

# Himbacine

sc-200181

Material Safety Data Sheet



The Power is Question

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Himbacine

### 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

C22-H35-N-O2, "naphtho(2, 3-c)furan-1(3H)-one, decahydro-4-[2-(1, 6-dimethyl-2-, piperidinyl)-, "ethenyl]-3-methyl-, ", "decahydro-4-[2-(1, 6-dimethyl-2-piperidinyl)ethenyl]-3-methyl(3S-, "(3alpha, 3a", "alpha, 4beta(1E, 2(2R\*, 6S\*))4alphabeta, 8alpha, 9alpha]naphtho(2, 3-c)-", furan-1(3H)one, "alkaloid muscarinic antagonist (M2/ M4 receptors)"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	2	
Body Contact:	0	Min/Nil=0 Low=1
Reactivity:	1	Moderate=2 High=3
Chronic:	2	Extreme=4

### CANADIAN WHMIS SYMBOLS



## **EMERGENCY OVERVIEW RISK**

### **POTENTIAL HEALTH EFFECTS**

#### **ACUTE HEALTH EFFECTS**

#### **SWALLOWED**

- Accidental ingestion of the material may be damaging to the health of the individual.
- Antimuscarinic agents (muscarinic antagonists) operate on the muscarinic acetylcholine receptors. The majority of anticholinergic drugs are antimuscarinics. Side-effects normally associated with antimuscarinic agents are generally reduced because of preferred binding to gastric mucosa receptors.

The most common adverse events reported by patients receiving antimuscarinics are dry mouth, headache, constipation, vertigo/dizziness, and abdominal pain. Dry mouth, constipation, abnormal vision (accommodation abnormalities), urinary retention, and xerophthalmia are expected side effects of antimuscarinic agents.

When a significant amount of an anticholinergic is taken into the body, a toxic reaction known as acute anticholinergic syndrome may result. This may happen accidentally or intentionally as a consequence of recreational drug use. Anticholinergic drugs are usually considered the least enjoyable by experienced recreational drug users, possibly due to the lack of euphoria caused by them. The risk of addiction is low in the anticholinergic class. The effects are usually more pronounced in the elderly, due to natural reduction of acetylcholine production associated with age.

Possible effects of anticholinergics include:

· Ataxia; loss of coordination; decreased mucus production in the nose and throat; consequent dry, sore throat; xerostomia or dry mouth with possible acceleration of caries; cessation of perspiration; consequent decreased epidermal thermal dissipation leading to warm, blotchy, or red skin; increased body temperature; pupil dilation (mydriasis); consequent sensitivity to bright light (photophobia); loss of accommodation (loss of focusing ability, blurred vision - cycloplegia); double vision (diplopia); increased heart rate (tachycardia); easily startled; urinary retention; diminished bowel movement, sometimes ileus; increased intraocular pressure, dangerous for people with narrow-angle glaucoma; shaking

Possible effects in the central nervous system resemble those associated with delirium, and may include:

· Confusion; disorientation; agitation; euphoria or dysphoria; respiratory depression; memory problems; inability to concentrate; wandering thoughts; inability to sustain a train of thought; incoherent speech; wakeful myoclonic jerking; unusual sensitivity to sudden sounds; illogical thinking; photophobia; visual disturbances; periodic flashes of light; periodic changes in visual field; visual snow; restricted or "tunnel vision"; visual, auditory, or other sensory hallucinations; warping or waving of surfaces and edges; textured surfaces; "dancing" lines; "spiders", insects; lifelike objects indistinguishable from reality; hallucinated presence of people not actually there; rarely: seizures, coma and death

Acute anticholinergic syndrome is completely reversible and subsides once all of the toxin has been excreted. Ordinarily, no specific treatment is indicated. However, in extreme cases, especially those that involves severe distortions of mental state, a reversible cholinergic agent such as physostigmine may be used..

Muscarine-like drugs activate muscarinic receptors (one type of cholinergic receptor), affecting both peripheral and central nervous systems. Molecular biology techniques have identified at least 5 different muscarinic receptors. At present the significance of M4 and M5 is unclear.

#### **EYE**

- Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result.

<p>

#### **SKIN**

■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.

- 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**

■ The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models). Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

#### **CHRONIC HEALTH EFFECTS**

- Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Prolonged exposure to anticholinergic agents may irritate the eyes, causing allergic lid reactions, conjunctivitis, swelling, excess blood flow to the eyes, and sensitivity to light. Increase in eye pressure may lead to closed angle glaucoma.

<p>

NAME	CAS RN	%
(+)-himbacine	6879-74-9	>98

## Section 4 - FIRST AID MEASURES

### SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

### EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh 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 or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

### INHALED

· If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

### NOTES TO PHYSICIAN

■ Treatment regime for atropine intoxication: Empty the stomach by aspiration and lavage. The use of charcoal to prevent absorption, followed by lavage has been suggested.

## Section 5 - FIRE FIGHTING MEASURES

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

### EXTINGUISHING MEDIA

· Foam.  
· Dry chemical powder.

### FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.  
· Wear breathing apparatus plus protective gloves.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Combustible solid which burns but propagates flame with difficulty.  
· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include: carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

### 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:

Particulate

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

· Remove all ignition sources.  
· Clean up all spills immediately.  
· Avoid contact with skin and eyes.  
· Control personal contact by using protective equipment.  
· Use dry clean up procedures and avoid generating dust.  
· Place in a suitable, labelled container for waste disposal.

### MAJOR SPILLS

■ Moderate hazard.  
· CAUTION: Advise personnel in area.  
· Alert Emergency Responders and tell them location and nature of hazard.

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
  - Wear protective clothing when risk of exposure occurs.
- Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- Do NOT cut, drill, grind or weld such containers.
  - In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

### RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

### STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA mg/m <sup>3</sup>	Notes
US - Oregon Permissible Exposure Limits (Z-3)	(+)-himbacine (Inert or Nuisance Dust: Total dust)	10	(d)
US OSHA Permissible Exposure Levels (PELs) - Table Z3	(+)-himbacine (Inert or Nuisance Dust: (d) Respirable fraction)	5	
US OSHA Permissible Exposure Levels (PELs) - Table Z3	(+)-himbacine (Inert or Nuisance Dust: (d) Total dust)	15	
US - Hawaii Air Contaminant Limits	(+)-himbacine (Particulates not otherwise regulated - Total dust)	10	
US - Hawaii Air Contaminant Limits	(+)-himbacine (Particulates not otherwise regulated - Respirable fraction)	5	
US - Oregon Permissible Exposure Limits (Z-3)	(+)-himbacine (Inert or Nuisance Dust: Respirable fraction)	5	(d)
US ACGIH Threshold Limit Values (TLV)	(+)-himbacine (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)	10	See Appendix B current TLV/BEI Book
US - California Permissible Exposure Limits for Chemical Contaminants	(+)-himbacine (Particulates not otherwise regulated Respirable fraction)	5	(n)
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	(+)-himbacine (Particulates not otherwise regulated Respirable fraction)	5	
US - Michigan Exposure Limits for Air Contaminants	(+)-himbacine (Particulates not otherwise regulated, Respirable dust)	5	
Canada - Prince Edward Island Occupational Exposure Limits	(+)-himbacine (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)	10	See Appendix B current TLV/BEI Book
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	(+)-himbacine (Particulates not otherwise regulated (PNOR)(f)-Respirable fraction)	5	

ENDOELTABLE

### PERSONAL PROTECTION



### RESPIRATOR

Particulate

Consult your EHS staff for recommendations

## EYE

- Safety glasses with side shields
- Chemical goggles.

## HANDS/FEET

- 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.

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocarbon
- polyvinyl chloride

Gloves should be examined for wear and/ or degradation constantly.

## OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

## ENGINEERING CONTROLS

- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Solid.

Does not mix with water.

State	Divided solid	Molecular Weight	345.5
Melting Range (°F)	269.6- 273.2	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Negligible	Evaporation Rate	Not available

### APPEARANCE

Off-white solid; does not mix well with water.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

### STORAGE INCOMPATIBILITY

- Avoid reaction with oxidizing agents.

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

## Section 11 - TOXICOLOGICAL INFORMATION

(+)-HIMBACINE

### TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Intraperitoneal (mouse) LD50: 231 mg/kg	Nil Reported

## Section 12 - ECOLOGICAL INFORMATION

No data

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
(+)-himbacine	HIGH		LOW	LOW

### GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No \_\_\_\_\_  
\_\_\_\_\_ Poly(2+)c 224 574 4 4 4 NR (4) NI (1) (1) (2) (1) (1) CM S 3 ylic 6 aromatics / CAS:6879- 74- 9 / \_\_\_\_\_

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)  
NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation,  
B1=Acute aquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg),  
C2=Acute mammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion,  
D2=Eye irritation & corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference  
with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen,  
M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lung injury, N=Neurotoxic,  
I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking  
substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List  
of Hazard Profiles - Hazard evaluation of substances transported by ships)

## Section 13 - DISPOSAL CONSIDERATIONS

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! 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. 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

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

### REGULATIONS

**(+)-himbacine (CAS: 6879-74-9) is found on the following regulatory lists;**

"GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO Provisional Categorization of Liquid Substances - List 2: Pollutant only mixtures containing at least 99% by weight of components already assessed by IMO", "IMO Provisional Categorization of Liquid Substances - List 3: (Trade-named) mixtures containing at least 99% by weight of components already assessed by IMO, presenting safety hazards", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California Toxic Air Contaminant List Category III", "US - Maine Chemicals of High Concern List", "US Clean Air Act - Hazardous Air Pollutants", "US EPA Toxic Chemical Release Inventory Persistent Bioaccumulative Toxic Chemical (PBT) List", "US EPCRA Section 313 Chemical List", "US List of Lists -

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Ingestion may produce health damage\*.
  - Cumulative effects may result following exposure\*.
- \* (limited evidence).

*Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.*

- 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](http://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.

*This document is copyright. Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH. TEL (+61 3) 9572 4700.*

Issue Date: Dec-15-2008

Print Date: Oct-19-2010