

## SAFETY DATA SHEET

Preparation Date: 08/15/2017

Revision date 10/02/2019

Revision Number: G3

### 1. IDENTIFICATION

#### Product identifier

**Product code:** P1473  
**Product Name:** PYRROLIDINE, REAGENT

#### Other means of identification

**Synonyms:** 1-Azacyclopentane  
 Azacyclopentane  
 Azolidine  
 Butylenimine  
 Perhydropyrrole  
 Prolamine  
 Pyrrole, tetrahydro-  
 Pyrrolidine ring  
 Tetrahydropyrrole  
 Tetramethyleneimine

**CAS #:** 123-75-1  
**RTECS #** UX9650000  
**CI#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** In pharmaceuticals. Pesticide. Rubber accelerators. Epoxy resins. Tobacco flavors.

**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>

**Emergency telephone number** Chemtrec 1-800-424-9300

**Contact Person:** Tom Tyner (USA - West Coast)

**Contact Person:** Ibad Tirmiz (USA - East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 3
Acute toxicity - Inhalation (Vapors)	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

**Label elements****Danger****Hazard statements**

Causes severe skin burns and eye damage

Toxic if swallowed

Harmful if inhaled

May cause respiratory irritation

Highly flammable liquid and vapor

**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Not available

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

Do not breathe mist or vapors

Wear protective gloves/protective clothing/eye protection/face protection

Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Ground container and receiving equipment

Use explosion-proof equipment

Use only non-sparking tools

Take precautionary measures against static discharge

**Precautionary Statements - Response**

*Immediately call a POISON CENTER or physician*

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam to extinguish.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water

Wash contaminated clothing before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

Store in a well-ventilated place. Keep container tightly closed

**Precautionary Statements - Disposal**

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and

international regulations as applicable

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Pyrrolidine	123-75-1	100

### 4. FIRST AID MEASURES

#### First aid measures

**General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. First aider needs to protect himself. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**Skin Contact:** Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Immediate medical attention is required. Call a physician or poison control center immediately.

**Eye Contact:** Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

**Ingestion:** Toxic if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required.

#### Most important symptoms and effects, both acute and delayed

**Symptoms**

- Causes severe skin burns
- Skin contact may result in redness, pain, inflammation, itching, scaling
- Causes eye damage
- Inflammation of the eye is characterized by redness, watering and itching
- Vapors irritating to eyes and respiratory tract
- Coughing
- Choking sensation
- Dyspnea (Shortness of breath and difficulty breathing)
- Severe over-exposure can result in death
- Lachrymator (substance which increases the flow of tears)
- Causes chemical burns to the respiratory tract
- May cause bronchitis
- May cause conjunctivitis
- Ingestion may cause nausea, vomiting, and diarrhea
- May cause gastrointestinal (digestive) tract burns

#### Indication of any immediate medical attention and special treatment needed

**Notes to Physician:** Treat symptomatically.

#### Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

## 5. FIRE-FIGHTING MEASURES

### Extinguishing Media

#### **Suitable Extinguishing Media:**

Use water spray or water mist, alcohol-resistant foam, Dry chemical or Carbon dioxide (CO<sub>2</sub>).

#### **Unsuitable Extinguishing Media:**

Do not use a solid (straight) water stream as it may scatter and spread fire.

### Specific hazards arising from the chemical

#### **Hazardous combustion products**

Carbon monoxide. Carbon dioxide (CO<sub>2</sub>). Nitrogen oxides (NO<sub>x</sub>).

#### **Specific hazards**

Flammable. Will be easily ignited by heat, sparks or flames. Vapor may travel considerable distance to source of ignition and flash back. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. Fire may produce irritating, corrosive and/or toxic gases.

### Special Protective Actions for Firefighters

#### **Specific Methods:**

Water mist may be used to cool closed containers For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out

#### **Special Protective Equipment for Firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up** Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

**Safe Handling Advice:**

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

**Technical Measures/Storage Conditions:**

Air sensitive. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

**Incompatible Materials:**

Strong oxidizing agents  
Acids  
Acid anhydrides  
Acid chlorides  
Metals

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

### National occupational exposure limits

## United States

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Pyrrrolidine	123-75-1	None	None	None	None

## Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Pyrrrolidine	123-75-1	None	None	None	None

## Australia and Mexico

Component	CAS No	Australia	Mexico
Pyrrrolidine	123-75-1	None	None

## Appropriate engineering controls

### Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

## Individual protection measures, such as personal protective equipment

### Personal Protective Equipment

- Eye protection:** Goggles or Face-shield.
- Skin and body protection:** Chemical resistant protective suit  
Gloves  
Boots
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b> Liquid	<b>Appearance:</b> No information available.	<b>Color:</b> Colorless to pale yellow.
<b>Odor:</b> Amine-like. Ammoniacal.	<b>Taste</b> Ammoniacal.	<b>Formula</b> C4H9N
<b>Molecular/Formula weight (g/mole):</b> 71.12	<b>Flammability (solid, gas)</b> Flammable	<b>Flashpoint (°C/°F):</b> 3°C/ 37.4°F
<b>Flash Point Tested according to:</b> Closed cup	<b>Autoignition Temperature (°C/°F):</b> 345°C/653°F	<b>Lower Explosion Limit (%):</b> 2.9%
<b>Upper Explosion Limit (%):</b> 13%	<b>Melting point/range(°C/°F):</b> -57.8°C/ -72°F	<b>Decomposition temperature(°C/°F):</b> 400°C/752°F
<b>Boiling point/range(°C/°F):</b>		

86-87°C/ 186.8-188.6°F

**Bulk density:**  
No information available

**Density (g/cm<sup>3</sup>):**  
No information available

**Specific gravity:**  
0.8586

**pH**  
No information available

**Vapor pressure @ 20°C (kPa):**  
8.4

**Evaporation rate:**  
No information available

**Vapor density:**  
2.45

**VOC content (g/L):**  
No information available

**Odor threshold (ppm):**  
No information available

**Partition coefficient  
(n-octanol/water):**  
0.46

**Viscosity:**  
No information available

**Miscibility:**  
Miscible with water

**Solubility:**  
Soluble in Ethanol  
Soluble in diethyl ether  
Slightly soluble in Benzene  
Slightly soluble in chloroform

## 10. STABILITY AND REACTIVITY

### Reactivity

Reacts vigorously with oxidizing agents  
Reactive with acids

### Chemical stability

**Stability:** Sensitive to air. Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Reactive with benzaldehyde+ propionic acid+ heat, strong acids, copper

**Conditions to avoid:** Heat. Ignition sources. Incompatible materials. Exposure to air.

**Incompatible Materials:**  
Strong oxidizing agents  
Acids  
Acid anhydrides  
Acid chlorides  
Metals

**Hazardous decomposition products:** Carbon oxides.

### Other Information

**Corrosivity:** Non-corrosive in the presence of glass

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**  
Skin. Eyes. Inhalation. Ingestion.

### Acute Toxicity

### Component Information

**Product code:** P1473

**Product name:** PYRROLIDINE,  
REAGENT

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Pyrrolidine	
CAS No	123-75-1

**LD50/oral/rat** = 430 mg/kg Oral LD50 Rat = 300 mg/kg Oral LD50 Rat  
**LD50/oral/mouse** = 450 mg/kg Oral LD50 Mouse  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = No information available  
**LC50/inhalation/mouse** = 1300 mg/m<sup>3</sup> 2h Inhalation LC50 Mouse  
**Other LD50 or LC50 information** = No information available

## Product Information

**LD50/oral/rat** =  
**Value - Acute Toxicity** = 300 mg/kg

**LD50/oral/mouse** =  
**Value - Acute Tox** = 450 mg/kg

**LD50/dermal/rabbit**  
**Value - Acute Toxicity** = No information available

**LD50/dermal/rat**  
**VALUE - Acute Tox** = No information available

**LC50/inhalation/rat**  
**VALUE-Vapor** = No information available  
**VALUE-Gas** = No information available  
**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**  
**VALUE-Vapor** = 1300 mg/m<sup>3</sup> 2h  
**VALUE - Gas** = No information available  
**VALUE - Dust/Mist** = No information available

## Symptoms

**Skin Contact:** Causes severe irritation and burns. Harmful if absorbed through skin.

**Eye Contact:** Causes severe irritation and burns. Lachrymator (substance which increases the flow of tears).

**Inhalation** Harmful by inhalation. Causes chemical burns to the respiratory tract. Material volatilizes at room temperature. Inhalation exposure can result in lacrimation, nasal irritation with discharge, bronchitis, conjunctivitis, and possible liver and kidney injury. It may also affect behavior/central nervous system (irritation, excitement, convulsions), vascular system (blood vessels).

**Ingestion** Can affect the gastric mucosa, and cause nausea, vomiting and digestive tract burns. May cause severe and permanent damage to the digestive tract. May affect behavior/central nervous system (excitement, convulsions, headaches). May also cause congestion of the stomach, vascular (blood vessel) disorders, anemia, and possible liver injury.

**Aspiration hazard** No information available.

## Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Chronic Toxicity**

Ingestion: Prolonged or repeated ingestion may affect behavior/central nervous system (excitability, and other symptoms similar to that of acute ingestion), blood (decreased hemoglobin (anemia)), kidneys (decrease diuresis).  
 Inhalation: Prolonged or repeated inhalation may affect behavior/central nervous system, blood (anemia), urine production.

**Sensitization:** No information available.

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Pyrrolidine	123-75-1	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available

**Developmental Effects:** No information available

**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** respiratory system.

**STOT - repeated exposure** No information available.

**Target Organs:** No information available.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Ecotoxicity effects:** Aquatic environment.

*Pyrrolidine - 123-75-1*

**Fish** LC50: =115mg/L (96h, Danio rerio)

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility in soil** No information available

**Other adverse effects** No information available.

### 13. DISPOSAL CONSIDERATIONS

#### Disposal Methods

**Waste from residues / unused products:**

Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Pyrrrolidine	123-75-1	None	None	None	None

### 14. TRANSPORT INFORMATION

**DOT**

**UN-No:** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Hazard Class** 3  
**Subsidiary Class** 8  
**Packing group:** II  
**Emergency Response Guide Number** 132  
**Marine Pollutant** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions** IB2, T7, TP1  
**Symbol(s):** No information available  
**Description:** UN1922, Pyrrolidine, 3 (8), II

**TDG (Canada)**

**UN-No:** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Hazard Class** 3  
**Subsidiary Risk:** (8)  
**Packing Group:** II  
**Marine Pollutant** No Information available  
**Description:** UN1922, Pyrrolidine, 3 (8), II

**ADR**

**UN Number** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Transport hazard class(es)** 3  
**Packing group** II  
**Subsidiary Risk:** 8  
**Description:** UN1922, Pyrrolidine, 3 (8), II

**IMDG**

**UN-No:** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Hazard Class:** 3  
**Subsidiary Risk:** 8  
**Packing Group:** II  
**Marine Pollutant** No information available  
**EMS:** F-E  
**Description** UN1922, Pyrrolidine, 3 (8), II

**RID**

**UN Number** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Transport hazard class(es)** 3  
**Subsidiary Risk:** 8  
**Packing group** II  
**Description:** UN1922, Pyrrolidine, 3 (8), II

**ICAO (air)**

**UN-No:** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Hazard Class** 3  
**Subsidiary Risk:** 8  
**Packing Group:** II  
**Description:** UN1922, Pyrrolidine, 3 (8), II

**IATA**

**UN Number** UN1922  
**Proper Shipping Name:** Pyrrolidine  
**Transport hazard class(es)** 3  
**Subsidiary Risk:** 8  
**Packing group** II  
**Precautionary Statements - Response** 3C  
**Special Provisions** No information available  
**Description:** UN1922, Pyrrolidine, 3 (8), II

<b>15. REGULATORY INFORMATION</b>
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**International Inventories**

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
<i>Pyrrolidine</i>	123-75-1	PresentACTIV E	Not present	Present	Present (5)-103	Present	Present	Present 204-648-7

**U.S. Regulations***Pyrrolidine*

**Massachusetts RTK:** Present  
**New Jersey RTK Hazardous Substance List:** 1626  
**Pennsylvania RTK:** Present

**FDA - 21 CFR - Total Food Additives** Present (not regulated under 21 CFR)  
**- List Sourced from EAFUS**

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.****Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Pyrrolidine</i>	123-75-1	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Pyrrolidine	123-75-1	None	None	None	None	None

## U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) - Health and Safety Reporting
Pyrrolidine	123-75-1	Not Applicable	Not Applicable

## Canada

### WHIMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

**Canada Hazardous Products Regulation** This product has not been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

## DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
Pyrrolidine	123-75-1	Present	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Pyrrolidine	123-75-1	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Pyrrolidine	123-75-1	Not listed

## EU Classification

### EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Pyrrolidine	123-75-1	

### EU - CLP (1272/2008)

### R-phrase(s)

R11 - Highly flammable  
R34 - Causes burns  
R25 - Toxic if swallowed  
R22 - Harmful if swallowed  
R37 - Irritating to respiratory system

### S -phrase(s)

S16 - Keep away from sources of ignition - No smoking  
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Pyrrrolidine	123-75-1		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

F - Highly flammable

C - Corrosive

T - Toxic



## 16. OTHER INFORMATION

**Preparation Date:** 08/15/2017  
**Revision date** 10/02/2019  
**Prepared by:** Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**