



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

1 Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifiers

Product name: 2-Pyrrolidone

EINECS Name: 2-pyrrolidone

TSCA Name: 2-Pyrrolidinone

CAS-No.: 616-45-5

EC No.: 210-483-1

Molecular Formula: C₄H₇NO

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

Identified uses: Laboratory chemicals, Manufacture of substances.

1.3 Details of the supplier of the safety data sheet

Company: Boai NKY Pharmaceuticals Ltd.

Address: No.1888 East Wenhua Road, Boai, Jiaozuo, Henan, China 454450

Tel.: +86 391 8696320

Fax: +86 391 8692950

Email address: sales@boai-nky.com

1.4 Emergency telephone number

+86 22 58316066

2 Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Eye irritation, Category 2 H319: Causes serious eye irritation.

Reproductive toxicity, Category 1B H360: May damage fertility or the unborn child.

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

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

Pictograms :



Signal word : Danger

Hazard statement(s) : H319 Causes serious eye irritation.
H360 May damage fertility or the unborn child.

Precautionary statement(s): **Prevention:**
P201 Obtain special instructions before



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

	use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:	
P308+P313	If exposed or concerned: Get medical advice/ attention.
P337+P313	If eye irritation persists: Get medical advice/ attention.
Disposal:	
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

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

Additional advice

No information available.

3 Composition/Information on Ingredients

Substances

Formula: C₄H₇NO

Molecular weight: 85.11 g/mol

CAS No.: 616-45-5

EC No.: 210-483-1

Hazardous ingredients according to Regulation (EC) No 1272/2008

Chemical name	CAS No. EC No.	Concentration (%)
2-pyrrolidone	616-45-5 210-483-1 01-2119475471-37-xxxx	>=90,00 - <=100,00

4 First Aid Measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labeling (see Section 2.2) and / or in Section 11.

Risks: Causes serious eye irritation.

May damage fertility or the unborn child.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: No hazards which require special first aid measures.

5 Firefighting Measures

5.1 Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: Nitrogen oxides(NOx)

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available.

6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust. For personal protection see Section 8.

6.2 Methods and materials for containment and cleaning up:

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.3 Environmental precautions:

Prevent product from entering drains.

6.4 Reference to other sections

For disposal see Section 13.

7 Handling and Storage

7.1 Precautions for safe handling



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see Section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Hygroscopic.

7.3 Specific end use(s)

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

8 Exposure Controls/Personal Protection

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with appropriate laws and good laboratory practices. Wash and dry hands.

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

Body protection

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Form:Solid. (Liquid or Solid - Melting Point Near



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

	Room Temperature)
	Color: colorless to light yellow
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	9-11 at 100 g/L at 20°C
e) Melting point/freezingpoint	23-25°C
f) Initial boiling point and boiling range	245 °C at 1.013 hPa
g) Flash point	113°C- closed cup
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	1.110 g/cm ³
n) Water solubility	Completely miscible
o) Partition coefficient:n-octanol/water	Log pow: -0.71
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available

9.2 Other safety information

No data available

10 Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical Stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Avoid moisture

10.5 Incompatible materials

Strong oxidizing agents, Strong acid, Strong bases, Strong reducing agents.

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. – Carbon oxides, Nitrogen oxides (NO_x)



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

Other decomposition products – no data available

In the event of fire: see Section 5.

11 Toxicological Information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Eye contact
ingestion

Acute toxicity

Not classified based on available information.

Components:

2-pyrrolidone

Acute oral toxicity : LD50 (Rat): >2.000mg/kg
Method: OECD Test Guideline 401
Assessment: Not classified as acutely toxic by ingestion under GHS.

Acute dermal toxicity : LD (Rabbit): >2.000mg/kg
Method: OECD Test Guideline 402
Assessment: No adverse effect has been observed in acute dermal toxicity tests.

Skin corrosion/irritation

Not classified based on available information.

Product:

Remarks: May cause skin irritation in susceptible persons.

Components:

2-pyrrolidone

Result: No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin., Causes serious eye irritation.

Components:

2-pyrrolidone

Result: Irritating to eyes.

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

Components:

2-pyrrolidone

Test Type: Local lymph node assay

Species: Mouse

Assessment: Did not cause sensitisation on laboratory animals.

Method: OECD Test Guideline 429

Remarks: Information given is based on data obtained from similar substances.

Germ cell mutagenicity

Not classified based on available information.

Components:

2-pyrrolidone

Genotoxicity in vitro : Test Type: Ames test
Test species: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Test species: Mouse
Cell type: Bone marrow
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

May damage fertility or the unborn child.

Components:

2-pyrrolidone

Reproductive toxicity Assessment: Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks: No data available



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

12 Ecological Information

12.1 Toxicity

Components:

2-pyrrolidone

- Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 4.600 - 10.000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
- Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 500 mg/l
aquatic invertebrates Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Method: DIN 38412
- Toxicity to daphnia and other : Chronic Toxicity Value: Estimated 160,2 mg/l
aquatic invertebrates Exposure time: 21 d
(Chronic toxicity) Species: Daphnia magna (Water flea)
Remarks: The value is given based on a SAR/AAR approach
using OECD Toolbox, DEREK, VEGA QSAR models
(CAESAR models), etc.

12.2 Persistence and degradability

Components:

2-pyrrolidone

Biodegradability : Test Type: Zahn-Wellens Test

Result: Readily biodegradable.

Biodegradation: 98 %

Exposure time: 9 d

12.3 Bioaccumulative potential

Components:

2-pyrrolidone

Partition coefficient: noctanol/water: log Pow: -0,71 (20 ° C)

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

Product:

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

12.6 Other adverse effects

Product:

Additional ecological information: No data available

13 Disposal Considerations

13.1 Waste treatment methods

Products
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging
Dispose of as unused product

14 Transport Information

14.1	UN number
	ADR/RID: -- IMDG: -- IATA: --
14.2	UN proper shipping name
	ADR/RID: Not dangerous goods
	IMDG: Not dangerous goods
	IATA: Not dangerous goods
14.3	Transport hazard class(es)
	ADR/RID: -- IMDG: -- IATA: --
14.4	Transport group
	ADR/RID: -- IMDG: -- IATA: --
14.5	Environmental hazards
	ADR/RID: no IMDG: Marine pollutant: no IATA: no
14.6	Special precautions for user
	No data available

15 Regulatory Information

	This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
15.1	Safety, health and environmental regulations/legislation specific for the substance of mixture
	No data available
15.2	Chemical safety assessment
	For this product a chemical safety assessment was not carried out.

16 Other Information



Safety Data Sheet

according to Regulation (EC) No. 1907/2006

Version 03 Issuing Date: 2022-01-01

Review Date: 2026-12-31

Full text of H-Statements referred to under section 2 and 3

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

Further information

The above information is believed to be correct, but does not intend to be all-inclusive and shall be used only as a guide. This material safety data sheet is based on our current knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any assurances on product properties and does not constitute a contractual legal relationship.

Boai NKY Pharmaceuticals Ltd. and its Affiliates shall not be held liable for any damage resulting from the handling or from the contact with the above product.

© 2020-2021 Boai NKY Pharmaceuticals Ltd. License granted to make unlimited paper copies for internal use. The changing of this document is forbidden except with the consent of Boai NKY Pharmaceuticals Ltd.
