

# Safety Data Sheet



## SECTION 1: Identification of the substance/mixture and the company/undertaking

Revision Date: 12/07/2015  
Print Date: 03/18/2019

### 1.1 Production identifiers

Product name : N METHYL E-PYRROLIDONE  
Brand : CJ Chemicals LLC  
CAS-No. : 872-50-4

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

Identified uses : Laboratory chemicals, synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : CJ Chemicals LLC  
3469 E Grand River Rd #112  
Howell, MI 48843  
United States

Telephone : +1 (888) 274-1044

### 1.4 Emergency Telephone

Emergency Phone # : 1-800-424-9300 CHEMTREC (USA)  
1-703-527-3887 CHEMTREC (international) 24 hours/day; 7 days/week

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Irrit. 2)	H319
3.7	reproductive toxicity	(Repr. 1B)	H360D
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	(STOT SE 3)	H335

# Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

## N-Methyl-2-pyrrolidone $\geq 99,8\%$ , for synthesis

article number: 4306

### 2.2 Label elements

#### Labelling according to Regulation (EC) No 1272/2008 (CLP)

##### Signal word

**Danger**

##### Pictograms

GHS07, GHS08



##### Hazard statements

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H360D	May damage the unborn child

##### Precautionary statements

###### Precautionary statements - prevention

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

###### Precautionary statements - 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.
P308+P313	IF exposed or concerned: Get medical advice/attention.

For professional users only

##### Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H360D	May damage the unborn child.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.

### 2.3 Other hazards

There is no additional information.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	N-Methyl-2-pyrrolidone
Index No	606-021-00-7
Registration number (REACH)	01-2119472430-46-xxxx
EC number	212-828-1
CAS number	872-50-4

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Molecular formula	C <sub>5</sub> H <sub>9</sub> NO
Molar mass	99,13 g/mol

### Substance of Very High Concern (SVHC)

Name of substance	CAS No	Wt%	Listed in	Remarks
N-Methyl-2-pyrrolidone	872-50-4	100	Candidate list	Repr. A57c

#### Legend

Candidate list Repr. A57c      Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV  
Toxic for reproduction (article 57c)

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

#### Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

#### Following ingestion

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

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

Cough, Diarrhoea, Irritation, Vomiting, Dyspnoea

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

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings  
water spray, foam, dry extinguishing powder, carbon dioxide (CO<sub>2</sub>)

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### Unsuitable extinguishing media

water jet

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

Combustible. Vapours are heavier than air, spread along floors and form explosive mixtures with air.

### Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>)

### 5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

## SECTION 6: Accidental release measures

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



#### For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water.

### 6.3 Methods and material for containment and cleaning up

#### Advices on how to contain a spill

Covering of drains.

#### Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

#### Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Provision of sufficient ventilation. Avoid: Aerosol or mist formation.

#### • Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

#### Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

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### Incompatible substances or mixtures

Observe hints for combined storage.

### Consideration of other advice

#### • Ventilation requirements

Use local and general ventilation.

#### • Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C.

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Source
EU	N-methyl-2-pyrrolidone	872-50-4		IOELV	10	40	20	80	2009/161/EU
GB	N-methyl-2-pyrrolidone	872-50-4		WEL	10	40	20	80	EH40/2005

#### Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

#### Relevant DNELs/DMELs/PNECs and other threshold levels

##### • human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	208 mg/kg	human, dermal	worker (industry)	acute - systemic effects
DNEL	80 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	14,4 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	40 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
DNEL	4,8 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

##### • environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	5 mg/l	water	intermittent release
PNEC	0,25 mg/l	freshwater	short-term (single instance)
PNEC	0,025 mg/l	marine water	short-term (single instance)
PNEC	10 mg/l	sewage treatment plant (STP)	short-term (single instance)

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Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	1,09 mg/kg	freshwater sediment	short-term (single instance)
PNEC	0,109 mg/kg	marine sediment	short-term (single instance)
PNEC	0,07 mg/kg	soil	short-term (single instance)

### 8.2 Exposure controls

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggles with side protection.

##### Skin protection



- **hand protection**

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- **type of material**

Butyl caoutchouc (butyl rubber)

- **material thickness**

0,7mm.

- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

##### Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. P2 (filters at least 94 % of airborne particles, colour code: White). Type: A (against organic gases and vapours with a boiling point of > 65 °C, colour code: Brown).

##### Environmental exposure controls

Keep away from drains, surface and ground water.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	liquid (fluid)
Colour	colourless
Odour	like: amine
Odour threshold	No data available

#### Other physical and chemical parameters

pH (value)	8,5 – 10 (water: 100 g/l, 20 °C)
Melting point/freezing point	-24,2 °C at 1.013 hPa
Initial boiling point and boiling range	204,3 °C at 1.016 hPa
Flash point	91 °C at 1.013 hPa
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)
<u>Explosive limits</u>	
• lower explosion limit (LEL)	1,3 vol%
• upper explosion limit (UEL)	9,5 vol%
Explosion limits of dust clouds	not relevant
Vapour pressure	0,32 hPa at 20 °C
Density	1,03 g/cm <sup>3</sup> at 25 °C
Vapour density	3,42 (air = 1)
Bulk density	Not applicable
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	1.000 g/l at 20 °C miscible in any proportion
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	-0,46 (25 °C) (ECHA)
Soil organic carbon/water (log KOC)	0,87 (ECHA)
Auto-ignition temperature	245 °C at 1.013 hPa - ECHA
Decomposition temperature	no data available
Viscosity	
• kinematic viscosity	1,613 mm <sup>2</sup> /s
• dynamic viscosity	1,661 mPa s at 25 °C
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

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## 9.2 Other information

Temperature class (EU, acc. to ATEX)

T3 (Maximum permissible surface temperature on the equipment: 200°C)

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

In case of warming: Vapours can form explosive mixtures with air.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

Violent reaction with: Strong oxidiser, Strong alkali, Strong acid

### 10.4 Conditions to avoid

Direct light irradiation. Keep away from heat.

### 10.5 Incompatible materials

different plastics

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Shall not be classified as acutely toxic.

Exposure route	Endpoint	Value	Species	Source
oral	LD50	4.150 mg/kg	rat	ECHA
inhalation: dust/mist	LC50	>5,1 mg/l/4h	rat	ECHA
dermal	LD50	>5.000 mg/kg	rat	ECHA

#### Skin corrosion/irritation

Causes skin irritation.

#### Serious eye damage/eye irritation

Causes serious eye irritation.

#### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

#### Summary of evaluation of the CMR properties

##### Reproductive toxicity:

May damage the unborn child

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

May cause respiratory irritation.

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

Shall not be classified as a specific target organ toxicant (repeated exposure).



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### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

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

#### • If swallowed

diarrhoea, vomiting, nausea

#### • If in eyes

Irritating to eyes

#### • If inhaled

cough, breathing difficulties, Irritation to respiratory tract

#### • If on skin

causes skin irritation

### Other information

None

## SECTION 12: Ecological information

### 12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

#### Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
LC50	$>500 \text{ mg/l}$	rainbow trout	ECHA	96 h
ErC50	$600,5 \text{ mg/l}$	algae	ECHA	72 h

#### Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	$>1.000 \text{ mg/l}$	daphnia magna	ECHA	24 h
NOEC	$12,5 \text{ mg/l}$	daphnia magna	ECHA	21 d

### 12.2 Process of degradability

The substance is readily biodegradable.

Theoretical Oxygen Demand with nitrification:  $2,502 \text{ mg/mg}$

Theoretical Oxygen Demand:  $1,937 \text{ mg/mg}$

Theoretical Carbon Dioxide:  $2,22 \text{ mg/mg}$

Process	Degradation rate	Time
biotic/abiotic	$>90\%$	20 d
oxygen depletion	73 %	28 d

### 12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW)

-0,46 (25 °C)

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### 12.4 Mobility in soil

Henry's law constant  $0 \text{ Pa m}^3/\text{mol}$  at  $20 \text{ }^\circ\text{C}$

The Organic Carbon normalised adsorption coefficient 0,87

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Sewage disposal-relevant information

Do not empty into drains.

### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

- |      |  |  |
|------|--|--|
| 14.1 | UN number  | (not subject to transport regulations)                                       |
| 14.2 | UN proper shipping name  | not relevant   |
| 14.3 | Transport hazard class(es)   | not relevant   |
|      | Class  | -  |
| 14.4 | Packing group  | not relevant not assigned to a packing group                                 |
| 14.5 | Environmental hazards  | NONE (non-environmentally hazardous acc. to the dangerous goods regulations) |
| 14.6 | Special precautions for user                                       | There is no additional information.  |
| 14.7 | Transport in bulk according to Annex II of MARPOL and the IBC Code | The cargo is not intended to be carried in bulk.                             |
| 14.8 | Information for each of the UN Model Regulations                   |  |

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- **Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)**

Not subject to ADR, RID and ADN.

- **International Maritime Dangerous Goods Code (IMDG)**

Not subject to IMDG.

- **International Civil Aviation Organization (ICAO-IATA/DGR)**

Not subject to ICAO-IATA.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

Not listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

Not listed.

- **Regulation 850/2004/EC on persistent organic pollutants (POP)**

Not listed.

- **Restrictions according to REACH, Annex XVII**

Name of substance	CAS No	Wt%	Type of registration	Conditions of restriction	No
N-Methyl-2-pyrrolidone	872-50-4	100	2018/0035/EC annex XVII	R71	71
N-Methyl-2-pyrrolidone		100	1907/2006/EC annex XVII	R3	3
N-Methyl-2-pyrrolidone		100	1907/2006/EC annex XVII	R28-30	30

#### Legend

R28-30

1. Shall not be placed on the market, or used,

- as substances,
- as constituents of other substances, or,
- in mixtures,

for supply to the general public when the individual concentration in the substance or mixture is equal to or greater than:

- either the relevant specific concentration limit specified in Part 3 of Annex VI to Regulation (EC) No 1272/2008, or,
- the relevant concentration specified in Directive 1999/45/EC where no specific concentration limit is set out in Part 3 of Annex VI to Regulation (EC) No 1272/2008.

Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of substances and mixtures, suppliers shall ensure before the placing on the market that the packaging of such substances and mixtures is marked visibly, legibly and indelibly as follows:

'Restricted to professional users'.

2. By way of derogation, paragraph 1 shall not apply to:

- (a) medicinal or veterinary products as defined by Directive 2001/82/EC and Directive 2001/83/EC;
- (b) cosmetic products as defined by Directive 76/768/EEC;
- (c) the following fuels and oil products:
  - motor fuels which are covered by Directive 98/70/EC,
  - mineral oil products intended for use as fuel in mobile or fixed combustion plants,
  - fuels sold in closed systems (e.g. liquid gas bottles);
- (d) artists' paints covered by Directive 1999/45/EC;
- (e) the substances listed in Appendix 11, column 1, for the applications or uses listed in Appendix 11, column 2.

Where a date is specified in column 2 of Appendix 11, the derogation shall apply until the said date.

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### Legend

- R3
1. Shall not be used in:
    - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
    - tricks and jokes,
    - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
  2. Articles not complying with paragraph 1 shall not be placed on the market.
  3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
    - can be used as fuel in decorative oil lamps for supply to the general public, and,
    - present an aspiration hazard and are labelled with R65 or H304,
  4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
  5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
    - (a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
    - (b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
    - (c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
  6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
  7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.
- R71
- Shall not be placed on the market, or used, as substance or in mixtures, where the substance or mixture is intended for the manufacturing or processing of non-ferrous metals.

### • Restrictions according to REACH, Title VIII

None.

### • List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

Substance of Very High Concern (SVHC)			
Name acc. to inventory	CAS No	Listed in	Remarks
1-methyl-2-pyrrolidone (NMP)	872-50-4	Candidate list	Repr. A57c

### Legend

Candidate list Substances meeting the criteria referred to in Article 57 and for eventual inclusion in Annex XIV  
Repr. A57c Toxic for reproduction (article 57c)

### • Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

### • Directive 75/324/EEC relating to aerosol dispensers

#### Filling batch

#### Deco-Paint Directive (2004/42/EC)

VOC content	100 % 1.030 g/l
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### Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	100 %
VOC content	1.030 g/l

### Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

### Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

### Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

### Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

### Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

not listed

### National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
JP	ISHA-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

#### Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory

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### Legend

NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2009/161/EU	Commission Directive establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	reproductive toxicity

# Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

## N-Methyl-2-pyrrolidone $\geq 99,8\%$ , for synthesis

article number: **4306**

Abbr.	Descriptions of used abbreviations
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	short-term exposure limit
SVHC	Substance of Very High Concern
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

### Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

### List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H315	causes skin irritation
H319	causes serious eye irritation
H335	may cause respiratory irritation
H360D	may damage the unborn child

### Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.