

Safety Data Sheet

Pyrrolidine pure

Revision date : 2024/04/19
Version: 6.0

Page: 1/12
(30036606/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

Pyrrolidine pure

Recommended use of the chemical and restriction on use

Recommended use*: Chemical used in synthesis and/or formulation of industrial products

Recommended use*: Chemical

Unsuitable for use: Not intended for sale to or use by the general public.

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:

BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300

BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	C(4)H(9)N
Chemical family:	No data available.
Synonyms:	PYRROLIDINE ANHYDROUS PYRROLIDINE CRUDE Pyrrolidine

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 2/12
(30036606/SDS_GEN_US/EN)

Flam. Liq.	2	Flammable liquids
Acute Tox.	4 (Inhalation - vapour)	Acute toxicity
Acute Tox.	4 (oral)	Acute toxicity
Skin Corr.	1A	Skin corrosion
Eye Dam.	1	Serious eye damage
Aquatic Acute	3	Hazardous to the aquatic environment - acute

Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H225	Highly flammable liquid and vapour.
H314	Causes severe skin burns and eye damage.
H302 + H332	Harmful if swallowed or if inhaled.
H401	Toxic to aquatic life.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves, protective clothing and eye protection or face protection.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243	Take action to prevent static discharges.
P273	Avoid release to the environment.
P241	Use explosion-proof electrical, ventilating and lighting equipment.
P233	Keep container tightly closed.
P264	Wash contaminated body parts thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P242	Use non-sparking tools.
P240	Ground and bond container and receiving equipment.
P260	Do not breathe mist or vapour.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use water spray, dry powder, foam or carbon dioxide for extinction.

Precautionary Statements (Storage):

P405	Store locked up.
P403 + P235	Store in a well-ventilated place. Keep cool.

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 3/12
(30036606/SDS_GEN_US/EN)

Precautionary Statements (Disposal):

P501 Dispose of contents/container in accordance with local regulations.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

pyrrolidine

CAS Number: 123-75-1

Content (W/W): ≥ 99.0 - $\leq 100.0\%$

Synonym: No data available.

4. First-Aid Measures

Description of first aid measures

General advice:

Remove contaminated clothing.

If inhaled:

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:

Wash affected areas with water while removing contaminated clothing. Remove contaminated clothing. Immediate medical attention required.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

Flush immediately with water for at least 30 minutes. Hold eyelids open to facilitate rinsing. Seek medical attention.

If swallowed:

Rinse mouth and then drink 200-300 ml of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: Overexposure may cause:, vomiting, convulsions, nausea, coughing, headache

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 4/12
(30036606/SDS_GEN_US/EN)

known specific antidote. Pulmonary odema prophylaxis. Medical monitoring for at least 24 hours.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, foam, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
nitrogen oxides, carbon oxides

The substances/groups of substances mentioned can be released in case of fire. Vapours may form explosive mixture with air.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Suppress gases/vapours/mists with water spray jet. Cool endangered containers with water-spray. Keep people away and stay on the upwind side. Vapours are heavier than air and may accumulate in low areas and travel a considerable distance up to the source of ignition. Do not allow to enter drains or waterways. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

Impact Sensitivity:

Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Information regarding personal protective measures, see section 8. Keep unprotected persons away. Ensure adequate ventilation. Sources of ignition should be kept well clear. Avoid inhalation. Avoid contact with the skin, eyes and clothing.

Environmental precautions

Substance/product is RCRA hazardous due to its properties.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 5/12
(30036606/SDS_GEN_US/EN)

Ensure thorough ventilation of stores and work areas. Use only alkali-proof equipment. Personal protective equipment should be worn during open handling. The workplace should be equipped with an emergency shower and eye-rinsing facility.

Protection against fire and explosion:

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy. Vapours may form explosive mixture with air. Empty containers may contain flammable residue.

Conditions for safe storage, including any incompatibilities

Segregate from acids and acid forming substances.

Suitable materials for containers: Stainless steel 1.4401, Stainless steel 1.4301 (V2), Polyester resin, glass reinforced (Palatal A410), High density polyethylene (HDPE), Carbon steel (Iron), glass, Low density polyethylene (LDPE)

Unsuitable materials for containers: Aluminium, Paper/Fibreboard

Further information on storage conditions: Avoid all sources of ignition: heat, sparks, open flame. Keep container tightly closed in a cool, well-ventilated place.

Storage stability:

Storage duration: 24 Months

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced.

8. Exposure Controls/Personal Protection

No substance specific occupational exposure limits known.

Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination. For emergency or non-routine, high exposure situations, use a NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Hand protection:

Chemical resistant protective gloves, Consult with glove manufacturer for testing data.

Eye protection:

Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:

Impermeable protective clothing, Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:

Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Take off immediately all contaminated clothing. Store work clothing

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 6/12
(30036606/SDS_GEN_US/EN)

separately. No eating, drinking, smoking or tobacco use at the place of work. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	amine-like	
Odour threshold:	Not determined since harmful by inhalation.	
Colour:	colourless to slightly yellow	
pH value:	12.9 (100 g/l, 20 °C)	
Melting point:	-57.79 °C (1,013 hPa)	
Boiling point:	86.56 °C (1,013 hPa)	
Flash point:	3 °C	(DIN 51755)
Flammability:	Highly flammable liquid and vapour.	(derived from flash - and boiling point)
Lower explosion limit:	1.6 %(V)	
Upper explosion limit:	10.2 %(V) For liquids not relevant for classification and labelling.	
Autoignition:	370 °C	(Regulation 440/2008/EC, A.15)
SADT:	Study scientifically not justified.	
Vapour pressure:	64.5 hPa (20 °C)	
Density:	0.866 g/cm3 (20 °C)	
Relative density:	0.859 (20 °C)	
Vapour density:	> 1 (20 °C) Heavier than air.	(estimated)
Partitioning coefficient n-octanol/water (log Pow):	0.22 (25 °C)	
Self-ignition temperature:	Based on its structural properties the product is not classified as self-igniting.	
Thermal decomposition:	415 °C, > 330 kJ/kg (DSC (DIN 51007)) If product is heated above decomposition temperature toxic vapours may be released. No decomposition if used as directed. It is not a self-decomposable substance.	
Viscosity, dynamic:	0.756 mPa.s (20 °C)	
Particle size:	The substance / product is marketed or used in a non solid or granular form.	
Solubility in water:	(20 °C) miscible	
Molar mass:	71.12 g/mol	
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.	

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 7/12
(30036606/SDS_GEN_US/EN)

10. Stability and Reactivity

Reactivity

Vapours may form explosive mixture with air.

Corrosion to metals:

Corrosive effect on: brass copper

Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.
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Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Reacts with oxidizing agents. Reacts with acids. Violent reaction with aluminum, copper, zinc, and their alloys. The progress of reaction is exothermic.

Conditions to avoid

Avoid all sources of ignition: heat, sparks, open flame.

Incompatible materials

strong acids, oxidizing agents, nitrosating agents, copper alloys, brass

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: nitrogen oxides, carbon oxides

Thermal decomposition:

415 °C (DSC (DIN 51007))

If product is heated above decomposition temperature toxic vapours may be released. No decomposition if used as directed. It is not a self-decompositionable substance.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Of moderate toxicity after single ingestion. Of moderate toxicity after short-term inhalation.

Oral

Type of value: LD50

Species: rat

Value: approx. 430 mg/kg (BASF-Test)

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 8/12
(30036606/SDS_GEN_US/EN)

Inhalation

Type of value: LC50
Species: rat
Value: 11.7 mg/l (similar to OECD guideline 403)
Exposure time: 4 h
The vapour was tested.

Dermal

Type of value: LD50
Species: rabbit
Value: > 200 mg/kg (BASF-Test)
The value meets the highest applied test concentration.

Assessment other acute effects

Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion

Assessment of irritating effects: Highly corrosive! Damages skin and eyes.

Skin

Species: rabbit
Result: Corrosive.
Method: BASF-Test

Eye

As the product corrodes the skin, it can be expected to have a similar effect on the eyes also.

Sensitization

Assessment of sensitization: As the substance is corrosive, conducting sensitization studies is not feasible.

No data available.

Aspiration Hazard

not applicable

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: After repeated administration the prominent effect is the induction of corrosion.

Genetic toxicity

Assessment of mutagenicity: Results from a number of mutagenicity studies with microorganisms, mammalian cell culture and mammals are available. Taking into account all of the information, there is no indication that the substance is mutagenic. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Carcinogenicity

Assessment of carcinogenicity: Results from poorly documented long-term studies in rats and mice gave no indication of a carcinogenic potential. Under certain conditions the substance can form nitrosamines. Nitrosamines are carcinogenic in animal studies.

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 9/12
(30036606/SDS_GEN_US/EN)

Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. The results were determined in a Screening test (OECD 421/422).

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely toxic for aquatic organisms. The chronic aquatic risk classification is based on acute aquatic toxicity study data and the environmental fate properties of the product. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish

LC50 (96 h) 115 mg/l, Brachydanio rerio (OECD Guideline 203, static)

The statement of the toxic effect relates to the analytically determined concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample. After neutralization no appreciable reduction in harmful effect can be observed.

Aquatic invertebrates

EC50 (48 h) 63 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Nominal values (confirmed by concentration control analytics)

Aquatic plants

EC50 (72 h) 39 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

Nominal values (confirmed by concentration control analytics)

EC10 (72 h) 10 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

Nominal values (confirmed by concentration control analytics)

EC50 (72 h) 3.1 mg/l (growth rate), Skeletonema costatum (ISO/DIS 10253, static)

The details of the toxic effect relate to the nominal concentration.

Chronic toxicity to fish

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates

Study scientifically not justified.

Assessment of terrestrial toxicity

No data available. No toxic effects have been observed in studies with terrestrial plants.

Soil living organisms

Toxicity to soil dwelling organisms:

Study scientifically not justified. No data available.

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 10/12
(30036606/SDS_GEN_US/EN)

Toxicity to terrestrial plants

EC50 2,085.5 mg/kg, Lactuca sativa
Literature data.

Other terrestrial non-mammals

Study scientifically not justified. No data available.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

OECD Guideline 209 static
activated sludge, domestic/EC50 (30 min): > 1,000 mg/l
The value meets the highest applied test concentration.

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Readily biodegradable (according to OECD criteria).

Elimination information

> 90 % DOC reduction (28 d) (OECD 301E/92/69/EWG, C.4-B) (aerobic, activated sludge, domestic)

84.7 % BOD of the ThOD (28 d) (OECD Guideline 306) (aerobic, Seawater)

Assessment of stability in water

According to structural properties, hydrolysis is not expected/probable.
Study scientifically not justified.

Bioaccumulative potential

Assessment bioaccumulation potential

No significant accumulation in organisms is expected as a result of the distribution coefficient of n-octanol/water (log Pow).

Mobility in soil

Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.
Adsorption to solid soil phase is not expected.
The data refer to the charged form of the substance.

Additional information

Sum parameter

Biochemical oxygen demand (BOD): 1,930 mg/g

Adsorbable organically-bound halogen(AOX):
This product contains no organically-bound halogen.

Other ecotoxicological advice:

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19
Version: 6.0

Page: 11/12
(30036606/SDS_GEN_US/EN)

13. Disposal considerations

Waste disposal of substance:

Dispose of in a RCRA-licensed facility. Do not discharge into waterways or sewer systems without proper authorization. Dispose of in accordance with national, state and local regulations.

Container disposal:

Empty containers with less than 1 inch of residue may be landfilled at a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

RCRA: D001

14. Transport Information

Land transport

USDOT

Hazard class:	3
Packing group:	II
ID number:	UN 1922
Hazard label:	3, 8
Proper shipping name:	PYRROLIDINE

Sea transport

IMDG

Hazard class:	3
Packing group:	II
ID number:	UN 1922
Hazard label:	3, 8
Marine pollutant:	NO
Proper shipping name:	PYRROLIDINE

Air transport

IATA/ICAO

Hazard class:	3
Packing group:	II
ID number:	UN 1922
Hazard label:	3, 8
Proper shipping name:	PYRROLIDINE

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

Safety Data Sheet

Pyrrolidine pure

Revision date: 2024/04/19

Version: 6.0

Page: 12/12

(30036606/SDS_GEN_US/EN)

<u>CERCLA RQ</u>	<u>CAS Number</u>	<u>Chemical name</u>
100 LBS	123-75-1	pyrrolidine

State regulations

<u>State RTK</u>	<u>CAS Number</u>	<u>Chemical name</u>
PA	123-75-1	pyrrolidine
NJ	123-75-1	pyrrolidine

NFPA Hazard codes:

Health: 3 Fire: 3 Reactivity: 0 Special:

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Acute Tox.	4 (oral)	Acute toxicity
Skin Corr./Irrit.	1A	Skin corrosion/irritation
Flam. Liq.	2	Flammable liquids
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Acute Tox.	4 (Inhalation - vapour)	Acute toxicity
Aquatic Acute	2	Hazardous to the aquatic environment - acute

16. Other Information

SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2024/04/19

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

IMPORTANT: WHILE THE DESCRIPTIONS, DESIGNS, DATA AND INFORMATION CONTAINED HEREIN ARE PRESENTED IN GOOD FAITH AND BELIEVED TO BE ACCURATE, IT IS PROVIDED FOR YOUR GUIDANCE ONLY. BECAUSE MANY FACTORS MAY AFFECT PROCESSING OR APPLICATION/USE, WE RECOMMEND THAT YOU MAKE TESTS TO DETERMINE THE SUITABILITY OF A PRODUCT FOR YOUR PARTICULAR PURPOSE PRIOR TO USE. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE USED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.

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