

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 16.02.2018

Version 1.3

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

### 1.1 Product identifier

Catalogue No.	102497
Product name	1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

REACH Registration Number 01-2119472430-46-XXXX

CAS-No. 872-50-4

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

Identified uses	Solvent
	For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).

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

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

1.4 Emergency telephone number	Please contact the regional company representation in your country.
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## SECTION 2. Hazards identification

### 2.1 Classification of the substance or mixture

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2, H315

Eye irritation, Category 2, H319

Reproductive toxicity, Category 1B, H360D

Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 Label elements

### Labelling (REGULATION (EC) No 1272/2008)

#### *Hazard pictograms*



#### *Signal word*

Danger

#### *Hazard statements*

H360D May damage the unborn child.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

#### *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.

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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Restricted to professional users.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H360D May damage the unborn child.

*Precautionary statements*

P201 Obtain special instructions before use.

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

Contains: N-methyl-2-pyrrolidone

*Index-No.* 606-021-00-7

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	C <sub>5</sub> H <sub>9</sub> NO (Hill)
Index-No.	606-021-00-7
EC-No.	212-828-1
Molar mass	99,13 g/mol

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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N-methyl-2-pyrrolidone (<= 100 % )		
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*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

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	Skin irritation, Category 2, H315
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	Eye irritation, Category 2, H319
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	Reproductive toxicity, Category 1B, H360D
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	Specific target organ toxicity - single exposure, Category 3, H335
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For the full text of the H-Statements mentioned in this Section, see Section 16.

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

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

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

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

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

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

No information available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

#### *Suitable extinguishing media*

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

#### *Unsuitable extinguishing media*

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

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

Combustible.

Forms explosive mixtures with air on intense heating.

Vapours are heavier than air and may spread along floors.

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

Fire may cause evolution of:

nitrogen oxides, nitrous gases

### 5.3 Advice for firefighters

#### *Special protective equipment for firefighters*

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*

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/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

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

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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Protective equipment see section 8.

## 6.2 Environmental precautions

Do not let product enter drains.

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

## 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Advice on safe handling*

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### *Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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

#### *Storage conditions*

Protected from light.

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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Recommended storage temperature see product label.

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Derived No Effect Level (DNEL)

Worker DNEL, longterm	Systemic effects	dermal	19,8 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	inhalation	40 mg/m <sup>3</sup>

#### Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,25 mg/l
PNEC Marine water	0,025 mg/l
PNEC Aquatic intermittent release	5 mg/l
PNEC Fresh water sediment	0,805 mg/kg
PNEC Marine sediment	0,0805 mg/kg
PNEC Soil	0,138 mg/kg
PNEC Sewage treatment plant	10 mg/l
PNEC oral	0,00167 mg/kg

### 8.2 Exposure controls

#### Engineering measures

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

See section 7.1.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

### *Eye/face protection*

Safety glasses

### *Hand protection*

full contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	> 480 min

splash contact:

Glove material:	natural latex
Glove thickness:	0,6 mm
Break through time:	> 60 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (full contact), KCL 706 Lapren® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

### *Other protective equipment*

Flame retardant antistatic protective clothing.

### *Respiratory protection*

required when vapours are generated.

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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devices are carried out according to the instructions of the producer. These measures have to be properly documented.

## Environmental exposure controls

Do not let product enter drains.

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	amine-like
Odour Threshold	No information available.
pH	8,5 - 10,0 at 100 g/l 20 °C
Melting point	-24 °C
Boiling point/boiling range	202 °C at 1.013 hPa
Flash point	91 °C at 1.013 hPa  Method: DIN 51758
Evaporation rate	No information available.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	102497
Product name	1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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Flammability (solid, gas)	No information available.
Lower explosion limit	1,3 %(V)
Upper explosion limit	9,5 %(V)
Vapour pressure	0,32 hPa at 20 °C Method: OECD Test Guideline 104
Relative vapour density	3,42
Density	1,03 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	1.000 g/l at 25 °C
Partition coefficient: n-octanol/water	log Pow: -0,46 (25 °C) OECD Test Guideline 107 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	1,80 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## 9.2 Other data

Ignition temperature 245 °C  
at 1.013 hPa  
Method: DIN 51794

Conductivity 0,2 - 0,4 µS/cm

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## SECTION 10. Stability and reactivity

### 10.1 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.

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Oxidizing agents

Violent reactions possible with:

Strong acids, Strong bases

### 10.4 Conditions to avoid

Exposure to air.

Exposure to sunlight.

Strong heating.

### 10.5 Incompatible materials

various plastics

### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### *Acute oral toxicity*

LD50 Rat: 4.150 mg/kg

OECD Test Guideline 401

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

#### *Acute inhalation toxicity*

LC50 Rat: > 5,1 mg/l; 4 h ; aerosol

OECD Test Guideline 403

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

#### *Acute dermal toxicity*

LD50 Rat: > 5.000 mg/kg

OECD Test Guideline 402

#### *Skin irritation*

Rabbit

Result: Irritations

OECD Test Guideline 404

Causes skin irritation.

#### *Eye irritation*

Rabbit

Result: Eye irritation

OECD Test Guideline 405

Causes serious eye irritation.

Damage to: Cornea

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## *Sensitisation*

Sensitisation test: Guinea pig

Result: negative

(IUCLID)

Patch test: human

Result: negative

(IUCLID)

## *Germ cell mutagenicity*

### *Genotoxicity in vivo*

In vivo micronucleus test

Mouse

male and female

Oral

Bone marrow

Result: negative

Method: OECD Test Guideline 474

Chromosome aberration test

male and female

Oral

Bone marrow

Result: negative

Method: OECD Test Guideline 475

## *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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In vitro mammalian cell gene mutation test

Result: negative

Method: OECD Test Guideline 476

unscheduled DNA synthesis assay

Result: negative

Method: OECD Test Guideline 482

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

Application Route: Oral

Rat

Method: OECD Test Guideline 416

## *Teratogenicity*

This information is not available.

## *CMR effects*

Teratogenicity:

May damage the unborn child.

## *Specific target organ toxicity - single exposure*

May cause respiratory irritation.

Target Organs: Respiratory system

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

## 11.2 Further information

After absorption:

pain, Diarrhoea

Handle in accordance with good industrial hygiene and safety practice.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## SECTION 12. Ecological information

### 12.1 Toxicity

#### *Toxicity to fish*

static test LC50 *Oncorhynchus mykiss* (rainbow trout): > 500 mg/l; 96 h

Analytical monitoring: yes

(ECHA)

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

static test EC50 *Daphnia magna* (Water flea): > 1.000 mg/l; 24 h

DIN 38412

#### *Toxicity to algae*

static test EC50 *Desmodesmus subspicatus* (green algae): > 500 mg/l; 72 h

DIN 38412

#### *Toxicity to bacteria*

static test EC50 activated sludge: > 600 mg/l; 0,5 h

ISO 8192

#### *Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

semi-static test NOEC *Daphnia magna* (Water flea): 12,5 mg/l; 21 d

Analytical monitoring: yes

OECD Test Guideline 211

### 12.2 Persistence and degradability

#### *Biodegradability*

73 %; 28 d; aerobic

OECD Test Guideline 301C

Readily biodegradable

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

1.100 mg/g (5 d)

(Lit.)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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*Chemical Oxygen Demand (COD)*

1.600 mg/g

(Lit.)

*Ratio BOD/ThBOD*

BOD1 99 %

(IUCLID)

*Ratio COD/ThBOD*

> 70 %

OECD Test Guideline 302B

## 12.3 Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: -0,46 (25 °C)

OECD Test Guideline 107

Bioaccumulation is not expected.

## 12.4 Mobility in soil

No information available.

## 12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## 12.6 Other adverse effects

Discharge into the environment must be avoided.



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### Sea transport (IMDG)

14.1 - 14.6 Not classified as dangerous in the meaning of transport regulations.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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## SECTION 15. Regulatory information

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

#### *EU regulations*

Major Accident Hazard	SEVESO III
Legislation	Not applicable

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 59 above the respective regulatory concentration limit of > 0.1 % (w/w).

Contains: N-methyl-2-pyrrolidone

## *National legislation*

Storage class 6.1C

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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## SECTION 16. Other information

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

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

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

#### *Hazard pictograms*



#### *Signal word*

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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 102497

Product name 1-Methyl-2-pyrrolidone for headspace gas chromatography SupraSolv®

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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.

Further information

Restricted to professional users.

Contains: N-methyl-2-pyrrolidone

## 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).

## Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*