

SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Version no. : 2.1
Prepared on : 12.08.2025
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SECTION 1: Identification of the substance/mixture and of the company/undertaking.

1.1 Product identifiers

Product name 1-Methyl-2-pyrrolidinone
Product Number PSR41230 / PSR36270 / PSR9571 / PSR36803
Brand PureSynth research chemicals
CAS No. 872-50-4

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

Identified uses : Solvent for analytical purpose

1.3 Details of the supplier of the safety data sheet

Company PureSynth Research Chemicals GmbH
64683 Einhausen Marie-Curie-StraBe. 3, Germany

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-8908-260

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Skin irritation, (Category 2) H315: Causes skin irritation.
Eye irritation, (Category 2) H319: Causes serious eye irritation.
Reproductive toxicity, (Category 1B) H360D: May damage the unborn child
Specific target organ toxicity - H335: May cause respiratory irritation
single exposure, (Category 3),Respiratory system

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word Danger

Hazard statement(s)

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

Precautionary statement(s)

P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing mist or vapors
P264	Wash skin thoroughly after handling.

Response

P302 + P352	IF ON SKIN: Wash with plenty of 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.
Supplemental Hazard Statements	none

2.3 Other hazards:

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	Mol. formula	CAS number
N-Methyl-2-pyrrolidone 1-Methyl-2-pyrrolidone NMP	C ₅ H ₉ NO	872-50-4
Component	Classification	Concentration
N-methyl-2-pyrrolidone	specific concentration limit STOT SE 3; H335 >= 10 %	>= 90 - <= 100

SECTION 4: First aid measures

Description of first aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Fire fighting measures

Extinguishing media	Water Foam Carbon dioxide (CO ₂) Dry powder
Unsuitable extinguishing media	For this substance/mixture no limitations of extinguishing agents are given.
Special hazards arising from the substance or mixture	Carbon oxides Nitrogen oxides (NO _x) Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire
Advice for fire-fighters	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
Further information	Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains.
Methods and materials for containment and cleaning up	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.
Conditions for safe storage, including any incompatibilities	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.
Specific end use(s)	Storage class (TRGS 510) : 6.1C, Combustible, acute toxic Cat.3 / toxic Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters	Ingredients with workplace control parameters
Exposure controls	
Appropriate engineering controls	No data available
Personal protective equipment:	
Eye / face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Skin protection	protective clothing
Body Protection	protective clothing
Respiratory protection	required when vapours are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter A-(P2) The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
Control of environmental exposure	Do not let product enter drains.

SECTION 9: Physical and chemical properties

Appearance	Form: liquid Colour: Colourless
Odour	amine-like
pH - Value	8.5 – 10.0 at 100 g/l at 20 °C
Density	1.03 g/cm ³ (25 °C)
Boiling Point	202 °C
Melting Point	-24 °C
Solubility in water	1.000 g/l at 20 °C - soluble
Flash point	91 °C
Vapour pressure	0,32 hPa (20 °C)
Auto -ignition temperature	270 °C
Vapour density	No data available
Flammability (solid, gas)	No data available
Evaporation rate	No data available
Partition coefficient: n- octanol / water	log Pow: -0.46 at 25 °C
Viscosity	1.661 mPa.s (25 °C)
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 9.5 %(V) Lower explosion limit: 1.3 %(V)
Oxidizing properties	No data available

Other safety information:

Conductivity: 0.2 –0.4 µS/cm
Molecular weight: 99.13 g/mol
Relative vapor Density: 3.42 - (Air = 1.0)
Surface tension: 40.4 mN/m
Refractive index: 1.469 at 25 °C

SECTION 10: Stability and reactivity

Reactivity	Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature).
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 various plastics
Condition to avoid	Strong heating.
Incompatible materials	No data available
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - male and female - 4.150 mg/kg LC50 Inhalation - Rat - male and female - 4 h - > 5.1 mg/l - aerosol
Skin corrosion/irritation	Skin - Rabbit Result: Irritating to skin. - 24 h
Serious eye damage/eye irritation	Eyes - Rabbit Result: Eye irritation
Respiratory or skin sensitization	Local lymph node assay (LLNA) - Mouse
Germ cell mutagenicity	Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic active Result: negative Test Type: unscheduled DNA synthesis assay Test system: rat hepatocytes Result: negative
Carcinogenicity	No data available
Reproductive toxicity	May damage the unborn child.
Specific target organ toxicity - single exposure	Inhalation - May cause respiratory irritation. - Respiratory system
Specific target organ toxicity - repeated exposure	No data available
Aspiration hazard	No data available
Additional Information	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Repeated dose toxicity - Rabbit - male - Dermal - 20 d - No observed adverse effect level - 826 mg/kg - Lowest observed adverse effect level - 1.653 mg/kg Remarks: Subacute toxicity Prolonged or repeated exposure may cause: Vomiting, Diarrhoea, Abdominal pain, Rats exposed to 1-methyl-2-pyrrolidinone at a concentration of 1 mg/L as an aerosol for 10 days showed depletion of hematopoietic cells in the bone marrow and atrophy of the lymphoid tissues of the thymus, spleen, and lymph

nodes. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Bone marrow - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

Toxicity

Toxicity to fish	static test LC50 - Oncorhynchus mykiss (rainbow trout) - > 500 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - ca. 4.897 mg/l - 48 h
Toxicity to algae	static test EC50 - Desmodesmus subspicatus (green algae) - 672,8 mg/l - 72 h
Toxicity to bacteria	No data available

Persistence and degradability

Biodegradability

Test Type: aerobic
Inoculum: activated sludge
Concentration: 100 mg/l
Result: Readily biodegradable.
Biodegradation: 73 %
Exposure time: 28 d
Method: OECD Test Guideline 301C
Biochemical Oxygen Demand (BOD) 1.100 mg/g
Chemical Oxygen Demand (COD) 1.600 mg/g

Bio accumulative potential

log Pow: -0,46 (25 °C)
Method: OECD Test Guideline 107
Remarks: Bioaccumulation is not expected.

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at Levels of 0.1% or higher.

Endocrine disrupting properties

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other adverse effects

No data available

SECTION 13: Disposal considerations

Waste treatment methods	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste.
Products	Handle uncleaned containers like the product itself.
Contaminated packaging	No data available

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	-	Not dangerous goods.	-	-	No
IMDG	-	Not dangerous goods.	-	-	No
IATA	-	Not dangerous goods.	-	-	No

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	Conditions of restriction for the following entries should be considered: Number on list 3 Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor. Banned and/or restricted N-methyl-2-pyrrolidone
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	Not applicable

15.2 Chemical safety assessment

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

SECTION 16: Other information

The information in this SDS is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. The user must be determined suitability of this information for his application.