

Material Safety Data Sheet

Pyrrolidine

ACC# 96268

Section 1 - Chemical Product and Company Identification

MSDS Name: Pyrrolidine

Catalog Numbers: AC132080000, AC132080050, AC132081000, AC132082500

Synonyms: Azacyclopentane; Azolidine; Prolamine; Tetramethyleneimine; Tetrahydropyrrole; Secondary amine; Butylenimine.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
123-75-1	Pyrrolidine	>97	204-648-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless to light yellow liquid. Flash Point: 3 deg C.

Danger! Causes eye and skin burns. Causes digestive and respiratory tract burns. **Flammable liquid and vapor.** Harmful if swallowed, inhaled, or absorbed through the skin.

Target Organs: Respiratory system, eyes, skin, mucous membranes.

Potential Health Effects

Eye: Causes eye burns. Lachrymator (substance which increases the flow of tears).

Skin: Harmful if absorbed through the skin. Causes skin burns. Amines have been known to cause skin irritation and sensitization.

Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Lethal oral doses of pyrrolidine in rats resulted in effects to the mucosa, vascular disorders, congestion of the stomach and possible liver injury.

Inhalation: Harmful if inhaled. Causes chemical burns to the respiratory tract. Material volatilizes at room temperature. Inhalation exposure to rats resulted in lacrimation, nasal irritation with red discharge, and irritation to the paws. Pathology revealed bronchitis, conjunctivitis, and possible liver and kidney injury.

Chronic: Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: 3 deg C (37.40 deg F)

Autoignition Temperature: 345 deg C (653.00 deg F)

Explosion Limits, Lower: 1.6%

Upper: 10.6%

NFPA Rating: (estimated) Health: 3; Flammability: 3; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Do not breathe vapor or mist.

Storage: Keep away from sources of ignition. Do not store in direct sunlight. Keep container closed when not in use. Store in a tightly closed container. Flammables-area. Store under nitrogen.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Pyrrolidine	none listed	none listed	none listed

OSHA Vacated PELs: Pyrrolidine: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles and face shield.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless to light yellow

Odor: penetrating odor - amine-like

pH: 12.9 1000g/l H₂O

Vapor Pressure: 62.7 mm Hg @ 25 deg C

Vapor Density: 2.45 (air=1)

Evaporation Rate: Not available.

Viscosity: 0.94 mPas 20 deg C

Boiling Point: 86-88 deg C @ 760 mm Hg

Freezing/Melting Point: -63 deg C

Decomposition Temperature: Not available.

Solubility: Freely Soluble.

Specific Gravity/Density: .8660 g/ml

Molecular Formula: C₄H₉N

Molecular Weight: 71.11

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat, confined spaces.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, copper.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 123-75-1: UX9650000

LD50/LC50:

CAS# 123-75-1:

Inhalation, mouse: LC50 = 1300 mg/m³/2H;

Oral, mouse: LD50 = 450 mg/kg;

Oral, rat: LD50 = 300 mg/kg;

Dermal LD50 rabbit: > 200 mg/kg (BASF). inhalation safety screen - lethal > 3 minutes; saturated vapors @ 20°C. (BASF)

Carcinogenicity:

CAS# 123-75-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: See actual entry in RTECS for complete information.

Neurotoxicity: No data available.

Other Studies:**Section 12 - Ecological Information**

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: No information available.

Other: Octanol Water Coeff: 0.22. Readily degradable by biological processes.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	PYRROLIDINE	PYRROLIDINE
Hazard Class:	3	3(8)
UN Number:	UN1922	UN1922
Packing Group:	II	II
Additional Info:		FLASHPOINT 3 C

Section 15 - Regulatory Information**US FEDERAL****TSCA**

CAS# 123-75-1 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 123-75-1: immediate, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 123-75-1 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

F C

Risk Phrases:

R 11 Highly flammable.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

S 26 In case of contact with eyes, rinse immediately with plenty of

water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 123-75-1: 2

Canada - DSL/NDSL

CAS# 123-75-1 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, E, D1B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997

Revision #6 Date: 5/25/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.