

# Benomyl: sc-239286



## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Benomyl

**Product Number:** sc-239286

**Supplier:** Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, CA 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

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

#### OSHA Hazards

Target Organ Effect, Toxic by inhalation. Skin sensitiser, Irritant, Carcinogen, Teratogen, Reproductive hazard, Mutagen

#### Target Organs

Liver

#### GHS Classification

Acute toxicity, Inhalation (Category 4)

Skin irritation (Category 2)

Skin sensitization (Category 1)

Germ cell mutagenicity (Category 1B)

Reproductive toxicity (Category 1B)

Specific target organ toxicity - single exposure (Category 3)

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

#### GHS Label elements, including precautionary statements

##### Pictogram



##### Signal word

##### Danger

#### Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H340	May cause genetic defects.
H360	May damage fertility or the unborn child.
H410	Very toxic to aquatic life with long lasting effects.

#### Precautionary statement(s)

P201	Obtain special instructions before use.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P501	Dispose of contents/ container to an approved waste disposal plant.

**HMIS Classification**

**Health hazard:** 2  
**Chronic Health Hazard:** \*  
**Flammability:** 0  
**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 2  
**Fire:** 0  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** Toxic if inhaled. Causes respiratory tract irritation.  
**Skin** May be harmful if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** May be harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Formula:** C14H18N4O3

**Molecular Weight:** 290.32

<i>CAS-No.</i>	<i>EC-No.</i>	<i>Index-No.</i>	<i>Concentration</i>
<b>Benomyl</b> 17804-35-2	241-775-7	613-049-00-3	-

**Synonyms:** Methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate

### 4. FIRST AID MEASURES

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 5. FIREFIGHTING MEASURES

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. Carbon oxides, nitrogen oxides (NOx)

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

### Precations for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage

Store at 4°C.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate	17804-35-2	TWA	1 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract irritation Embryo/fetal damage Testicular damage Male reproductive damage Confirmed animal carcinogen with unknown relevance to humans Sensitizer			
		TWA	10 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	15 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	See Appendix D - Substances with No Established RELs			
		TWA	10 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	solid	pH	no data available
Boiling point	no data available	Flash point	no data available
Ignition temperature	no data available	Lower explosion limit	no data available
Upper explosion limit	no data available	Vapor pressure	no data available
Density	no data available	Water solubility	no data available
Relative vapor density	no data available	Odor	no data available
Odor Threshold	no data available	Evaporation rate	no data available
Auto-ignition temperature	no data available	Partition coefficient	no data available
Melting point	> 300 °C - lit.	n-octanol/water	no data available
freezing point	no data available		

## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Materials to avoid

Strong oxidizing agents

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. Carbon oxides, nitrogen oxides (NOx)

### Other decomposition products

no data available

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

Oral LD50 LD50 Oral - rat - 10,000 mg/kg

Inhalation LC50 no data available

Dermal LD50 LD50 Dermal - rabbit - > 10,000 mg/kg

Other information on acute toxicity no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

no data available

### Respiratory or skin sensitization

May cause allergic skin reaction.

### Germ cell mutagenicity

May alter genetic material. In vivo tests showed mutagenic effects

### Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Reproductive toxicity

May cause reproductive disorders.

### Teratogenicity

Laboratory experiments have shown teratogenic effects.

Presumed human reproductive toxicant

### Specific target organ toxicity - single exposure (Globally Harmonized System)

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

**Inhalation** Toxic if inhaled. Causes respiratory tract irritation.

**Ingestion** May be harmful if swallowed.

**Skin** May be harmful if absorbed through skin. Causes skin irritation.

**Eyes** Causes eye irritation.

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

**RTECS:** DD6475000

## 12. ECOLOGICAL INFORMATION

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Toxicity**

Toxicity to daphnia and other aquatic invertebrates

**Persistence and degradability**

EC50 - Daphnia magna (Water flea) - 0.08-0.40 mg/l - 48 h

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

## 13. DISPOSAL CONSIDERATIONS

**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate)

Reportable Quantity (RQ): 10 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

**IMDG**

UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate)

Marine pollutant: Marine pollutant

**IATA**

UN number: 3077 Class: 9 Packing group: III

## 15. REGULATORY INFORMATION

## OSHA Hazards

Target Organ Effect, Toxic by inhalation., Skin sensitisier, Irritant, Carcinogen, Teratogen, Reproductive hazard, Mutagen

## SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

## SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:  
Methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate CAS-No. 17804-35-2

## SARA 311/312 Hazards

### Acute Health Hazard, Chronic Health Hazard

## **Massachusetts Right To Know Components**

Methyl 1-(butylcarbamoyl)benzimidazol-2-ylcarbamate CAS-No. 17804-35-2

#### **Pennsylvania Right To Know Components**

## Pennsylvania Right To Know Components

CAS No. 17804-35-2

## Na, Li, and Bi(II) Ta<sub>3</sub>N<sub>2</sub> Compounds

## New Jersey Right To Know Components

## Methyl 1-(butylcarbamoyl)benzimidazol-2-

## California Prop. 65 Components

### Methyl 1-(butylcarbamoyl)benzimidazole

WARNING! This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

### birth defects or other

reproductive harm.

## 16. OTHER INFORMATION

*The above information is believed to be correct but does not purport to be complete and should be used only as a guide. The burden of safe use of this material rests entirely with the user.*

07/30/2013