# Dibenzylphosphoryl Chloride, solution: sc-211299

## MATERIAL SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Dibenzylphosphoryl Chloride, solution

**Catalog Number:** sc-211299

**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

### 2. HAZARDS IDENTIFICATION

**Target Organs**
Blood, Eyes, Female reproductive system., Bone marrow

**WHMIS Classification**

| | | |
|---|---|---|
| B2 | Flammable liquid | Flammable liquid |
| D2A | | Carcinogen |
| D2B | | Moderate skin irritant |
| | | Moderate eye irritant |
| | | Mutagen |

**HMIS Classification**

| | |
|---|---|
| **Health hazard**: | 2 |
| **Chronic Health Hazard**: | * |
| **Flammability**: | 3 |
| **Physical hazards**: | 0 |

**Potential Health Effects**

**Inhalation** May be harmful 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. Aspiration hazard if swallowed - can enter lungs and cause damage.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please exercise due care when handling.

**GHS Classification**
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1A)
Aspiration hazard (Category 1)
Acute aquatic toxicity (Category 2)

**GHS Label elements, including precautionary statements**
Signal word Danger

**Hazard statement(s)**

| | |
|---|---|
| H225 | Highly flammable liquid and vapor. |
| H303 | May be harmful if swallowed. |
| H304 | May be fatal if swallowed and enters airways. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H340 | May cause genetic defects. |
| H350 | May cause cancer. |
| H401 | Toxic to aquatic life. |

**Precautionary statement(s)**

P201 Obtain special instructions before use.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P301/P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305/P351/P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308/P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.

**GHS Label Pictograms**

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Molecular Formula:** $C_{14}H_{14}ClO_3P$
**Molecular Weight:** 296.69
**CAS Registry #:** 538-37-4
**Synonyms:** Chlorophosphoric Acid Dibenzyl Ester; Dibenzyl phosphorochloridate

| Ingredient | CAS# | EC# | Index-No. | %Composition |
|---|---|---|---|---|
| Dibenzylphosphoryl Chloride | 538-37-4 | n/a | n/a | 10% |
| Benzene | 71-43-2 | 200-753-7 | 601-020-00-8 | 90% |

## 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

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### If swallowed

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

## 5. FIRE FIGHTING MEASURES

### Suitable extinguishing media

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

### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protective equipment. Avoid dust or aerosol formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**Environmental precautions**
Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust or aerosols.
Provide appropriate exhaust ventilation at places where dust/aerosol is formed. Normal measures for preventative fire protection.

**Conditions for safe storage**
Keep container tightly close in a dry and well-ventilated place.
Light, air and moisture sensitive - store below -20°C

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace exposure values:**

Beneze CAS# 71-43-2

| | | |
|---|---|---|
| Canada | TWA 0.5ppm | STEL 2.5ppm |
| US (ACGIH) | TWA 0.5ppm | STEL 2.5ppm |
| US (OSHA) | TWA 0.5ppm | STEL 2.5ppm |

**Personal protective equipment**

**Respiratory protection**
Use NIOSH (US) or CEN (EU) tested and approved particle/vapour respirators.

**Hand protection**
Handle with appropriate gloves. Gloves must be inspected prior to use.

**Eye protection**
NIOSH (US) or CEN (EU) approved safety glasses, googles or face shield, as appropriate.

**Skin and body protection**
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
Form liquid

**Safety data**

| | | | |
|---|---|---|---|
| pH | N/A | Upper explosion limit | N/A |
| Melting point | N/A | Vapor pressure | N/A |
| Boiling point | N/A | Density | N/A |
| Flash point | N/A | Water solubility | N/A |
| Ignition temperature | N/A | Relative vapor density | N/A |
| Lower explosion limit | N/A | | |

## 10. STABILITY AND REACTIVITY

### Chemical stability
Stable under recommended storage conditions.

### Conditions to avoid
no data available

### Materials to avoid
Strong oxidizing agents. Ammonia/Amines.  Reacts violently with water.

### Hazardous decomposition products
Hazardous decomposition products formed under fire conditions: carbon oxides, hydrogen chloride, potentially toxic decomposition products of an unknown nature.

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity (benzene)**
LD50 Oral - rat - 2,990 mg/kg
LC50 Inhalation - rat - female - 4 h - 44,700 mg/m3
LD50 Dermal - rabbit - 8,263 mg/kg

**Other information on acute toxicity**
no data available

**Skin corrosion/irritation**
Skin - rabbit - Skin irritation

**Serious eye damage/eye irritation**
Eyes - rabbit - Eye irritation

**Respiratory or skin sensitization**
no data available

**Germ cell mutagenicity**
Laboratory experiments have shown mutagenic effects.
In vivo tests showed mutagenic effects
Genotoxicity in vitro - Human - lymphocyte
Sister chromatid exchange
Genotoxicity in vitro - mouse - lymphocyte
Mutation in mammalian somatic cells.
Genotoxicity in vivo - mouse - Inhalation
Sister chromatid exchange

**Carcinogenicity**
Carcinogenicity - Human - male - Inhalation
Tumorigenic:Carcinogenic by RTECS criteria. Leukaemia Blood:Thrombocytopenia.
Carcinogenicity - rat - Oral
Tumorigenic:Carcinogenic by RTECS criteria. Endocrine:Tumors. Leukaemia
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.
Human carcinogen.
IARC: 1 - Group 1: Carcinogenic to humans (Benzene)

**Reproductive toxicity**
Reproductive toxicity - mouse - Intraperitoneal
Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetal death

**Teratogenicity**
Developmental Toxicity - rat - Inhalation
Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

**Developmental Toxicity - mouse - Inhalation**
Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
no data available
**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
May be fatal if swallowed and enters airways.

**Potential health effects**
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage.
Skin May be harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.

**Signs and Symptoms of Exposure**
Nausea, Dizziness, Headache, narcosis, Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation and/or giddiness, depression, drowsiness, or fatigue. The victim may experience tightness in the chest, breathlessness, and loss of consciousness. Tremors, convulsions, and death due to respiratory paralysis or circulatory collapse can occur in a few minutes to several hours following severe exposures. Aspiration of small amounts of liquid immediately causes pulmonary edema and hemorrhage of pulmonary tissue. Direct skin contact may cause erythema. Repeated or prolonged skin contact may result in drying, scaling dermatitis, or development of secondary skin infections. The chief target organ is the hematopoietic system. Bleeding from the nose, gums, or mucous membranes and the development of purpuric spots, pancytopenia, leukopenia, thrombocytopenia, aplastic anemia, and leukemia may occur as the condition progresses. The bone marrow may appear normal, aplastic or hyperplastic, and may not correlate with peripheral blood-forming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased.

**Synergistic effects**
no data available

**Additional Information**
RTECS: CY1400000

## 12. ECOLOGICAL INFORMATION

### Toxicity (Benzene)

Toxicity to fish
- LC50 - Oncorhynchus mykiss (rainbow trout) - 5.90 mg/l - 96 h
- LC50 - Pimephales promelas (fathead minnow) - 15.00 - 32.00 mg/l - 96 h
- LC50 - Lepomis macrochirus (Bluegill) - 230.00 mg/l - 96 h
- NOEC - Pimephales promelas (fathead minnow) - 10.2 mg/l - 7 d
- LOEC - Pimephales promelas (fathead minnow) - 17.2 mg/l - 7 d

Toxicity to daphnia and other aquatic invertebrates.
- EC50 - Daphnia magna (Water flea) - 22.00 mg/l - 48 h
- EC50 - Daphnia magna (Water flea) - 9.20 mg/l - 48 h

Toxicity to algae
- EC50 - Pseudokirchneriella subcapitata (green algae) - 29.00 mg/l - 72 h

### Persistence and degradability
Biodegradability Result: - Readily biodegradable.

### Bioaccumulative potential
Bioaccumulation Leuciscus idus (Golden orfe) - 3 d
Bioconcentration factor (BCF): 10

### Mobility in soil
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

## 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.

**Contaminated packaging**
Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**IATA**
Dangerous good
Proper shipping name: Organophosphorous compound, toxic, flammable, n.o.s.(Dibenzylphosphoryl Chloride, [95%], in benzene - 10% w/v)
UN Number : UN3279
Class 6.1(3)
Packing group II

## 15. REGULATORY INFORMATION

**DSL Status**
DSL - The substance is specified on the public Portion of the Domestic Substances List (benzene).

**WHMIS Classification**

| | | |
|---|---|---|
| B2 | Flammable liquid | Flammable liquid |
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**Potential Health Effects**

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| Skin | May be harmful if absorbed through skin. Causes skin irritation. |
| Eyes | Causes eye irritation. |
| Ingestion | May be harmful if swallowed. Aspiration hazard if swallowed - can enter lungs and cause damage. |

## 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.***