Pyrrole

sc-250820

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Pyrrole

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C4-H5-N, NH(CH)4, pyrrol, "1-aza-2, 4-cyclopentadiene", azole, divinylenimine, imidole, monopyrrole

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	2		
Toxicity:	3		
Body Contact:	3		
Reactivity:	1		
Chronic:	0		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

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

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Toxic effects may result from the accidental ingestion of the material; animal experiments indicate that ingestion of less than 40 gram may be fatal or may produce serious damage to the health of the individual.

EYE
■ If applied to the eyes, this material causes severe eye damage.

SKIN
■ The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis.
The material is unlikely to produce an irritant dermatitis as described in EC Directives .
■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED
■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.
■ Inhalation of vapours may cause drowsiness and dizziness.
This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo.
■ There is some evidence to suggest that the material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Inhalation of high concentrations of gas/vapor causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.

CHRONIC HEALTH EFFECTS
■ Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified using animal models); nevertheless exposure by all routes should be minimized as a matter of course.
Has a depressant action on the central nervous system. In severe intoxications it may cause liver damage.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
pyrrole	109-97-7	>98

Section 4 - FIRST AID MEASURES

SWALLOWED
· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

EYE
■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED
· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available.
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	0.97
Lower Explosive Limit (%):	Not available.

EXTINGUISHING MEDIA

· Foam.
· Dry chemical powder.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.
· May be violently or explosively reactive.
When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 500 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Liquid and vapor are flammable.
· Moderate fire hazard when exposed to heat or flame.
Combustion products include: carbon dioxide (CO2), carbon monoxide (CO), nitrogen oxides (NOx), other pyrolysis products typical of burning organic material.

FIRE INCOMPATIBILITY

■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION

Glasses:
Chemical goggles.
Gloves:
Respirator:
Type A Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
· Remove all ignition sources.
· Clean up all spills immediately.
MAJOR SPILLS
· Clear area of personnel and move upwind.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· Containers, even those that have been emptied, may contain explosive vapours.
· Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of overexposure occurs.

RECOMMENDED STORAGE METHODS

■ Glass container.
Packing as supplied by manufacturer. Plastic containers may only be used if approved for flammable liquid.
· For low viscosity materials (i): Drums and jerricans must be of the non-removable head type. (ii): Where a can is to be used as an inner package, the can must have a screwed enclosure.
· For materials with a viscosity of at least 2680 cSt. (23 deg. C).

STORAGE REQUIREMENTS

· Store in original containers in approved flammable liquid storage area.
· DO NOT store in pits, depressions, basements or areas where vapors may be trapped.
Polymerization may occur slowly at room temperature.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• pyrrole: CAS:109-97-7

PERSONAL PROTECTION




RESPIRATOR

Type A Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE
· Safety glasses with side shields.
· Chemical goggles.

HANDS/FEET
■ Wear chemical protective gloves, eg. PVC.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

OTHER
· Overalls.
· PVC Apron.
· Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
· For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS
■ For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES
Does not mix with water.
Floats on water.

State	LIQUID	Molecular Weight	67.09
Melting Range (°F)	-11.2	Viscosity	Not Available
Boiling Range (°F)	266- 267.8	Solubility in water (g/L)	Immiscible
Flash Point (°F)	102.02	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapour Pressure (mmHG)	Not available.
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	0.97
Lower Explosive Limit (%)	Not available.	Relative Vapor Density (air=1)	2.3
Volatile Component (%vol)	Not available.	Evaporation Rate	Not available

APPEARANCE
Yellowish-brown oil with pungent taste. Odour similar to chloroform. Readily polymerizes by action of light, turning brown. Soluble in alcohol, ether, dilute acids, acetone and benzene. Insoluble in water and alkalies. It is derived from the fractional distillation of bone oil and sulfuric acid Pyrrole has very low basicity compared to amines and other aromatic compounds like pyridine, wherein the ring nitrogen is not bonded to a hydrogen atom. This decreased basicity is attributed to the delocalisation of the lone pair of electrons of the nitrogen atom in the aromatic ring. Pyrrole is a very weak base with a pKaH of about -4. Protonation results in loss of aromaticity, and is, therefore, unfavourable.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY
· Avoid oxidizing agents, acids, acid chlorides, acid anhydrides.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

PYRROLE

TOXICITY AND IRRITATION
PYRROLE:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Intraperitoneal (mouse) LD50: 98 mg/kg	Nil Reported
Subcutaneous (mouse) LD50: 61 mg/kg	
Oral (Rabbit) LD: 147 mg/kg	
Intraperitoneal (Rabbit) LD: 150 mg/kg	
Subcutaneous (Rabbit) LD: 250 mg/kg	

Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
pyrrole	LOW		LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information
Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
¦ Puncture containers to prevent re-use and bury at an authorized landfill.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
· Recycle wherever possible.
· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:
Symbols: None Hazard class or Division: 3
Identification Numbers: UN1993 PG: III
Label Codes: 3 Special provisions: B1, B52,
IB3, T4,
TP1, TP29
Packaging: Exceptions: 150 Packaging: Non- bulk: 203
Packaging: Exceptions: 150 Quantity limitations: 60 L
Passenger aircraft/rail:
Quantity Limitations: Cargo 220 L Vessel stowage: Location: A
aircraft only:
Vessel stowage: Other: None
COMBUSTIBLE LIQUID
A flammable liquid with a flash point at or above 38 deg.C (100 deg.F) that does not meet the definition of any other hazard class may be reclassed as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation is impracticable. An elevated temperature material that meets the definition of a Class 3 material because it is intentionally heated and offered for transportation or transported at or above its flash point may not be reclassed as a combustible liquid. Refer to 49 CFR 173.120(b)(2)

Air Transport IATA:

ICAO/IATA Class: 3 ICAO/IATA Subrisk: None
UN/ID Number: 1993 Packing Group: III
Special provisions: A3
Cargo Only
Packing Instructions: 310 Maximum Qty/Pack: 220 L
Passenger and Cargo Passenger and Cargo
Packing Instructions: 309 Maximum Qty/Pack: 60 L
Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
Packing Instructions: Y309 Maximum Qty/Pack: 10 L
Shipping Name: FLAMMABLE LIQUID, N.O.S. *(CONTAINS PYRROLE)

Maritime Transport IMDG:

IMDG Class: 3 IMDG Subrisk: None
UN Number: 1993 Packing Group: III
EMS Number: F-E , S-E Special provisions: 223 274 955
Limited Quantities: 5 L
Shipping Name: FLAMMABLE LIQUID, N.O.S.

Section 15 - REGULATORY INFORMATION

pyrrole (CAS: 109-97-7) is found on the following regulatory lists;

"Canada Domestic Substances List (DSL)","US - Massachusetts Oil & Hazardous Material List","US - Pennsylvania - Hazardous Substance List","US DOE Temporary Emergency Exposure Limits (TEELs)","US Food Additive Database","US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

ND

Substance CAS Suggested codes pyrrole 109- 97- 7

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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