

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 27.12.2023

Version number 5 (replaces version 4)

Revision: 12.07.2023

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

· **1.1 Product identifier**

· **Trade name:** N-methyl-2-pyrrolidone

· **Chemical Identification:**

1-methyl-2-pyrrolidone

1-methyl-2-pyrrolidinone

· **Article number:** 1356

· **CAS Number:**

872-50-4

· **EC number:**

212-828-1

· **Index number:**

606-021-00-7

· **Registration number** 01-2119472430-46-XXXX

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

· **Life cycle stages**

IS Use at industrial Sites

M Manufacture

F Formulation or re-packing

PW Widespread use by professional workers

· **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

SU24 Scientific research and development

· **Product category**

PC19 Intermediate

PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents

PC21 Laboratory chemicals

PC40 Extraction agents

· **Process category**

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC10 Roller application or brushing

PROC11 Non industrial spraying

PROC12 Use of blowing agents in manufacture of foam

PROC13 Treatment of articles by dipping and pouring

PROC14 Tableting, compression, extrusion, pelletisation, granulation

PROC15 Use as laboratory reagent

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- **Environmental release category**
- ERC1 *Manufacture of the substance*
- ERC2 *Formulation into mixture*
- ERC4 *Use of non-reactive processing aid at industrial site (no inclusion into or onto article)*
- ERC6a *Use of intermediate*
- ERC6b *Use of reactive processing aid at industrial site (no inclusion into or onto article)*
- ERC8a *Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)*

- **Application of the substance / the mixture**

*Chemical for research, development, manufacturing, laboratory chemical for analysis.*

- **1.3 Details of the supplier of the safety data sheet**

- **Manufacturer/Supplier:**

*Biosolve Chimie  
20 Rue Roger Husson, 57260 Dieuze, France  
Tel: +33 3 878 675 80/81/82/83/84/85  
Email: info@biosolvechimie.com*

*Biosolve B.V.  
Leenderweg 78, 5555 CE Valkenswaard, the Netherlands.  
Tel: +31-(0)40-2071300  
Fax: +31-(0)40-2048537  
Email: info@biosolve-chemicals.com*

- **Further information obtainable from:** *Product safety department.*

- **1.4 Emergency telephone number:**

*Contact list of appointed bodies for information relating to emergency health response, according to Art. 45(1) Reg. (EC) No 1272/2008.*

*See below section 16 or at <https://poisoncentres.echa.europa.eu/home>.*

*Help desk: <http://echa.europa.eu/web/guest/support/helpdesks/national-helpdesks/list-of-national-helpdesks>).*

*Data from: ECHA - EUROPEAN CHEMICALS AGENCY*

*For more information see section 16.*

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



*GHS08 health hazard*

*Repr. 1B H360D May damage the unborn child.*



*GHS07*

*Skin Irrit. 2 H315 Causes skin irritation.*

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Eye Irrit. 2 H319 Causes serious eye irritation.  
STOT SE 3 H335 May cause respiratory irritation.

**2.2 Label elements**

**Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

**Hazard pictograms**



GHS07 GHS08

**Signal word** Danger

**Hazard statements**

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

**Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
P304+P340 IF INHALED: Remove person to fresh air and keep 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.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Additional information:**

Restricted to professional users.

**2.3 Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.  
**vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

**3.1 Substances**

**CAS No. Description**

CAS: 872-50-4 N-methyl-2-pyrrolidone

**Identification number(s)**

**EC number:** 212-828-1

**Index number:** 606-021-00-7

**Specific concentration limits** STOT SE 3; H335: C ≥ 10 %

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· **SVHC**

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**SECTION 4: First aid measures**

- **4.1 Description of first aid measures**
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Rinse out mouth and then drink plenty of water.
- **4.2 Most important symptoms and effects, both acute and delayed**  
Breathing difficulty  
Coughing  
Diarrhoea  
irritant effects  
pain  
Vomiting
- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

**SECTION 5: Firefighting measures**

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture**  
Vapours are heavier than air and may spread along floors.  
In case of fire, the following can be released:  
Nitrogen oxides (NO<sub>x</sub>)
- **5.3 Advice for firefighters**
- **Protective equipment:**  
Wear self contained breathing apparatus for fire fighting if necessary.  
Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.
- **Additional information**  
Suppress gases/vapours/mists with a water spray jet. Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**SECTION 6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

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For personal protection see section 8.

**· 6.2 Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

**· 6.3 Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

**· 6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**SECTION 7: Handling and storage**

**· 7.1 Precautions for safe handling**

Store in cool, dry place in tightly closed receptacles.

Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

**· Information about fire - and explosion protection:**

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

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

**· Storage:**

**· Requirements to be met by storerooms and receptacles:** Protected from light.

**· Information about storage in one common storage facility:** Not required.

**· Further information about storage conditions:** Keep container tightly sealed.

**· 7.3 Specific end use(s)** No further relevant information available.

**SECTION 8: Exposure controls/personal protection**

**· 8.1 Control parameters**

**· Ingredients with limit values that require monitoring at the workplace:**

EU ELV Skin designation: Can be absorbed through the skin.

**CAS: 872-50-4 N-methyl-2-pyrrolidone**

BOELV Short-term value: 80 mg/m<sup>3</sup>, 20 ppm

Long-term value: 40 mg/m<sup>3</sup>, 10 ppm

Skin

IOELV Short-term value: 80 mg/m<sup>3</sup>, 20 ppm

Long-term value: 40 mg/m<sup>3</sup>, 10 ppm

Skin

**· DNELs**

872-50-4

Worker DNEL, longterm Systemic effects dermal 19.8 mg/kg Body weight

Worker DNEL, longterm Systemic effects inhalation 40 mg/m<sup>3</sup>

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· **PNECs**

872-50-4

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

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

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

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

Filter A/P2

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Hand protection**

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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· **Penetration time of glove material**

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 exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye/face protection**



Tightly sealed goggles

**SECTION 9: Physical and chemical properties**

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Physical state**

Fluid

· **Colour:**

Not determined.

· **Odour:**

Amine-like

· **Odour threshold:**

No data available.

· **Melting point/freezing point:**

-24 °C

· **Boiling point or initial boiling point and boiling range**

202 °C

· **Flammability**

Not applicable.

· **Lower and upper explosion limit**

· **Lower:**

1.3 Vol %

· **Upper:**

9.5 Vol %

· **Flash point:**

93 °C

· **Auto-ignition temperature:**

270 °C

· **Decomposition temperature:**

No data available

· **pH**

~9.5

· **Viscosity:**

· **Dynamic at 20 °C:**

1.65 mPas

· **Solubility**

· **water:**

Fully miscible.

· **Partition coefficient n-octanol/water (log value)**

-0.46

· **Vapour pressure at 20 °C:**

0.3 hPa

· **Density and/or relative density**

· **Density at 20 °C:**

1.03 g/cm<sup>3</sup>

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· <b>Relative density</b>	No data available
· <b>Vapour density</b>	No data available
· <b>9.2 Other information</b>	
· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Important information on protection of health and environment, and on safety.</b>	
· <b>Ignition temperature:</b>	No data available
· <b>Explosive properties:</b>	Product does not present an explosion hazard.
· <b>Molecular weight</b>	99.13 g/mol
· <b>Change in condition</b>	
· <b>Evaporation rate</b>	No data available
· <b>Information with regard to physical hazard classes</b>	
· <b>Explosives</b>	Void
· <b>Flammable gases</b>	Void
· <b>Aerosols</b>	Void
· <b>Oxidising gases</b>	Void
· <b>Gases under pressure</b>	Void
· <b>Flammable liquids</b>	Void
· <b>Flammable solids</b>	Void
· <b>Self-reactive substances and mixtures</b>	Void
· <b>Pyrophoric liquids</b>	Void
· <b>Pyrophoric solids</b>	Void
· <b>Self-heating substances and mixtures</b>	Void
· <b>Substances and mixtures, which emit flammable gases in contact with water</b>	Void
· <b>Oxidising liquids</b>	Void
· <b>Oxidising solids</b>	Void
· <b>Organic peroxides</b>	Void
· <b>Corrosive to metals</b>	Void
· <b>Desensitised explosives</b>	Void
· <b>Molecular Weight</b>	99.13 g/mol
· <b>Molecular Formula</b>	C <sub>4</sub> H <sub>7</sub> NO

**SECTION 10: Stability and reactivity**

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.

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· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

**SECTION 11: Toxicological information**

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**

Oral	LD50	3,914 mg/kg (rat)
Dermal	LD50	8,000 mg/kg (rabbit)

- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** May damage the unborn child.
- **STOT-single exposure** May cause respiratory irritation.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

**SECTION 12: Ecological information**

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
- The product does not contain substances with endocrine disrupting properties.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**
- Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

HP4	Irritant - skin irritation and eye damage
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP10	Toxic for reproduction

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

**SECTION 14: Transport information**

- |   |                 |
|---|-----------------|
| · <b>14.1 UN number or ID number</b><br>· <b>ADR, ADN, IMDG, IATA</b>                       | Void            |
| · <b>14.2 UN proper shipping name</b><br>· <b>ADR, ADN, IMDG, IATA</b>                      | Void            |
| · <b>14.3 Transport hazard class(es)</b><br>· <b>ADR, ADN, IMDG, IATA</b><br>· <b>Class</b> | Void            |
| · <b>14.4 Packing group</b><br>· <b>ADR, IMDG, IATA</b>                                     | Void            |
| · <b>14.5 Environmental hazards:</b><br>· <b>Marine pollutant:</b>                          | No              |
| · <b>14.6 Special precautions for user</b>  | Not applicable. |
| · <b>14.7 Maritime transport in bulk according to IMO instruments</b>                       | Not applicable. |

**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 30, 71, 72
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**  
Substance is not listed.

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- **REGULATION (EU) 2019/1148**
  - **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**  
Substance is not listed.
  - **Annex II - REPORTABLE EXPLOSIVES PRECURSORS** Substance is not listed.
  - **Regulation (EC) No 273/2004 on drug precursors** Substance is not listed.
  - **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**  
Substance is not listed.
  - **National regulations:**
  - **Other regulations, limitations and prohibitive regulations**
  - **Substances of very high concern (SVHC) according to REACH, Article 57**
- |               |                        |
|---------------|------------------------|
| CAS: 872-50-4 | N-methyl-2-pyrrolidone |
|---------------|------------------------|
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

**SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing SDS:** Product safety department
- **Contact:**  
 Austria German Vergiftungsinformationszentrale 01 406 43 43 <http://www.goeg.at/de/VIZ>  
 Belgium French Centre antipoison 070 245 245 <http://www.centreantipoisons.be>  
     Dutch Antigif centrum 070 245 245 <http://www.antigifcentrum.be>  
     German Giftinformationszentrum 070 245 245 <http://www.poisoncentre.be>  
 Bulgaria\* Bulgarian Токсикологични центрове 02 9154 411 <https://pirogov.eu/bg>  
 Croatia\* Croatian Centar za kontrolu otrovanja +385 1 2348 342 <https://www.imi.hr/en/jedinica/poison-control-centre>  
 Czech Rep Czech Toxikologické informační středisko +420 224 91 92 93; +420 224 91 54 02 <http://www.tis-cz.cz>  
 Denmark Danish Giftlinien +45 8212 1212 <https://www.bispebjerghospital.dk/giftlinien>  
 Estonia Estonian Mürgistusteabekeskus 16662; +372 7943 794 <https://www.16662.ee>  
 Finland Finnish Myrkytystietokeskus 0800 147 111; +358 9 471 977 <http://www.hus.fi/sairaanhoito/sairaanhoitopalvelut/myrkytystietokeskus/Sivut/default.aspx>  
 France French Angers +33 2 41 48 21 21 <http://www.centres-antipoison.net/angers/index.html>  
     Bordeaux +33 5 56 96 40 80 <http://www.centres-antipoison.net/bordeaux/index.html>  
     Lille +33 0800 59 59 59 <http://www.centres-antipoison.net/lille/index.html>  
     Lyon +33 4 72 11 69 11 <http://www.centres-antipoison.net/lyon/index.html>  
     Marseille +33 4 91 75 25 25 <http://www.centres-antipoison.net/marseille/index.html>  
     Nancy +33 3 83 22 50 50 <http://www.centres-antipoison.net/nancy/index.html>  
     Paris +33 1 40 05 48 48 <http://www.centres-antipoison.net/paris/index.html>  
     Strasbourg +33 3 88 37 37 37 <http://www.centres-antipoison.net/strasbourg/index.html>  
     Toulouse +33 5 61 77 74 47 <http://www.centres-antipoison.net/toulouse/index.html>  
 Germany German Berlin +49 30 19240 <https://giftnotruf.charite.de>  
     Bonn +49 228 19240 <http://www.gizbonn.de/index.php?id=272>  
     Erfurt +49 361 730730 <https://www.ggiz-erfurt.de/home.html>

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Freiburg +49 761 19240 <https://www.uniklinik-freiburg.de/giftberatung.html>  
 Göttingen +49 551 19240 <https://www.giz-nord.de/cms/index.php>  
 Homburg/Saar +49 6841 19240 [http://www.uniklinikumsaarland.de/de/einrichtungen/kliniken\\_institute/kinder\\_und\\_jugendmedizin/informations\\_und\\_behandlungszentrum\\_fuer\\_vergiftungen\\_des\\_saarlandes](http://www.uniklinikumsaarland.de/de/einrichtungen/kliniken_institute/kinder_und_jugendmedizin/informations_und_behandlungszentrum_fuer_vergiftungen_des_saarlandes)  
 Mainz +49 6131 19240 <http://www.giftinfo.uni-mainz.de/index.php?id=24807>  
 München +49 89 19240 <http://www.toxinfo.med.tum.de>  
 Greece Greek κέντρο δηλητηριάσεων +30 213 200 9000 <http://www.aglaiakyriakou.gr/>; <http://0317.syzefxis.gov.gr>  
 Hungary Hungarian Egészségügyi Toxikológiai Tájékoztató Szolgálat +36 6 80 20 11 99; +36 06 1 476 6464 <http://www.okbi.hu/page.php?trid=1&dz=103>  
 Italy Italian Bergamo +39 800 88 33 00 [http://www.asst-pg23.it/section/259/Tossicologia\\_-\\_Centro\\_antiveleni](http://www.asst-pg23.it/section/259/Tossicologia_-_Centro_antiveleni)  
 Firenze +39 55 794 78 19 <http://www.antiveleni.altervista.org>  
 Milano +39 2 661 01 029 <http://www.centroantiveleni.org>  
 Pavia +39 382 244 44 <http://www-3.unipv.it/reumatologia-tossicologia/cav>  
 Napoli +39 81 747 28 70  
 Foggia +39 881 732 326  
 Roma +39 6 685 93 726 / +39 6 499 78 000 / +39 6 305 43 43 <http://www.corso-primo-soccorso-roma.it/centri/antiveleno-lazio.html>  
 Ireland English Poisons information Centre of Ireland +353 1 809 21 66 <http://www.poisons.ie/Public>  
 Latvia\* Latvian Saindēšanās informācijas centri +371 670 00 610 <https://www.aslimnica.lv/lv>  
 Russian Латвия +371 67000610 <https://www.aslimnica.lv/lv>  
 Lithuania Lithuanian Apsinuodijimų informacijos biuras + 370 5 236 20 52 <http://www.apsinuodijau.lt>  
 Luxembourg German Giftinformationszentrum +49 800 255 00 <http://www.poissoncentre.be>  
 French Centre antipoison +352 800 255 00 <http://www.centreatipoisons.be>  
 Netherlands Dutch 31 (0)88 755 8 <https://www.productnotificatie.nl>  
 Norway Norwegian Giftinformasjonen +47 22 59 13 00 <https://helsenorge.no/Giftinformasjon>  
 Poland Polish Kraków +48 12 411 99 99 <http://www.oit.cm.uj.edu.pl>  
 Gdansk +48 58 682 04 04 <http://www.pctox.pl/news.php>  
 Poznań +48 61 847 69 46 [http://www.raszeja.poznan.pl/oddzialy/oddzial\\_toksikologiczny](http://www.raszeja.poznan.pl/oddzialy/oddzial_toksikologiczny)  
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 Portugal Portuguese Centro de Informação Antivenenos +351 808 250 143 <http://www.inem.pt>  
 Romania Romanian CNMRMC +40 213 183 606 [infotox@insp.gov.ro](mailto:infotox@insp.gov.ro)  
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<http://rospotrebnadzor.ru>  
 Serbia Serbian Nacionalni centar za kontrolu trovanja +381 11 3608 440 <http://www.vma.mod.gov.rs/sr-lat/specijalnosti/centri/nacionalni-centar-za-kontrolu-trovanja>  
 Slovak Rep Slovak Národné toxikologické informačné centrum +421 2 5477 4166 <http://www.ntic.sk>  
 Spain Spanish Servicio de Información Toxicológica +34 91 562 04 20 [https://www.administraciondejusticia.gob.es/paj/pub/lico/ciudadano/informacion\\_institucional/organismos/instituto\\_nacional\\_de\\_toxicologia\\_y\\_ciencias\\_fo/renses/servicios/info\\_toxicologica/que\\_es\\_sit/ut/p/c5/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3g\\_A1cjCyd/DRwMDUwNLA08nwzAvM0czA\\_8gM6B8pFm8mae/rqWdQsImJcaiLiYGncViYa4CHR4GBiQExugIwAEd/CusNBrsWpwsLUACKPy3WuRvjlg83wy5sQ0G8C/tR-](https://www.administraciondejusticia.gob.es/paj/pub/lico/ciudadano/informacion_institucional/organismos/instituto_nacional_de_toxicologia_y_ciencias_fo/renses/servicios/info_toxicologica/que_es_sit/ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3g_A1cjCyd/DRwMDUwNLA08nwzAvM0czA_8gM6B8pFm8mae/rqWdQsImJcaiLiYGncViYa4CHR4GBiQExugIwAEd/CusNBrsWpwsLUACKPy3WuRvjlg83wy5sQ0G8C/tR-)

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**Safety data sheet**  
**according to 1907/2006/EC, Article 31**

Printing date 27.12.2023

Version number 5 (replaces version 4)

Revision: 12.07.2023

**Trade name: N-methyl-2-pyrrolidone**

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 L2dJQSEvUU3QS9ZQnZ3LzZfTjBFMjhCMUEwMDUwOT□BJQjFWSjZBNjBPTjA!/?itemId=45381

Sweden Swedish Giftinformationscentralen +46 10 456 6700 <https://giftinformation.se>

Switzerland German Giftinformationszentrum 145 <http://toxinfo.ch>

French Centre antipoison 145 <http://toxinfo.ch>

Italian Centro Antiveleeni 145 <http://toxinfo.ch>

United Kingdom English NHS Helpline 111 NHS Helpline - England and Wales: <http://www.nhs.uk/NHSEngland/AboutNHSservices/Emergencyandurgentcareservices/Pages/NHS-111.aspx>

· **Date of previous version:** 19.10.2022

· **Version number of previous version:** 4

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Repr. 1B: Reproductive toxicity – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· **\* Data compared to the previous version altered.**

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**Annex: Exposure scenario**

· **Short title of the exposure scenario**

· **Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

SU24 Scientific research and development

· **Product category**

PC19 Intermediate

PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents

PC21 Laboratory chemicals

PC40 Extraction agents

· **Process category**

PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions.

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition

PROC4 Chemical production where opportunity for exposure arises

PROC5 Mixing or blending in batch processes

PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)

PROC10 Roller application or brushing

PROC11 Non industrial spraying

PROC12 Use of blowing agents in manufacture of foam

PROC13 Treatment of articles by dipping and pouring

PROC14 Tableting, compression, extrusion, pelletisation, granulation

PROC15 Use as laboratory reagent

· **Environmental release category**

ERC1 Manufacture of the substance

ERC2 Formulation into mixture

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

ERC6a Use of intermediate

ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)

ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)

· **Notes**

Do not use for private / domestic purposes (household).

The product is intended for professional use.

· **Description of the activities / processes covered in the Exposure Scenario**

872-50-4

1. Manufacturing and on-site use

Main User Groups : SU 3

Sectors of end-use : SU 3, SU9

Chemical product category : PC19, PC40

Process categories : PROC1, PROC2, PROC3, PROC4, PROC8b, PROC9,

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PROC12, PROC13, PROC15  
Environmental Release Categories : ERC1, ERC4, ERC6a

**2. Formulation of preparations**

Main User Groups : SU 3

Sectors of end-use : SU 10

Process categories : PROC1, PROC2, PROC3, PROC4, PROC5, PROC8b, PROC9, PROC15

Environmental Release Categories : ERC2

**3. Industrial use of processing aids in processes and products, not becoming part of articles**

Main User Groups : SU 3

Sectors of end-use : SU 3, SU9

Chemical product category : PC20, PC21, PC40

Process categories : PROC3, PROC4, PROC8b, PROC9, PROC10, PROC12, PROC13, PROC14, PROC15

Environmental Release Categories : ERC4, ERC6b, ERC1

**4. Used as laboratory reagent**

Main User Groups : SU 22

Sectors of end-use : SU 3, SU 22, SU24

Chemical product category : PC21, PC40

Process categories : PROC10, PROC15

Environmental Release Categories : ERC4, ERC8a

**5. Manufacturing and on-site use**

Main User Groups : SU 22

Sectors of end-use : SU 3, SU 22, SU24

Chemical product category : PC20, PC21, PC40

Process categories : PROC11

Environmental Release Categories : ERC8a

· **Conditions of use**

· **Duration and frequency** 5 workdays/week.

· **Worker**

Application duration : > 4 h

Frequency of use : 220 days/year

· **Environment** Indoor use

· **Physical parameters** See section 9 to the Safety Data Sheet.

· **Physical state** Fluid

· **Concentration of the substance in the mixture**

Raw material.

Covers the percentage of the substance in the product up to 100 %.

· **Used amount per time or activity**

According to directions for use.

Covers the percentage of the substance in the product up to 100 %

· **Other operational conditions** Observe the general safety regulations when handling chemicals.

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- **Other operational conditions affecting environmental exposure**  
Observe section 6 of the Safety Data Sheet (Accidental release measures).
- **Other operational conditions affecting worker exposure**  
Avoid contact with eyes.  
Avoid contact with the skin.  
Take precautionary measures against static discharge.  
Keep away from sources of ignition - No smoking.  
Do not breathe gas/vapour/aerosol.  
Always wear safety goggles during mechanical processing (grinding, sawing /cutting, drilling, milling).
- **Risk management measures**
- **Worker protection** Observe section 7.1 and 8.1-8.2 of the Safety Data Sheet
- **Organisational protective measures**  
Deploy only trained chemical workers.  
Provide Internal Plant Instruction.  
Handling procedures must be well documented.  
Ensure that activities are executed by specialists or authorised personnel only.  
Consider section 4 of the Safety Data Sheet (First aid measures).  
Provide emergency eye wash station and mark its location clearly.
- **Technical protective measures**  
Ensure that suitable extractors are available on processing machines  
Provide explosion-proof electrical equipment.
- **Personal protective measures**  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the skin.  
Avoid contact with the eyes.  
Pregnant women should strictly avoid inhalation or skin contact.  
Tightly sealed goggles  
Filter A/P2  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Protective gloves  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation  
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.  
Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.  
For personal protection see section 8.
- **Measures for consumer protection** Ensure adequate labelling.
- **Environmental protection measures**
- **Water** Do not allow to reach ground water, water bodies or sewage system.
- **Soil** Prevent contamination of soil.
- **Notes** In case of unintended release of the product: See section 6 of the Safety Data Sheet.
- **Disposal measures**  
Disposal must be made according to official regulations.

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Ensure that waste is collected and contained.

· **Disposal procedures**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Waste type** Partially emptied and uncleaned packaging

· **Exposure estimation**

· **Worker (dermal)**

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

872-50-4 With local exhaust ventilation

PROC1 0.034 mg/kg BW/d  
 PROC2 1.371 mg/kg BW/d  
 PROC3 0.686 mg/kg BW/d  
 PROC4 6.857 mg/kg BW/d  
 PROC5 13.714 mg/kg BW/d  
 PROC8b 13.714 mg/kg BW/d  
 PROC9 6.857 mg/kg BW/d  
 PROC10 5.486 mg/kg BW/d  
 PROC11 10.714 mg/kg BW/d  
 PROC12 0.343 mg/kg BW/d  
 PROC13 2.743 mg/kg BW/d  
 PROC14 3.429 mg/kg BW/d  
 PROC15 0.343 mg/kg BW/d

The calculated value is smaller than the DNEL.

Risk Characterization ratio <1

· **Worker (inhalation)**

Detailed information on the exposure estimation can be found at <http://www.ecetoc.org/tra>.

872-50-4 With local exhaust ventilation

PROC1 0.041 mg/m<sup>3</sup>  
 PROC2 0.413 mg/m<sup>3</sup>  
 PROC3 1.239 mg/m<sup>3</sup>  
 PROC4 8.261 mg/m<sup>3</sup>  
 PROC5 8.261 mg/m<sup>3</sup>  
 PROC8b 1.033 mg/m<sup>3</sup>  
 PROC9 2.065 mg/m<sup>3</sup>  
 PROC10 20.652 mg/m<sup>3</sup>  
 PROC11 16.522 mg/m<sup>3</sup>  
 PROC12 8.261 mg/m<sup>3</sup>  
 PROC13 8.261 mg/m<sup>3</sup>  
 PROC14 8.261 mg/m<sup>3</sup>  
 PROC15 4.13 mg/m<sup>3</sup>

The calculated value is smaller than the DNEL.

Risk Characterization ratio <1

· **Environment**

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterization is not necessary (REACH Annex I section 5.0).

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· ***Consumer*** Not relevant for this Exposure Scenario.

· ***Guidance for downstream users***

*Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).*

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