

# Chorismic acid barium salt

sc-361835



The Power is Question

Material Safety Data Sheet

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

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Chorismic acid barium salt

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
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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

C<sub>10</sub>H<sub>8</sub>BaO<sub>6</sub>, HO<sub>2</sub>CC<sub>6</sub>H<sub>3</sub>(OH)OC(=CH<sub>2</sub>)CO<sub>2</sub>H, "3R-trans-3-[(1-carboxyethenyl)oxy]-4-hydroxy-1, 5-cyclohexadiene-1-", "carboxylic acid", "3-enolpyruvic ether of", "trans-3, 4-dihydroxycyclohexa-1, 5-diene carboxylic acid", "alpha-(5-carboxy-1, 2-dihydro-2-hydroxyphenoxy)acrylic acid"

## 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.  
Irritating to eyes, respiratory system and skin.

### 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 of soluble barium compounds may result in ulceration of the mucous membranes of the gastrointestinal tract, tightness in the muscles of the face and neck, gastroenteritis, vomiting, diarrhea, muscular tremors and paralysis, anxiety, weakness, labored breathing, cardiac irregularity due to contractions of smooth striated and cardiac muscles (often violent and painful), slow irregular pulse, hypertension, convulsions and respiratory failure.

##### EYE

- This material can cause eye irritation and damage in some persons.

##### SKIN

- Skin contact with the material may be harmful; systemic effects may result following absorption.
- This material can cause inflammation of the skin on contact in some persons.
- The material may accentuate any pre-existing dermatitis condition.
- 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 can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
- 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.

### CHRONIC HEALTH EFFECTS

- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. 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.

Barium compounds may cause high blood pressure, airway irritation and damage the liver, spleen and bone marrow. Prolonged exposure may cause a lung inflammation and scarring.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
chorismic acid, barium	55508-12-8	>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

- After ingestion of barium acid salts, severe gastro-intestinal irritation followed by muscle twitching, progressive flaccid paralysis and severe hypokalemia and hypertension, occurs.
- Respiratory failure, renal failure and occasional cardiac dysrhythmias may result from an acute ingestion.

## 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

- Water spray or fog.
- Foam.

## 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>), metal oxides, other pyrolysis products typical of burning organic material.

Decomposes at high temperatures to produce barium oxide. Barium oxide is strongly alkaline and, upon contact with water, is exothermic. When barium oxide reacts with oxygen to give a peroxide, there is a fire and explosion risk.

May emit poisonous fumes.

May emit corrosive 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

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

#### STORAGE REQUIREMENTS

- Store in original containers.
- Store at -80° C.
- Keep containers securely sealed.

### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

#### EXPOSURE CONTROLS

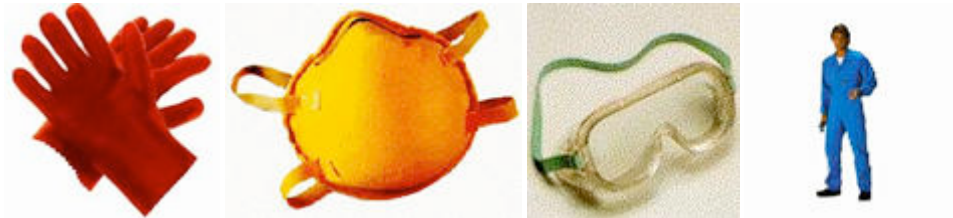
Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	chorismic acid, barium (Barium and soluble compounds, as Ba)		0.5						
US - Minnesota Permissible Exposure Limits (PELs)	chorismic acid, barium (Barium, soluble compounds (as Ba))		0.5						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	chorismic acid, barium (Barium, soluble compounds (as Ba))		0.5						
Canada - Alberta Occupational Exposure Limits	chorismic acid, barium (Barium and soluble compounds, as Ba)		0.5						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))		0.5						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))		0.5						
US - Idaho - Limits for Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))		0.5						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))		0.5						

Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	chorismic acid, barium (Barium and soluble compounds, (as Ba))	0.5	1.5	
US - Hawaii Air Contaminant Limits	chorismic acid, barium (Barium, soluble compounds (as Ba))	0.5		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	chorismic acid, barium (Barium (soluble compounds) (as Ba))	0.5	0.5	
US - Washington Permissible exposure limits of air contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))	0.5	1.5	
Canada - Northwest Territories Occupational Exposure Limits (English)	chorismic acid, barium (Barium (soluble compounds) (as Ba))	0.5	1.5	
Canada - Nova Scotia Occupational Exposure Limits	chorismic acid, barium (Barium - Soluble compounds (as Ba))	0.5		TLV Basis: eye, skin & gastrointestinal irritation; muscular stimulation
US - Alaska Limits for Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))	0.5		
US - Michigan Exposure Limits for Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))	0.5		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	chorismic acid, barium (Barium, soluble compounds (as Ba))	0.5		
US ACGIH Threshold Limit Values (TLV)	chorismic acid, barium (Barium - Soluble compounds (as Ba))	0.5		TLV Basis: eye, skin & gastrointestinal irritation; muscular stimulation

US - California Permissible Exposure Limits for Chemical Contaminants	chorismic acid, barium (Barium, soluble compounds, as Ba)	0.5	
US - Oregon Permissible Exposure Limits (Z-1)	chorismic acid, barium (Barium - (soluble compounds))	0.5	
Canada - Prince Edward Island Occupational Exposure Limits	chorismic acid, barium (Barium - Soluble compounds (as Ba))	0.5	TLV Basis: eye, skin & gastrointestinal irritation; muscular stimulation
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	chorismic acid, barium (Barium, soluble compounds (as Ba))	0.5	

ENDOELTABLE

**PERSONAL PROTECTION**



**RESPIRATOR**

·Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

**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, 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.

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.

Mixes with water.

State	Divided solid	Molecular Weight	361.5
Melting Range (°F)	234;148-149	Viscosity	Not Applicable
Boiling Range (°F)	Not available	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not available	pH (1% solution)	Not available
Decomposition Temp (°F)	234	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

Crystalline solid; mixes with water. Occurs as the mono- or tri-hydrate.

## 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

chorismic acid, barium

### TOXICITY AND IRRITATION

#### CHORISMIC ACID, BARIUM:

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

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

No significant acute toxicological data identified in literature search.

### CARCINOGEN

Barium and Compounds	US EPA Carcinogens Listing	Carcinogenicity	D
Barium and Compounds (Inhalation Route)*	US EPA Carcinogens Listing	Carcinogenicity	CBD
Barium and Compounds (Oral Route)*	US EPA Carcinogens Listing	Carcinogenicity	NL

Barium and Compounds	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	D
Barium and Compounds (Inhalation Route)*	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	CBD
Barium and Compounds (Oral Route)*	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	NL
Barium - Soluble compounds (as Ba)	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
chorismic acid, barium	US - Rhode Island Hazardous Substance List	IARC	
chorismic acid, barium	US - Maine Chemicals of High Concern List	Carcinogen	D
chorismic acid, barium	US - Maine Chemicals of High Concern List	Carcinogen	CBD
chorismic acid, barium	US - Maine Chemicals of High Concern List	Carcinogen	NL
TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A4

## Section 12 - ECOLOGICAL INFORMATION

No data

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
chorismic acid, barium	LOW	No Data Available	LOW	HIGH

## Section 13 - DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

A. General Product Information

Toxicity characteristic: use EPA hazardous waste number D005 (waste code E) if this substance, in a solid waste, produces an extract containing greater than 100 mg/L of barium.

### 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.

- 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



**chorismic acid, barium (CAS: 55508-12-8) is found on the following regulatory lists;**

"US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Environmental Health Standards for the Management of Hazardous Waste - List of Inorganic Persistent and Bioaccumulative Toxic Substances and Their STLC & TTLC Values", "US - California Toxic Air Contaminant List Category IV", "US - Vermont Hazardous Constituents", "US - Washington Dangerous waste constituents list", "US EPA Carcinogens Listing", "US RCRA (Resource Conservation & Recovery Act) - Appendix IX to Part 264 Ground-Water Monitoring List 1", "US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261", "US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Inorganic and Organic Constituents 1"

## 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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