

MATERIAL SAFETY DATA SHEET

Date Printed: 02/28/2007

Date Updated: 02/05/2006

Version 1.5

Section 1 - Product and Company Information

Product Name	PYRROLE, REAGENT GRADE, 98%
Product Number	131709
Brand	ALDRICH
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
PYRROLE	109-97-7	No
Formula	C4H5N	
Synonyms	1-Aza-2,4-cyclopentadiene * Azole * Divinylenimine * Imidole * Monopyrrole * Pyrrol *	
	1H-Pyrrole (9CI)	
RTECS Number:	UX9275000	

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable. Toxic.

Harmful by inhalation. Toxic if swallowed. Risk of serious damage to eyes.

Target organ(s): Liver. Heart.

HMIS RATING

HEALTH: 3*

FLAMMABILITY: 2

REACTIVITY: 1

NFPA RATING

HEALTH: 3

FLAMMABILITY: 2

REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS

Flammable Hazards: Yes

EXPLOSION HAZARDS

Vapor may travel considerable distance to source of ignition and flash back. Forms explosive mixtures in air. Container explosion may occur under fire conditions.

FLASH POINT

96.8 °F 36 °C Method: closed cup

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid contact with eyes, skin, and clothing. Do not breathe vapor. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Store under nitrogen.
Store at 2-8°C

SPECIAL REQUIREMENTS

Store under inert gas. Air, light, and moisture sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Clear liquid Color: Deep brown-yellow	
Property	Value	At Temperature or Pressure
Molecular Weight	67.09 AMU	
pH	N/A	
BP/BP Range	129.0 - 131.0 °C	
MP/MP Range	- 23.0 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	2.31 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.966 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	96.8 °F 36 °C	Method: closed cup
Explosion Limits	N/A	

Flammability	N/A
Autoignition Temp	N/A
Refractive Index	1.508
Optical Rotation	N/A
Miscellaneous Data	N/A
Solubility	Solubility in Water:Slightly. Other Solvents: ETHANOL, METHANOL

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Conditions of Instability: May decompose on exposure to light. May decompose on exposure to air and moisture.

Materials to Avoid: Avoid contact with acid., Acid chlorides, Acid anhydrides, Oxidizing agents

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, and nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes severe eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. Harmful if inhaled.

Ingestion: Toxic if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Liver. Heart. Kidneys.

TOXICITY DATA

Oral

Rat

137 mg/kg

LD50

Inhalation

Rat

2.27 MG/L/4H

LC50

Intraperitoneal

Mouse

98 MG/KG

LD50

Subcutaneous

Mouse

61 MG/KG

LD50

IRRITATION DATA

Eyes

Rabbit

Remarks: Severe irritation effect
Skin
Rabbit
Remarks: No irritation effect

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 210 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Flammable liquids, toxic, n.o.s.
UN#: 1992
Class: 3
Packing Group: Packing Group III
Hazard Label: Flammable liquid
Hazard Label: Toxic substances.
PIH: Not PIH

IATA

Proper Shipping Name: Flammable liquid, toxic, n.o.s.
IATA UN Number: 1992
Hazard Class: 3
Packing Group: III

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T
Indication of Danger: Toxic.
R: 10-20-25-41
Risk Statements: Flammable. Harmful by inhalation. Toxic if swallowed. Risk of serious damage to eyes.
S: 26-37/39-45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable. Toxic.
Risk Statements: Harmful by inhalation. Toxic if swallowed. Risk of serious damage to eyes.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. In case of accident or if you feel

unwell, seek medical advice immediately (show the label where possible).

US Statements: Target organ(s): Liver. Heart.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.