data available.
 Germ Cell Mutagenicity:
 No data available.
 Carcinogenicity:
 No data available.

Reproductive Toxicity:
Category 1B.

Specific target organ toxicity following single exposure:
Category 3 (Respiratory tract irritation)

Specific target organ toxicity following repeated exposure:
No data available.

Aspiration Hazard:
No data available.

SECTION12 ECOLOGICAL INFORMATION

Toxicity:

Toxicity to fish LC₅₀ - other fish - 4000 mg/L - 96 h

LC₅₀ - Leuciscus idus (Golden orfe) - >500 mg/L - 96 h

Toxicity to daphnia and other aquatic invertebrates EC₅₀ - Daphnia magna (Water flea) - >1000 mg/L - 24 h

Toxicity to bacteria LC₅₀ - Bacteria - >9000 mg/L

Persistence and degradability:

Biodegradability Result: 90 % - Readily biodegradable.

Bioaccumulative potential:

No data available.

Mobility in soil:

No data available.

Other adverse effects:

No data available.

SECTION13 DISPOSAL CONSIDERATION

Appropriate Method of Disposal of Substance:

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with and afterburner and scrubber. Observe all federal, state, and local environmental regulations.

SECTION14 TRANSPORT INFORMATION

RID/ADR: This substance is considered to be non-hazardous for transport.

IATA: This substance is considered to be non-hazardous for air transport.

IMO: This substance is considered to be non-hazardous for sea transport.

Special Precautions: Before the transportation, check containers for leaks. Do not place heavy goods on top. During the transportation, avoid the containers from overturning, damaging and falling.

SECTION15 REGULATORY INFORMATION

EU Directives 67/548/EEC:

Hazard Symbols: T

Indication of Danger: Toxic

R: 61 36/37/38

Risk Statements: May cause harm to the unborn child. Irritating to eyes, respiratory system and skin.

S: 2 53 45

Safety Statements: Keep out of the reach of children. Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION16 OTHER INFORMATION

Date: 2011-07-20

Department: Shanghai Research Institute of Chemical Industry Testing Centre
Shanghai Classification and Testing Centre of Dangerous Chemicals for State Administration
of Work Safety
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Revision: 0

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