

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Pyrrole

Version number: 1.0
Issued: 2024-01-04



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

1.1. Product identifier

Trade name

Pyrrole

CAS number

109-97-7

EC number

203-724-7

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

Relevant identified uses

Research and development.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,
DL1 4XX Darlington
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Flammable liquids, hazard category 3
Acute toxicity, oral, hazard category 3
Serious eye damage, hazard category 1
Acute toxicity, inhalation, hazard category 4

Hazard statements

H226, H301, H318, H332

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H318 Causes serious eye damage.
H332 Harmful if inhaled.

Precautionary statements

P261 Avoid breathing vapour.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P310 Immediately call a POISON CENTER/doctor.
P312 Call a POISON CENTER/doctor if you feel unwell.
P330 Rinse mouth.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
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.

2.3. Other hazards

No data available

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SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
Pyrrolidine	109-97-7 203-724-7 - -	100%	Flam. Liq. 3, Acute Tox. 3 - oral, Eye Dam. 1, Acute Tox. 4 - inhalation	H226, H301, H318, H332 - -	-

Molecular weight

67.09

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Get medical attention if any discomfort continues. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. In case of persistent throat irritation or coughing: Seek medical attention and bring these instructions.

Skin contact

IF ON SKIN: Wash with plenty of soap and water. Continue to rinse for at least 15 minutes. Get medical advice/attention if you feel unwell.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

IF SWALLOWED: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake). Rinse mouth.

Information for doctors

No data available.

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4.2. Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure.

Inhalation

Single exposure may cause the following adverse effects: Upper respiratory irritation. Difficulty in breathing.

Skin contact

Harmful in contact with skin.

Eye contact

Splashes may cause serious eye damage.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. Nausea, vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use alcohol resistant foam, carbon dioxide or dry powder to extinguish.

Unsuitable extinguishing media

No specific fire fighting procedure given.

5.2. Special hazards arising from the substance or mixture

Specific hazards: FLAMMABLE.

Containers can burst violently when heated, due to excess pressure build-up.

Vapours may form explosive mixture with air at room temperature.

Carbon monoxide (CO). Carbon dioxide (CO₂). Nitrous gases (NO_x).

Vapours are heavier than air and may travel along the floor and in the bottom of containers.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Prevent skin contact by maintaining a safe distance and by wearing suitable protective equipment/ clothing. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid inhalation of vapours and spray mist and contact with skin and eyes. For personal protection, see section 8. Provide adequate ventilation. Remove sources of ignition. Beware of the explosion danger. Take action to prevent static discharges.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Risk of explosion.

6.3. Methods and material for containment and cleaning up

Collect with absorbent, non-combustible material into suitable containers. Remove sources of ignition. Beware of the explosion danger. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take action to prevent static discharges. Use spark-proof tools and explosion-proof equipment. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

General hygiene

Observe good chemical hygiene practices. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry place. Store in a closed container. Recommended storage temperature: 2 to 8°C (35.6 to 46.4°F)

Light sensitive. Air and moisture sensitive. Store under inert gas.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

No occupational exposure limit assigned.

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8.2. Exposure controls

Personal Protective Equipment Symbols



Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves.

Recommended gloves: Butyl rubber.

Glove Thickness: 0.7mm

Breakthrough time: 8 hours

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation.

Environmental exposure controls

Avoid discharge into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

Dark brown.

Odour

No data available

Melting point / freezing point

-23 °C

Boiling point or initial boiling point and boiling range

131 °C

Flammability

No data available

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Lower and upper explosion limit

No data available

Flash point

36 °C

Method

CC (Closed cup).

Auto-ignition temperature

550 °C

Decomposition temperature

No data available

pH

> 6

Method

10g/l 20°C

Kinematic viscosity

No data available

Solubility

Soluble in water.

Method

60g/l (20°C)

Partition coefficient n-octanol/water

No data available

Vapour pressure

No data available

Density and/or relative density

0.967 g/cm³

Relative vapour density

No data available

Particle characteristics

No data available

9.2. Other information

No data available

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SECTION 10: Stability and reactivity

10.1. Reactivity

Vapours may form explosive mixture with air at room temperature.

10.2. Chemical stability

Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

There are no known conditions that are likely to result in a hazardous situation.

10.4. Conditions to avoid

Heat, sparks, flames.

10.5. Incompatible materials

There are no known reactivity hazards associated with this product.

10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Test animals	Remarks
Pyrrolidine 109-97-7 / 203-724-7	Acute Toxicity (Oral LD50):	137mg/kg	Rat	-
Pyrrolidine 109-97-7 / 203-724-7	Acute Toxicity (Inhalation LC50):	11mg/l	-	ATE = Acute Toxicity Estimate.

Skin corrosion/irritation

Product / Substance name CAS / EC no.	Result	Species
Pyrrolidine 109-97-7 / 203-724-7	No skin irritation.	Rabbit

Serious eye damage/irritation

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Product / Substance name CAS / EC no.	Result	Species
Pyrrolidine 109-97-7 / 203-724-7	Splashes may cause serious eye damage.	Rabbit

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Acute fish toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Pyrrolidine 109-97-7 / 203-724-7	LC50	210mg/l	96 hours	Pimephales promelas (Fat-head Minnow)
Pyrrolidine 109-97-7 / 203-724-7	LC50	80mg/l	96 hours	Leuciscus idus (Golden orfe)

12.2. Persistence and degradability

Persistence and degradability

Product / Substance name CAS / EC no.	Result
Pyrrolidine 109-97-7 / 203-724-7	The product is readily biodegradable.

12.3. Bioaccumulative potential

No data available

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

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12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local regulations.

SECTION 14: Transport information

14.1. UN number

1992

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

FLAMMABLE LIQUID, TOXIC, N.O.S. (Pyrrole)

IMDG proper shipping name

FLAMMABLE LIQUID, TOXIC, N.O.S. (Pyrrole)

IATA proper shipping name

Flammable liquid, toxic, n.o.s. (Pyrrole)

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14.3. Transport hazard class(es)

Label

ADR/RID/ADN



3



6.1

IMDG



3



6.1

IATA



3



6.1

ADR / RID Class

3

ADR / RID Classification code

FT1

ADR / RID hazard identification number

36

IMDG Class

3 (6.1)

IATA Class

3 (6.1)

ADN Class

3

ADN Class Code

FT1

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14.4. Packing group

ADR / RID / ADN: III
IMDG: III
IATA: III

14.5. Environmental hazards

IMDG EmS
F-E, S-D

14.6. Special precautions for user

Tunnel restriction code: D/E
Transport category: 3

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations

No data available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Phrase meaning

Flam. Liq. 3 - Flammable liquids, hazard category 3
Acute Tox. 3 - oral - Acute toxicity, oral, hazard category 3
Eye Dam. 1 - Serious eye damage, hazard category 1
Acute Tox. 4 - inhalation - Acute toxicity, inhalation, hazard category 4
H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H318 Causes serious eye damage.
H332 Harmful if inhaled.