



# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 09/24/2014

Version 1.1

## SECTION 1. Identification

### Product identifier

Product number	MX1392
Product name	1-Methyl-2-pyrrolidone For Peptide Synthesis OmniSolv®
Synonyms	NMP
CAS-No.	872-50-4

### Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Reagent for analysis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 4, H227  
Skin irritation, Category 2, H315  
Eye irritation, Category 2A, H319  
Reproductive toxicity, Category 1B, H360  
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335  
For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Danger

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## *Hazard Statements*

H360 May damage fertility or the unborn child.

H227 Combustible liquid.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

## *Precautionary Statements*

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P321 Specific treatment (see supplemental first aid instructions on this label).

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

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

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula C<sub>5</sub>H<sub>9</sub>NO (Hill)

Synonyms NMP

Molar mass 99.13 g/mol

## **Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

*N-methyl-2-pyrrolidone ( >= 90 % - <= 100 % )*

872-50-4

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

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### *Inhalation*

After inhalation: fresh air. Call in physician.

### *Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

### *Eye contact*

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

### *Ingestion*

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

### **Most important symptoms and effects, both acute and delayed**

irritant effects, Cough, Shortness of breath, pain, Diarrhea, Vomiting

### **Indication of any immediate medical attention and special treatment needed**

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

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## Environmental precautions

Do not empty into drains.

## Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

### Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at room temperature.

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

Contains no substances with occupational exposure limit values.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### *Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

#### *Other protective equipment:*

protective clothing

#### *Respiratory protection*

required when vapors are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	amine-like
Odor Threshold	No information available.
pH	8.5 - 10.0 at 100 g/l 68 °F ( 20 °C)
Melting point	-24 °C
Boiling point/boiling range	396 °F ( 202 °C) at 1,013 hPa
Flash point	196 °F ( 91 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.3 %(V)
Upper explosion limit	9.5 %(V)
Vapor pressure	0.32 hPa at 68 °F ( 20 °C)  1.33 hPa at 104 °F ( 40 °C)
Relative vapor density	3.42
Density	1.03 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Relative density	No information available.
Water solubility	1,000 g/l at 77 °F ( 25 °C)
Partition coefficient: n-octanol/water	log Pow: -0.46 ( 25 °C) OECD Test Guideline 107 Bioaccumulation is not expected.

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Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	1.80 mPa.s at 68 °F ( 20 °C)  0.97 mPa.s at 212 °F ( 100 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	473 °F ( 245 °C)
Conductivity	0.2 - 0.4 µS/cm

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## SECTION 10. Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### Chemical stability

No decomposition if stored and applied as directed.

### Possibility of hazardous reactions

Violent reactions possible with:  
Strong oxidizing agents, Strong acids

### Conditions to avoid

Strong heating.

### Incompatible materials

various plastics

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

#### *Acute oral toxicity*

LD50 Rat: 3,598 mg/kg (IUCLID)

Symptoms: Vomiting, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

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### *Acute inhalation toxicity*

LC50 Rat: > 5.1 mg/l; 4 h

OECD Test Guideline 403

Irritating to respiratory system.

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:., damage of respiratory tract

### *Acute dermal toxicity*

LD50 Rabbit: 8,000 mg/kg

(IUCLID)

absorption

### *Skin irritation*

Rabbit

Result: Irritations

(External MSDS)

Causes skin irritation.

### *Eye irritation*

Rabbit

Result: slight irritation

(RTECS)

(Regulation (EC) No 1272/2008, Annex VI)

Causes serious eye irritation.

### *Sensitization*

Sensitization test: Guinea pig

Result: negative

(IUCLID)

Patch test: human

Result: negative

(IUCLID)

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

### *CMR effects*

Teratogenicity:

May damage the unborn child.

### *Specific target organ systemic toxicity - single exposure*

May cause respiratory irritation.

### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

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IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## Further information

After absorption:

pain, Diarrhea

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### Ecotoxicity

#### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 832 mg/l; 96 h (IUCLID)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): ca. 4,897 mg/l; 48 h (IUCLID)

#### *Toxicity to algae*

IC50 *Desmodesmus subspicatus* (green algae): > 500 mg/l; 72 h

OECD Test Guideline 201

#### *Toxicity to bacteria*

EC50 Bacteria: > 9,000 mg/l; 48 h (External MSDS)

### Persistence and degradability

#### *Biodegradability*

> 90 %; 20 d

(IUCLID)

Easily eliminable.

#### *Biochemical Oxygen Demand (BOD)*

1,100 mg/g (5 d)

(Lit.)

#### *Chemical Oxygen Demand (COD)*

1,600 mg/g

(Lit.)

#### *Ratio BOD/ThBOD*

BOD1 99 %

(IUCLID)



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*Ratio COD/ThBOD*

> 70 %

OECD Test Guideline 302B

## **Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -0.46 ( 25 °C)

OECD Test Guideline 107

Bioaccumulation is not expected.

## **Mobility in soil**

No information available.

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## **SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## **SECTION 14. Transport information**

### **Land transport (DOT)**

Not classified as dangerous in the meaning of transport regulations.

### **Air transport (IATA)**

Not classified as dangerous in the meaning of transport regulations.

### **Sea transport (IMDG)**

Not classified as dangerous in the meaning of transport regulations.

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## **SECTION 15. Regulatory information**

### **United States of America**

#### **SARA 313**

The following components are subject to reporting levels established by SARA Title III, Section 313:

#### *Ingredients*

N-methyl-2-pyrrolidone

872-50-4

100 %

#### **SARA 302**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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## Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

## DEA List I

Not listed

## DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

N-methyl-2-pyrrolidone

### Pennsylvania Right To Know

#### *Ingredients*

N-methyl-2-pyrrolidone

### New Jersey Right To Know

#### *Ingredients*

N-methyl-2-pyrrolidone

### California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

#### *Ingredients*

N-methyl-2-pyrrolidone

## Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Labeling

#### *Hazard pictograms*



#### *Signal Word*

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## Danger

### *Hazard Statements*

H227 Combustible liquid.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H360 May damage fertility or the unborn child.

### *Precautionary Statements*

#### Prevention

P201 Obtain special instructions before use.

#### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

Restricted to professional users.

### **Full text of H-Statements referred to under sections 2 and 3.**

H227

Combustible liquid.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H335

May cause respiratory irritation.

H360

May damage fertility or the unborn child.

### **Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 09/24/2014

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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