

Fenobucarb

sc-255171



The Power to Question

Material Safety Data Sheet

Hazard Alert Code
Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

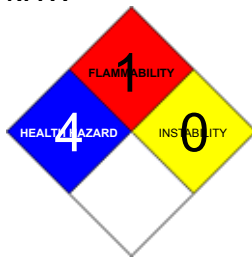
PRODUCT NAME

Fenobucarb

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

C12-H17-N-O2, C2h5CH(CH3)C6H4O2CHNCH3, "phenol, 2-(1-methylpropyl)-, methylcarbamate", "2-(1-methylpropyl)phenol methylcarbamate", "carbamic acid, methyl-, o-sec-butylphenyl ester", "methylcarbamic acid o-sec-butylphenyl ester", "o-sec-butylphenyl methylcarbamate", "2-sec-butylphenyl methylcarbamate", Bassa, BPMC, "Bayer 41-367C", insecticide

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	1	
Toxicity	3	
Body Contact	3	
Reactivity	1	

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



**CANADIAN WHMIS SYMBOLS****EMERGENCY OVERVIEW****RISK**

Harmful if swallowed.

Toxic in contact with skin.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS**ACUTE HEALTH EFFECTS****SWALLOWED**

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

■ Ingestion may produce nausea, vomiting, depressed appetite, abdominal cramps, and diarrhea.

EYE

■ There is some evidence to suggest that this material can cause eye irritation and damage in some persons.

■ Direct eye contact can produce tears, eyelid twitches, pupil contraction, loss of focus, and blurred or dimmed vision.

Dilation of the pupils occasionally occurs.

SKIN

■ Skin contact with the material may produce toxic effects; systemic effects may result following absorption.

■ The material is not thought to be a skin irritant (as classified using animal models).

Abrasive damage however, may result from prolonged exposures.

■ There may be sweating and muscle twitches at site of contact.

Reaction may be delayed by hours.

■ 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 respiratory irritation (as classified using animal models).

Nevertheless inhalation of dusts, or fume, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.

■ Inhalation of vapors or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

■ 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.

■ Poisoning due to cholinesterase inhibitors causes symptoms such as increased blood flow to the nose, watery discharge, chest discomfort, shortness of breath and wheezing.

Other symptoms include increased production of tears, nausea and vomiting, diarrhea, stomach pain, involuntary passing of urine and stools, chest pain, breathing difficulty, low blood pressure, irregular heartbeat, loss of reflexes, twitching, visual disturbances, altered pupil size, convulsions, lung congestion, coma and heart failure.

■ Symptoms of carbamate poisoning are similar to that of organophosphate poisoning, however, recover from carbamate poisoning is quicker and generally less likely to be cause death.

CHRONIC HEALTH EFFECTS

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

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Repeated or prolonged exposures to cholinesterase inhibitors produce symptoms similar to acute effects. In

addition workers exposed repeatedly to these substances may exhibit impaired memory and loss of concentration, severe depression and acute psychosis, irritability, confusion, apathy, emotional liability, speech difficulties, headache, spatial disorientation, delayed reaction times, sleepwalking, drowsiness or insomnia.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
fenobucarb	3766-81-2	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

- If swallowed
 - Contact a Poisons Information Center or a doctor at once.
 - If swallowed, activated charcoal may be advised.

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 product comes in contact with skin
 - Contact a Poisons Information Center or a doctor.
 - DO NOT allow clothing wet with product to remain in contact with skin, strip all contaminated clothing including boots.

INHALED

- - If spray mist, vapor are inhaled, remove from contaminated area.
 - Contact a Poisons Information Center or a doctor at once.

NOTES TO PHYSICIAN

- Following acute or short term repeated exposures to carbamates
 - Carbamylation of acetylcholinesterase produces symptoms of muscarinic and nicotinic poisoning. Clinical effects disappear within 24 hours following spontaneous, in vivo, hydrolysis of the complex. Symptoms develop within 15 minutes to 2 hours.
 - Access the adequacy of the airway and ventilation and use oxygen, suction, intubation, artificial ventilation, intravenous lines and cardiac monitors as needed.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg)	12.001 mPa (20 C)
Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	1.035 (30 C)
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 full body protective clothing with breathing apparatus.
- If containment of runoff is not possible, consider allowing fire to burn-out. Use of water may present a significant pollution hazard.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

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 (CO₂), nitrogen oxides (NO_x), 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.

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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

- 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

- 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

- Lined metal can, Lined metal pail/drum
- Plastic pail

Glass container.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

STORAGE REQUIREMENTS

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

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- fenobucarb CAS3766-81-2

PERSONAL PROTECTION



RESPIRATOR

- Particulate dust filter. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

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

- 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, AS/NZS 2161.1 or national equivalent).

- 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, AS/NZS 2161.10.1 or national equivalent) 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, AS/NZS 2161.10.1 or national equivalent) 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.
- Eyewash unit.
- Ensure that there is a supply of atropine tablets on hand
- Ensure all employees have been informed of symptoms of cholinesterase poisoning and that the use of atropine in first aid is understood .

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

Does not mix with water.

Sinks in water.

State	DIVIDED SOLID	Molecular Weight	207.27
Melting Range (°F)	88- 90	Viscosity	Not Applicable
Boiling Range (°F)	239- 241 (0.02mm)	Solubility in water (g/L)	Partly miscible
Flash Point (°F)	270	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	12.001 mPa (20 C)
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.035 (30 C)
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

APPEARANCE

Crystalline solid or liquid; does not mix well with water 420 mg/l, 20 C; 610 mg/l, 30 C). Soluble in acetone, benzene, chloroform, xylene, toluene (all >1 kg/kg at room temperature). Stable under normal conditions, stable to light. Hydrolysed by acids, alkalis (20 C) DT50 >28 d (buffered at pH 2), 16.9 d (pH 9), 2.06 d (pH 10).

log Kow 2.79

Material	Value
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Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

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

STORAGE INCOMPATIBILITY

- Carbamates are incompatible with strong acids and bases, and especially incompatible with strong reducing agents such as hydrides.
- Flammable gaseous hydrogen is produced by the combination of active metals or nitrides with carbamates.

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

Section 11 - TOXICOLOGICAL INFORMATION

fenobucarb

TOXICITY AND IRRITATION

FENOBUCARB

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

TOXICITY	IRRITATION
Oral (rat) LD50 350 mg/kg	Nil Reported
Dermal (rat) LD50 >5000 mg/kg	
Inhalation (rat) LC50 >2.5 mg tech./l/4h *	
Inhalation (rat) LC50 3.3 mg/l/4h **	
Oral (mouse) LD50 173 mg/kg	
Dermal (mouse) LD50 340 mg/kg	
Intraperitoneal (mouse) LD50 140 mg/kg	
Intravenous (mouse) LD50 42 mg/kg	
Dermal (rabbit) LD50 10250 mg/kg *	
Dermal (rabbit) LD50 >2000 mg/kg **	
Oral (quail) LD50 141 mg/kg	

■ [* The Pesticides Manual, Incorporating The Agrochemicals Handbook, 10th Edition, Editor Clive Tomlin, 1994, British Crop Protection Council].

Oral (rat) LD50 524 mg/kg (male) *

Oral (rat) LD50 425 mg/kg (female) *

Oral (mouse) LD50 505 mg/kg (male) *

Toxicity Class WHO II; EPA II *

NOEL (2 y) for rats 4.1 mg/kg daily (100 mg/kg diet)*

** [Rhône Poulenc]

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

Section 13 - DISPOSAL CONSIDERATIONS

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. 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.

- Consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal options.

Section 14 - TRANSPORTATION INFORMATION



DOT:

Symbols:	None	Hazard class or Division:	6.1
Identification Numbers:	UN2757	PG:	III
Label Codes:	6.1	Special provisions:	IB8, IP3, T1, TP33
Packaging: Exceptions:	153	Packaging: Non-bulk:	213
Packaging: Exceptions:	153	Quantity limitations: Passenger aircraft/rail:	100 kg
Quantity Limitations: Cargo aircraft only:	200 kg	Vessel stowage: Location:	A
Vessel stowage: Other:	40		

Hazardous materials descriptions and proper shipping names:

Carbamate pesticides, solid, toxic

Air Transport IATA:

UN/ID Number:	2757	Packing Group:	III
Special provisions:	A3		
Cargo Only			
Packing Instructions:	677	Maximum Qty/Pack:	200 kg
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	Y645	Maximum Qty/Pack:	100 kg
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	670	Maximum Qty/Pack:	10 kg

Shipping Name: CARBAMATE PESTICIDE, SOLID, TOXIC *(CONTAINS FENOBUCARB)

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	2757	Packing Group:	III
EMS Number:	F-A,S-A	Special provisions:	61 223 274
Limited Quantities:	5 kg	Marine Pollutant:	Yes

Shipping Name: CARBAMATE PESTICIDE, SOLID, TOXIC(contains fenobucarb)

Section 15 - REGULATORY INFORMATION

fenobucarb (CAS: 3766-81-2) is found on the following regulatory lists;

"Canada Non-Domestic Substances List (NDSL)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Inhalation may produce health damage*.
- Cumulative effects may result following exposure*.
- May produce discomfort of the eyes*.

* (limited evidence).

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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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