

# Dichlorobis(triphenylphosphine)cobalt(II)

sc-227810

Material Safety Data Sheet



The Power is Question

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

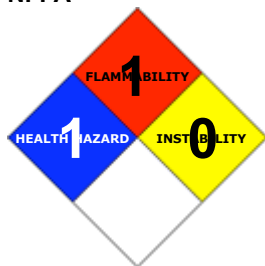
### PRODUCT NAME

Dichlorobis(triphenylphosphine)cobalt(II)

### 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

C36-H30-Cl2-Co-P2, [(C6H5)3P]2CoCl2, "dichlorobis(triphenylphosphine)cobalt (II)"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

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

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



### CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW

## RISK

Harmful by inhalation, in contact with skin and if swallowed.

## 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.
- In toxic doses soluble cobalt salts produce stomach pain and vomiting, flushing of the face and ears, rash, ringing in the ears, nervous deafness and reduced blood flow to the extremities.

#### 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.

#### SKIN

- Skin contact with the material may be harmful; 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.
- 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 dusts, generated by the material, during the course of normal handling, may be harmful.
  - 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.
- 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.
  - Cobalt poisoning can cause inflammation of the terminal airways (bronchioles), and cause lethargy and death within hours.

### 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.
- Inhalation of cobalt powder can induce asthma, chest tightness and chronic inflammation of the bronchi. Chronic exposure to cobalt causes increase in blood hemoglobin, increased production of cells in the blood marrow and thyroid gland, discharge from around the heart and damage to the alpha cells of the pancreas.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
bis(triphenylphosphine)cobalt(II) chloride	14126-40-0	>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: · 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 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

- for poisons (where specific treatment regime is absent):

-----BASIC TREATMENT

-----  
· Establish a patent airway with suction where necessary.  
· Watch for signs of respiratory insufficiency and assist ventilation as necessary.  
Treat symptomatically.

## 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>), hydrogen chloride, phosgene, phosphorus oxides (PO<sub>x</sub>), metal oxides, 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

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

### STORAGE REQUIREMENTS

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

Air-sensitive.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC	Notes
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US - Washington Permissible exposure limits of air contaminants	bis(triphenylphosphine)cobalt(II) chloride (Cobalt, metal fume & dust (as Co))		0.05		0.15	
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	bis(triphenylphosphine)cobalt(II) chloride (Cobalt metal, dust and fume (as Co))	-	0.05	-	0.15	
Canada - Ontario Occupational Exposure Limits	bis(triphenylphosphine)cobalt(II) chloride (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)			
Canada - British Columbia Occupational Exposure Limits	bis(triphenylphosphine)cobalt(II) chloride (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)			
Canada - Ontario Occupational Exposure Limits	bis(triphenylphosphine)cobalt(II) chloride (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	bis(triphenylphosphine)cobalt(II) chloride (Particulates not otherwise regulated Respirable fraction)		5			
US - California Permissible Exposure Limits for Chemical Contaminants	bis(triphenylphosphine)cobalt(II) chloride (Particulates not otherwise regulated Respirable fraction)		5			(n)
US - Oregon Permissible Exposure Limits (Z-1)	bis(triphenylphosphine)cobalt(II) chloride (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10			
US - Michigan Exposure Limits for Air Contaminants	bis(triphenylphosphine)cobalt(II) chloride (Particulates not otherwise regulated, Respirable dust)		5			

Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means "particles not otherwise regulated."

US - Oregon Permissible Exposure Limits (Z-1)	bis(triphenylphosphine)cobalt(II) chloride (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5
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Bold print  
identifies  
substances  
for which  
the Oregon  
Permissible  
Exposure  
Limits  
(PELs) are  
different  
than the  
federal  
Limits.  
PNOR  
means  
“particles  
not  
otherwise  
regulated.”

US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	bis(triphenylphosphine)cobalt(II) chloride (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)		5
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Canada - Prince Edward Island Occupational Exposure Limits	bis(triphenylphosphine)cobalt(II) chloride (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10
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See  
Appendix B  
current  
TLV/BEI  
Book

ENDOELTABLE

## PERSONAL PROTECTION



### RESPIRATOR

• particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)  
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
- fluorocautchouc
- 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	654.43
Melting Range (°F)	457(decomposes)	Viscosity	Not Applicable
Boiling Range (°F)	Not applicable	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not available	pH (1% solution)	Not applicable
Decomposition Temp (°F)	457	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)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

### APPEARANCE

Blue, hygroscopic powder; does not mix 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

bis(triphenylphosphine)cobalt(II) chloride

### TOXICITY AND IRRITATION

#### BIS(TRIPHENYLPHOSPHINE)COBALT(II) CHLORIDE:

- No significant acute toxicological data identified in literature search.

### CARCINOGEN

Cobalt and cobalt compounds (NB: Evaluated as a group)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	2B
COBALT COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	IARC, P65-MC

## Section 12 - ECOLOGICAL INFORMATION

No data

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
bis(triphenylphosphine)cobalt(II) chloride	HIGH	No Data Available	LOW	LOW

## 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.

For small quantities:

- Dissolve the material (in water or acid solution as appropriate) or convert it to a water soluble state with appropriate oxidizing agent.
- Precipitate as the sulfide, adjusting the pH to neutral to complete the precipitation.
- 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

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

■ Cumulative effects may result following exposure\*.

\* (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](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.

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