Safety data sheet
according to Regulation (EC) No 1907/2006, Article 31

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

· **1.1 Product identifier**
· **Creation date** 07.06.2011

· **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 Tabletting, 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.
Kerkhofstraat 21, 5554HG 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 at https://poisoncentres.echa.europa.eu/appointed-bodies
Help desk: http://echa.europa.eu/web/guest/support/helpdesks/national-helpdesks/list-of-national-helpdesks.
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.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

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· **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.
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 %

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

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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:**
CO2, 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 (NOx)
· **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.
For personal protection see section 8.
· **6.2 Environmental precautions:**
Dilute with plenty of water.

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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/m³, 20 ppm Long-term value: 40 mg/m³, 10 ppm Skin
IOELV	Short-term value: 80 mg/m³, 20 ppm Long-term value: 40 mg/m³, 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/m³
· **PNECs**
872-50-4
PNEC Fresh water 0.25 mg/l

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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.
· ***Penetration time of glove material***
full contact:
Glove material: butyl-rubber
Glove thickness: 0.7 mm
Break through time: > 480 min

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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***	*Liquid*
· ***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/cm³*
· ***Relative density***	*No data available*
· ***Vapour density***	*No data available*

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· **9.2 Other information**	
· **Appearance:**	
· **Form:**	Fluid
· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	No data available
· **Explosive properties:**	Product does not present an explosion hazard.
· **Molecular weight**	99.13 g/mol
· **Change in condition**	
· **Evaporation rate**	No data available

· **Information with regard to physical hazard classes**	
· **Explosives**	Void
· **Flammable gases**	Void
· **Aerosols**	Void
· **Oxidising gases**	Void
· **Gases under pressure**	Void
· **Flammable liquids**	Void
· **Flammable solids**	Void
· **Self-reactive substances and mixtures**	Void
· **Pyrophoric liquids**	Void
· **Pyrophoric solids**	Void
· **Self-heating substances and mixtures**	Void
· **Substances and mixtures, which emit flammable gases in contact with water**	Void
· **Oxidising liquids**	Void
· **Oxidising solids**	Void
· **Organic peroxides**	Void
· **Corrosive to metals**	Void
· **Desensitised explosives**	Void
· **Molecular Weight**	99.13 g/mol
· **Molecular Formula**	C_5H_9NO

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

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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)

· **Primary irritant effect:**
· **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.

*
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.

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· **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

· **14.1 UN number or ID number** · **ADR, ADN, IMDG, IATA**	Void
· **14.2 UN proper shipping name** · **ADR, ADN, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)** · **ADR, ADN, IMDG, IATA** · **Class**	Void
· **14.4 Packing group** · **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:** · **Marine pollutant:**	No
· **14.6 Special precautions for user**	Not applicable.
· **14.7 Maritime transport in bulk according to IMO instruments**	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, 75
· ***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.
· ***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.

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· ***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 Vergiftungsinformationszentrale (VIZ) (+43) 1 406 43 43

Belgium Centre Antipoisons (+32) 070 245 245
Antigifcentrum 070 245 245 (+32)

Bulgaria Национален токсикологичен информационен център
Многопрофилна болница за активно лечение и спешна медицина "Н.И.Пирогов" (+359) 2 9154 233

Croatia Centar za kontrolu otrovanja (+385) 01 2348 342

Cyprus Υπουργείο Εργασίας, Πρόνοιας και Κοινωνικών Ασφαλίσεων
Τμήμα Επιθεώρησης Εργασίας 1401

Czech Republic Toxikologické informační středisko (+420) 224 919 293, +(420) 224 915 402

Denmark Giftlinjen: +45 8212 1212

Estonia Terviseameti mürgistusteabekeskuse 16662, (+372) 7943 794

Finland Myrkytystietokeskus 0800 147 111, 09 471 977

France ORFILA (INRS) : + 33 (0)1 45 42 59 59
Centres Antipoison et de Toxicovigilance
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BORDEAUX: 05 56 96 40 80
LILLE: 0800 59 59 59
LYON: 04 72 11 69 11
MARSEILLE: 04 91 75 25 25
NANCY: 03 83 22 50 50
PARIS: 01 40 05 48 48

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STRASBOURG: 03 88 37 37 37
TOULOUSE: 05 61 77 74 47

Germany Giftnotruf der Charité, Berlin: 030/19240
Giftinformationszentrum-Nord der Länder Bremen, Hamburg, Niedersachsen und Schleswig-Holstein (GIZ-Nord) :0551/19 240
Informationszentrale gegen Vergiftungen Zentrum für Kinderheilkunde Universitätsklinikum Bonn: 0228/19240
Giftnotruf Erfurt Gemeinsames Giftinformationszentrum der Länder Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt und Thüringen: 0361/730 730
Informations- und Beratungszentrum für Vergiftungsfälle Klinik für Kinder- und Jugendmedizin Universitätsklinikum des Saarlandes: 06841/19240
Giftinformationszentrum der Länder Rheinland-Pfalz und Hessen - Klinische Toxikologie - Universitätsmedizin der Johannes Gutenberg-Universität Mainz: 06131/19240
Vergiftungs-Informations-Zentrale Zentrum für Kinder- und Jugendmedizin Universitätsklinikum: 0761/19240
Giftnotruf München Toxikologische Abteilung der II. Med. Klinik und Poliklinik: 089/19240

Great Britain Members of the public seeking specific information on poisons should contact: In England and Wales: NHS 111 - dial 111 In Scotland: NHS 24 - dial 111

Greece Κέντρο Δηλητηριάσεων (+30) 2107793777

Hungary Országos Kémiai Biztonsági Intézet (OKBI) +(36)-80-201-199

Iceland LANDSPITALI - THE NATIONAL UNIVERSITY HOSPITAL Tel. (+354) 543 1000

Ireland National Poisons Information Centre: +353 (1) 809 2166 (8.00 a.m. to 10.00 p.m. 7 days a week)
Healthcare Professionals: +353 (1) 809 2566 (24 hour service)

Italy Istituto Superiore di Sanità (ISS) +390649906140
CAV "Ospedale Pediatrico Bambino Gesù" – Roma Tel. (+39) 06.6859.3726
CAV "Azienda Ospedaliera Università di Foggia" – Foggia Tel. 800.183.459
CAV "Azienda Ospedaliera A. Cardarelli" – Napoli Tel. (+39) 081.545.3333
CAV Policlinico "Umberto I" – Roma Tel. (+39) 06.4997.8000
CAV Policlinico "A. Gemelli" – Roma Tel. (+39) 06.305.4343
CAV Azienda Ospedaliera "Careggi" U.O. Tossicologia Medica – Firenze Tel. (+39) 055.794.7819
CAV Centro Nazionale di Informazione Tossicologica – Pavia Tel. (+39) 0382.24.444
CAV Ospedale Niguarda – Milano Tel. (+39) 02.66.1010.29
CAV Azienda Ospedaliera Papa Giovanni XXIII – Bergamo Tel. 800.88.33.00
CAV Centro antiveleni Veneto – Verona Tel. 800.011.858

Latvia Latvijas Vides, ģeoloģijas un meteoroloģijas centrs (+371) 67032600

Lithuania Apsinuodijimų informacijos biuras +370 (5) 2362052

Luxembourg Antigifcentrum / Centre antipoisons (+352) 8002 5500

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The Netherlands Nationaal Vergiftigingen Informatie +31 (0)88 755 8000

Norway Giftinformasjonen 22 59 13 00

Poland Biuro do spraw Substancji Chemicznych +48 42 2538 400

Portugal Centro de informação antivenenos 800 250 250

Romania Institutul Naţional de Sănătate Publică +40213183606

Slovakia Národné toxikologické informačné centrum (NTIC) (+421) 2 5477 4166

Slovenia Urad Republike Slovenije za kemikalije +38614006051

Spain Instituto Nacional de Toxicología y Ciencias Forenses (INTCF) (+34) 91 562 04 20

Sweden Giftinformationscentralen (+46) 10 456 6700

Switzerland Tox Info Suisse 24-h-Notfallnummer: 145 (aus dem Ausland: +41 44 251 51 51) Auskunft: +41 44 251 66 66

· ***Date of previous version:*** *04.11.2025*
· ***Version number of previous version:*** *5*
· ***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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Trade name: N-methyl-2-pyrrolidone

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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 Tabletting, 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).
Indoor application.
· ***Other operational conditions affecting consumer exposure*** *No special measures required.*
· ***Other operational conditions affecting consumer exposure during the use of the product*** *Not applicable.*
· ***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.*

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· **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.
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/m³
PROC2 0.413 mg/m³
PROC3 1.239 mg/m³
PROC4 8.261 mg/m³
PROC5 8.261 mg/m³
PROC8b 1.033 mg/m³
PROC9 2.065 mg/m³
PROC10 20.652 mg/m³
PROC11 16.522 mg/m³
PROC12 8.261 mg/m³
PROC13 8.261 mg/m³
PROC14 8.261 mg/m³
PROC15 4.13 mg/m³
The calculated value is smaller than the DNEL.
Risk Characterization ratio <1

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· ***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).
· ***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).