Material Safety Data Sheet

Pertussis Toxin, B Oligomer, *Bordetella pertussis*

sc-222150

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

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Pertussis Toxin, B Oligomer, *Bordetella pertussis*

STATEMENT OF HAZARDOUS NATURE

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
"holotoxin/ endotoxin component"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Toxicity:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Body Contact:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Reactivity:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Chronic:</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW
RISK

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Although ingestion is not thought to produce harmful effects, the material may still be damaging to the health of the individual following ingestion, especially where pre-existing organ (e.g. liver, kidney) damage is evident.
■ Considered an unlikely route of entry in commercial/industrial environments.

EYE
■ Although the material is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

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.

INHALED
■ The material is not thought to produce respiratory irritation (as classified using animal models). Nevertheless inhalation of the material, 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.
■ Respiratory sensitization may result in allergic/asthma like responses; from coughing and minor breathing difficulties to bronchitis with wheezing, gasping.

CHRONIC HEALTH EFFECTS
■ There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.
■ Principal routes of exposure are usually by skin contact/absorption and inhalation of generated dust.
No human exposure data available. For this reason health effects described are based on experience with chemically related materials.
As with any chemical product, contact with unprotected bare skin; inhalation of vapor, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pertussis toxin, B oligomer</td>
<td>Not avail.</td>
<td>&gt;98</td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

SWALLOWED
■ If poisoning occurs, contact a doctor or Poisons Information Center. · IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY. · For advice, contact a Poisons Information Center or a doctor.

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 skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED
· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN
■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Fire Fighting Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Explosive Limit (%):</td>
</tr>
<tr>
<td>Specific Gravity (water=1):</td>
</tr>
<tr>
<td>Lower Explosive Limit (%):</td>
</tr>
<tr>
<td>Relative Vapor Density (air=1):</td>
</tr>
<tr>
<td>Extinguishing Media</td>
</tr>
<tr>
<td>Foam.</td>
</tr>
<tr>
<td>Dry chemical powder.</td>
</tr>
</tbody>
</table>

FIRE FIGHTING
· Use water delivered as a fine spray to control fire and cool adjacent area.
· DO NOT approach containers suspected to be hot.
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
· Solid which exhibits difficult combustion or is difficult to ignite.
· 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).

FIRE INCOMPATIBILITY
■ Avoid contamination with strong oxidizing agents as ignition may result.

PERSONAL PROTECTION
Glasses:
Full face- shield.
Gloves:
General purpose rubber glove.
Respirator:
Particulate

Section 6 - ACCIDENTAL RELEASE MEASURES
MINOR SPILLS
· Clean up all spills immediately.
· Avoid contact with skin and eyes.
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.

RECOMMENDED STORAGE METHODS
· Polyethylene or polypropylene container.
· Packing as recommended by manufacturer.

STORAGE REQUIREMENTS
· Keep dry.
· Store in original containers.
· Keep containers securely sealed.
· No smoking, naked lights or ignition sources.
· Store in a cool, dry, well-ventilated area.
· Store away from incompatible materials.
· Protect containers against physical damage.
· Check regularly for leaks.
· Observe manufacturer’s storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/CC</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>US - Oregon Permissible Exposure Limits (Z-3)</td>
<td>pertussis toxin, B oligomer (Inert or Nuisance Dust: Total dust)</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(d)</td>
</tr>
<tr>
<td>US OSHA Permissible Exposure Levels (PELs) - Table Z3</td>
<td>pertussis toxin, B oligomer (Inert or Nuisance Dust: (d) Respirable fraction)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

#### PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>State</th>
<th>Divided solid</th>
<th>Molecular Weight</th>
<th>66000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Range (°F)</td>
<td>Not available</td>
<td>Boiling Range (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility in water (g/L)</td>
<td>Miscible</td>
<td>Flash Point (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>pH (1% solution)</td>
<td>Not available</td>
<td>Decomposition Temp (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Not applicable</td>
<td>Autoignition Temp (°F)</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapour Pressure (mmHG)</td>
<td>Negligible</td>
<td>Upper Explosive Limit (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>Not available</td>
<td>Lower Explosive Limit (%)</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative Vapor Density (air=1)</td>
<td>&gt;1</td>
<td>Volatile Component (%vol)</td>
<td>Negligible</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### APPEARANCE

- Solid.
- Mixes with water.
Lyophilised powder; mixes with water. Consists of four dissimilar subunits of M.W. 23000, 22000, 11700, 9300 in molar ratio 1:1:2:1

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

PERTUSSIS TOXIN, B OLIGOMER

TOXICITY AND IRRITATION
PERTUSSIS TOXIN, B OLIGOMER:
- No significant acute toxicological data identified in literature search.

Section 12 - ECOLOGICAL INFORMATION

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

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions
- All waste must be handled in accordance with local, state and federal regulations.
- Consult manufacturer for recycling options and recycle where possible.
- Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

DOT:
- Symbols: None
- Hazard class or Division: 6.1
- Identification Numbers: UN2811 PG: II
- Label Codes: 6.1 Special provisions: IB8, IP2, IP4, T3, TP33
- Packaging: Exceptions: 153
- Packaging: Non-bulk: 212
- Packaging: Exceptions: 153
- Quantity limitations: 25 kg
- Passenger aircraft/rail:
  - Quantity Limitations: Cargo 100 kg
  - Vessel stowage: Location: B
- Hazardous materials descriptions and proper shipping names:
  - Toxic solids, organic, n.o.s.

Air Transport IATA:
- ICAO/IATA Class: 6.1
- ICAO/IATA Subrisk: None
- UN/ID Number: 2811 Packing Group: II
- Special provisions: A3
- Cargo Only
- Packing Instructions: 615 Maximum Qty/Pack: 100 kg
- Passenger and Cargo Passenger and Cargo
- Packing Instructions: 613 Maximum Qty/Pack: 25 kg
- Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity
- Packing Instructions: Y613 Maximum Qty/Pack: 1 kg
- Shipping Name: TOXIC SOLID, ORGANIC, N.O.S. *(CONTAINS PERTUSSIS TOXIN, B OLIGOMER)

Maritime Transport IMDG:
- IMDG Class: 6.1
- IMDG Subrisk: None
- UN Number: 2811 Packing Group: II
- EMS Number: F-A, S-A
- Special provisions: 274
- Limited Quantities: 500 g
- Shipping Name: TOXIC SOLID, ORGANIC, N.O.S.
Section 16 - OTHER INFORMATION

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.

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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No data for pertussis toxin, B oligomer (CAS: , Not avail)