

Preparation Date 05-06-2010

Revision date 01-21-2016

Revision number 3

**1. Identification of the Substance/Preparation and of the Company/Undertaking****Product identifier****Product name** NMP (N-Methyl-2-Pyrrolidone)**Other means of identification****Product code** 51059**Synonyms** None**Recommended use of the chemical and restrictions on use****Recommended use** solvent.**Uses advised against** No information available**Details of the Supplier of the Safety Data Sheet****Supplier Address**

Taminco US LLC  
A subsidiary of Eastman Chemical Company  
Two Windsor Plaza, Suite 411  
7540 Windsor Drive  
Allentown, PA USA 18195  
T: +(800) 223-3258

**Emergency telephone number**

Emergency Telephone

In case of emergency call CHEMTREC 1-800-424-9300  
for International calls 1-703-527-3887

**2. Hazards Identification****Classification****OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

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

**Label Elements****Symbols/Pictograms****Signal Word**  
**DANGER**

**hazard statements**

May damage fertility or the unborn child  
 Causes serious eye irritation  
 Causes skin irritation  
 May cause respiratory irritation  
 combustible liquid

**Precautionary Statement - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Keep away from heat/sparks/open flames/hot surfaces - no smoke

**Precautionary Statements - Response**

IF exposed or concerned: 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 ON SKIN: Wash with plenty of soap and water  
 Take off contaminated clothing and wash before reuse  
 If skin irritation or rash occurs: Get medical advice/attention  
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

**Precautionary Statements - Storage**

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

**Precautionary Statements - Disposal**

P501 - Dispose of contents/container in accordance with local regulation

**Hazards Not Otherwise Classified (HNOC)**

Not Applicable

### 3. Composition/information on Ingredients

Chemical name	CAS-No	Weight %	Trade secret
1-Methyl-2-pyrrolidone	872-50-4	>99.8	No

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

### 4. First aid measures

**First Aid Measures****General advice**

If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

**Eye contact**

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If symptoms persist, call a physician.

**Skin contact**

If skin irritation persists, call a physician. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

<b>Inhalation</b>	Move to fresh air in case of accidental inhalation of vapours or decomposition products. If symptoms persist, call a physician.
<b>Ingestion</b>	Clean mouth with water and afterwards drink plenty of water. Do not induce vomiting without medical advice. Consult a physician.
<b>Protection of First-aiders</b>	Use personal protective equipment.

**Most Important Symptoms and Effects, Both Acute and Delayed**

See Section 11: TOXICOLOGICAL INFORMATION.

**Indication of Any Immediate Medical Attention and Special Treatment Needed**

Treat symptomatically.

## 5. Fire-fighting measures

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable extinguishing media**

High volume water jet.

**Specific hazards arising from the chemical**

Keep product and empty container away from heat and sources of ignition. Risk of ignition.

**Explosion data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Keep people away from and upwind of spill/leak. Remove all sources of ignition. It is good practice in industrial hygiene to avoid contact with solvents by using appropriate protective measures whenever possible. Pay attention to flashback. Take precautionary measures against static discharges.

**Environmental Precautions**

Prevent product from entering drains. Dispose of contents/container in accordance with local regulation.

**Methods and material for containment and cleaning up**

Use explosion-proof equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Large spills should be collected mechanically (remove by pumping) for disposal. Keep in suitable, closed containers for disposal. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

## 7. Handling and Storage

**Precautions for Safe Handling**

Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from heat, sparks and open flame. - No smoking. Do not breathe vapours or spray mist. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use product only in closed system.

**Conditions for safe storage, including any incompatibilities**

Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat. Protect from light. Keep in properly labelled containers.

**incompatible materials** Strong acids and oxidizing agents. Bases.

**8. Exposure Controls/Personal Protection****Control Parameters**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
1-Methyl-2-pyrrolidone 872-50-4	OEL = 82mg/m <sup>3</sup>	None Established	-

*IDLH: Immediately Dangerous to Life or Health*

**Appropriate Engineering Controls**

Ensure adequate ventilation, especially in confined areas.

**Individual protection measures, such as personal protective equipment**

<b>Eye/Face Protection</b>	Face-shield. Wear a positive-pressure supplied-air respirator with full facepiece.
<b>Skin and Body Protection</b>	Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
<b>Respiratory protection</b>	If irritation is experienced, NIOSH approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

**General hygiene considerations** Regular cleaning of equipment, work area and clothing.

**9. Physical and Chemical Properties****Information on basic physical and chemical properties**

<b>Physical state</b>	liquid	<b>Odor</b>	Slight Amine-like
<b>appearance</b>	clear liquid		
<b>color</b>	clear colorless		
<b>Property</b>	<b>VALUES</b>	<b>Remarks • Method</b>	
<b>pH</b>	8.5 - 10 (@100 g/l, 20°C)		
<b>Melting point/freezing point</b>	-24.2 °C / -11 °F		
<b>Boiling Point/Range</b>	204 °C / 399 °F		
<b>flash point</b>	91 °C / 196 °F	Closed cup	
<b>evaporation rate</b>			
<b>flammability (solid, gas)</b>			
<b>Flammability limit in air</b>			
<b>Upper flammability limit:</b>	9.5 vol%		
<b>Lower flammability limit:</b>	1.3 vol%		
<b>vapor pressure</b>	0.32 hPa @ 20 °C		
<b>vapor density</b>	3.42 (Air =1.0)		
<b>Specific gravity</b>	1.03	@ 25 °C / 77 °F	
<b>Water solubility</b>	miscible		
<b>Solubility in Other Solvents</b>	No information available		
<b>Partition coefficient</b>	Log Pow : -0.46 @ 25°C		
<b>Autoignition temperature</b>	245 °C / 473 °F		
<b>decomposition temperature</b>	No information available		
<b>Kinematic viscosity</b>	No information available		
<b>Dynamic viscosity</b>	1.661 mPas	@ 25 °C	

**Explosive properties** Not explosive  
**Oxidizing properties** None

**OTHER INFORMATION**

**molecular weight** 99.13  
**VOC Content** 100%  
**density** 1.03 g/cm<sup>3</sup> @ 25 °C / 77 °F

## 10. Stability and Reactivity

**Reactivity****Chemical stability**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

Keep away from open flames, hot surfaces and sources of ignition.

**incompatible materials**

Strong acids and oxidizing agents. Bases.

**Hazardous decomposition products**

Heating or fire can release toxic gas. Nitrogen oxides (NOx). Carbon oxides. Carbon monoxide.

## 11. Toxicological Information

**Symptoms related to the physical, chemical and toxicological characteristics**

Irritating to eyes and respiratory system

**Product information**

**LD50/oral/rat =** 4150 mg/kg

**LD50/dermal/rat =** 5000 mg/kg

**LC50/inhalation/4h/rat =** > 5.1 mg/l

An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration

**Eye irritation** May cause eye irritation with susceptible persons

**Skin irritation** May cause skin irritation and/or dermatitis

**sensitization** Did not cause sensitization on laboratory animals

**Mutagenic effects** Teratogenic

**Reproductive Toxicity** Experiments have shown reproductive toxicity effects on laboratory animals

Animal testing did not show any effects on fertility

**Carcinogenic effects** Did not show carcinogenic effects in animal experiments

**Specific target organ systemic toxicity (single exposure)** No information available

**Specific target organ systemic toxicity (repeated exposure)** No observed adverse effect level : 3000 ppm, oral, after 90 days

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA
-----------	-------	------	-----	------

1-Methyl-2-pyrrolidone 872-50-4 (>99.8)	Not Listed	Not Listed	Not Listed	Not Listed
<b>Chronic toxicity</b>	Avoid repeated exposure.			

## 12. Ecological Information

### Ecotoxicity

#### Product information

<b>Toxicity to Fish LC50</b>	> 500 mg/l
<b>EC50/48h/daphnia =</b>	> 1000 mg/l
<b>EC50/72h/algae =</b>	> 500 mg/l
<b>Toxicity to bacteria</b>	IC50 : > 600 mg/l

#### Persistence/Degradability

Readily biodegradable, according to appropriate OECD test. Readily eliminated from water.

#### Bioaccumulative potential

#### Mobility in Soil

**Koc = 20.94**

Chemical name	Log Pow
1-Methyl-2-pyrrolidone 872-50-4	-0.46

#### Other Adverse Effects

No information available

## 13. Disposal Considerations

### Waste Treatment Methods

#### **Waste Disposal Method**

Dispose of in accordance with local regulations.

#### **Contaminated packaging**

Empty containers should be taken for local recycling, recovery or waste disposal.

## 14. Transport Information

#### DOT

**UN-No**

**Proper shipping name**

**Packing group**

**Not regulated in Non - Bulk Packages, 49 CFR 173.150(f)(2)**

NA1993

NA1993, Combustible liquid, n.o.s. (n-methyl-2-pyrrolidone), PGIII

III

#### IATA

NOT REGULATED

#### IMDG/IMO

NOT REGULATED

## 15. Regulatory Information

### International Inventories

<b>TSCA</b>	Complies
<b>DSL/NDSL</b>	Complies
<b>EINECS/ELINCS</b>	Complies
<b>ENCS</b>	Complies
<b>IECSC</b>	Complies
<b>KECL</b>	Complies

PICCS Complies  
AICS Complies

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDL** - 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  
**AICS** - Australian Inventory of Chemical Substances

**Federal Regulations****SARA TITLE III SECTION 313 INFORMATION:**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

**SARA 311/312 Hazardous****Categorization**

Acute health hazard	Yes
Chronic health hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**State Regulations****California Proposition 65**

This product contains the following Proposition 65 chemicals:

Chemical name	California Prop. 65
1-Methyl-2-pyrrolidone - 872-50-4	Listed: June 15, 2001 Developmental toxin.

**State Right-to-Know**

Chemical name	NJ	Ma	Pa
1-Methyl-2-pyrrolidone 872-50-4	Not listed	X	X

**U.S. EPA Label information**

EPA Pesticide registration number Not Applicable

**WHMIS Hazard Class**

D2A Very toxic materials

**CANADA**

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

**16. Other Information**

<b>NFPA</b>	<b>HEALTH 2</b>	<b>FIRE 2</b>	<b>Instability 0</b>	<b>Physical hazard -</b>
<b>HMIS</b>	<b>HEALTH 2 *</b>	<b>flammability 2</b>	<b>Physical hazards 0</b>	

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**Revision Summary**

Not Available

**Disclaimer:**

The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

**End of Safety Data Sheet**