

# Barium sulfate

sc-239277



The Power is Question

Material Safety Data Sheet

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

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

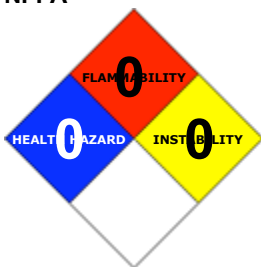
### PRODUCT NAME

Barium sulfate

### 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

Ba-O4-S, BaSO<sub>4</sub>, BaO4S, "C.I. 77120", "barium sulphate", "precipitated barium sulfate 1:1", barytes, barite, sulfuric, "sulphuric acid barium salt 1:1", "precipitated barytes", "heavy spar", Actybaryte, Finemeal, "Barium Sulfuricum", "Barii Sulphas Sulfas", Blank-fixe, Bakontal, Intestibar, "Minbar 70", "Medebar 85", Medescan, Baridol, Lactobaryt, "Medebar M", Tixobar, Baritop, Liquibarine, "Minbar 90", "Medebar Plus", "Medebar XAC\_90", Barospere, Macropaque, Barotrast, Micropaque, "Baryta White", Neobarst, "Barytes 22", Oratrast, Basofor, Raybar, Redi-Flow, Citobaryum, Solbar, Colonatrast, Supramike, "Enamel White", Travad, Esophotrast, Unibaryt, "C.I. Pigment White 21", Eweiss, "Permanent White", E-z-paque, "Barimite UF, XF, G-50", Cimbarto, "CAS RN: 13462-86-7 -natural barium sulfate", "Barium Sulphate for Soil Analysis"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability:	0	■	
Toxicity:	0	■	
Body Contact:	2	■	Min/Nil=0 Low=1 Moderate=2
Reactivity:	0	■	High=3 Extreme=4



## CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW RISK

### POTENTIAL HEALTH EFFECTS

### ACUTE HEALTH EFFECTS

#### SWALLOWED

- Sulfates are not well absorbed orally, but can cause diarrhea.
- The material has NOT been classified as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.

#### 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

- 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.
- 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

- There is some evidence to suggest that 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.
- Not normally a hazard due to non-volatile nature of product.
- Barium fumes are respiratory irritants. Over-exposure to barium dusts and fume may result in rhinitis, frontal headache, wheezing, laryngeal spasm, salivation and anorexia.

#### 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. 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	%
barium sulfate	7727-43-7	99.95

## Section 4 - FIRST AID MEASURES

#### SWALLOWED

· Immediately give a glass of water. · First aid is not generally required. If in doubt, contact a Poisons Information Center or a doctor.

#### EYE

- If this product comes in contact with eyes: · Wash out immediately with water. · If irritation continues, seek medical attention.

#### SKIN

- If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

#### INHALED

· If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

#### **NOTES TO PHYSICIAN**

- Treat symptomatically.

### **Section 5 - FIRE FIGHTING MEASURES**

Vapour Pressure (mmHG):	Negligible
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	4.5 @ 15 C
Lower Explosive Limit (%):	Not applicable

#### **EXTINGUISHING MEDIA**

· There is no restriction on the type of extinguisher which may be used.  
Use extinguishing media suitable for surrounding area.

#### **FIRE FIGHTING**

· Alert Emergency Responders and tell them location and nature of hazard.  
· Wear breathing apparatus plus protective gloves for fire only.

#### **GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS**

· Non combustible.  
· Not considered to be a significant fire risk, however containers may burn.  
Decomposition may produce toxic fumes of: sulfur oxides (SOx), metal oxides.  
May emit poisonous fumes.  
May emit corrosive fumes.

#### **FIRE INCOMPATIBILITY**

- None known.

#### **PERSONAL PROTECTION**

Glasses:  
Chemical goggles.  
Gloves:  
Respirator:  
Particulate

### **Section 6 - ACCIDENTAL RELEASE MEASURES**

#### **MINOR SPILLS**

· Clean up all spills immediately.  
· Avoid breathing dust and contact with skin and eyes.

#### **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.

#### **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.

### **Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

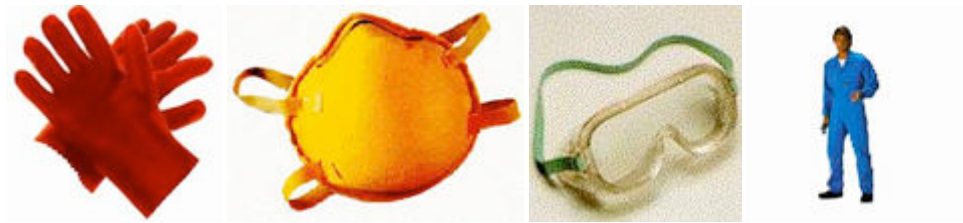
#### **EXPOSURE CONTROLS**

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 - Alberta Occupational Exposure Limits	barium sulfate (Barium sulfate)		10						
US NIOSH Recommended Exposure Limits (RELs)	barium sulfate (Barium sulfate)		10						(TWA (total))
US - Minnesota Permissible Exposure Limits (PELs)	barium sulfate (Barium sulfate - Total dust)		10						
Canada - British Columbia Occupational Exposure Limits	barium sulfate (Barium sulfate)		10 (N)						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	barium sulfate (Barium sulfate - Respirable fraction)		5						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	barium sulfate (Barium sulfate - Total dust)		15						
US NIOSH Recommended Exposure Limits (RELs)	barium sulfate (Barium sulfate)		5						(TWA (resp))
US ACGIH Threshold Limit Values (TLV)	barium sulfate (Barium sulfate)		10						TLV Basis: pneumoconiosis
US - Minnesota Permissible Exposure Limits (PELs)	barium sulfate (Barium sulfate - Respirable fraction)		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	barium sulfate (Barium sulfate - Respirable fraction)		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	barium sulfate (Barium sulfate - Total dust)		15						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	barium sulfate (Barium sulfate - Respirable fraction)		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Final	barium sulfate (Barium sulfate - Total dust)		10						

Rule Limits for Air Contaminants			
US - Idaho - Limits for Air Contaminants	barium sulfate (Barium sulfate - Respirable fraction)	5	
US - Idaho - Limits for Air Contaminants	barium sulfate (Barium sulfate - Total dust)	15	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	barium sulfate (Barium sulfate Respirable fraction)	5	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	barium sulfate (Barium sulfate Total dust)	10	
US - Alaska Limits for Air Contaminants	barium sulfate (Barium sulfate Total dust)	10	
US - Hawaii Air Contaminant Limits	barium sulfate (Barium sulfate - Respirable fraction)	5	
US - Michigan Exposure Limits for Air Contaminants	barium sulfate (Barium sulfate Respirable dust)	5	
US - Alaska Limits for Air Contaminants	barium sulfate (Barium sulfate Respirable fraction)	5	
US - Washington Permissible exposure limits of air contaminants	barium sulfate (Barium sulfate - Respirable fraction)	5	10
US - Washington Permissible exposure limits of air contaminants	barium sulfate (Barium sulfate - Total particulate)	10	20
US - Hawaii Air Contaminant Limits	barium sulfate (Barium sulfate - Total dust)	10	
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	barium sulfate (Barium sulphate)	10	20
US - Michigan Exposure Limits for Air Contaminants	barium sulfate (Barium sulfate Total dust)	10	
US - Wyoming Toxic and Hazardous Substances	barium sulfate (Barium sulfate- Respirable)	5	

Table Z1 Limits for Air Contaminants	fraction)		
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	barium sulfate (Barium sulfate- Total dust)	15	
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	barium sulfate (Barium sulfate)	5	
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	barium sulfate (Barium sulfate)	10	
US - Oregon Permissible Exposure Limits (Z-1)	barium sulfate (Barium Sulfate Respirable Fraction)	5	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.
US - Oregon Permissible Exposure Limits (Z-1)	barium sulfate (Barium Sulfate - Total Dust)	10	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.
Canada - Prince Edward Island Occupational Exposure Limits	barium sulfate (Barium sulfate)	10	TLV Basis: pneumoconiosis
Canada - Nova Scotia Occupational Exposure Limits	barium sulfate (Barium sulfate)	10	TLV Basis: pneumoconiosis

**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.

· If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Dust is very dense and settles quickly.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Solid.

Does not mix with water.

Sinks in water.

State	Divided solid	Molecular Weight	233.39
Melting Range (°F)	2876	Viscosity	Not Applicable
Boiling Range (°F)	Not available.	Solubility in water (g/L)	Immiscible
Flash Point (°F)	Not Applicable	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	>2912	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not applicable	Vapour Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	4.5 @ 15 C
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not applicable.
Volatile Component (%vol)	Nil	Evaporation Rate	Non Volatile

### APPEARANCE

Dense fine odourless white powder or polymorphous crystals. Solubility in water 0.00025% i.e. practically insoluble. Only 0.6% solubility in 3% hydrochloric acid solution. Slightly soluble in concentrated sulfuric acid and soluble in hot concentrated sulfuric acid. Particle size 2-25 microns. Rhombic crystals with a transition point at 1149 deg C to monoclinic. Finer grades, are precipitated.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

## STORAGE INCOMPATIBILITY

- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.

Barium sulfate (barytes)

- reacts violently with dimethyl sulfoxide, sodium acetylide, finely divided carbon, aluminium, magnesium, zirconium, and possibly other active metals, especially at elevated temperatures
- is incompatible with potassium, phosphorus (ignites when primed with nitrate-calcium silicide).

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

barium sulfate

### TOXICITY AND IRRITATION

#### BARIUM SULFATE:

- 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 sulfate	US - Maine Chemicals of High Concern List	Carcinogen	D
barium sulfate	US - Maine Chemicals of High Concern List	Carcinogen	CBD
barium sulfate	US - Maine Chemicals of High Concern List	Carcinogen	NL

## Section 12 - ECOLOGICAL INFORMATION

No data

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
barium sulfate	No Data Available	No Data Available		

## 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.

‡ 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 or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

## Section 14 - TRANSPORTATION INFORMATION

### Air Transport IATA:

UN/ID Number: None Packing Group: -

ERG Code: - Special provisions: None

Cargo Only

Packing Instructions: Not Restricted

Maximum Qty/Pack: Not Restricted Passenger and Cargo

Passenger and Cargo Packing Instructions: Not Restricted

Maximum Qty/Pack: Not Restricted Passenger and Cargo Limited Quantity

Passenger and Cargo Limited Quantity Packing Instructions: Not Restricted

Maximum Qty/Pack: Not Restricted

Shipping Name: BARIUM SULPHATE

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IMDG

## Section 15 - REGULATORY INFORMATION

### barium sulfate (CAS: 7727-43-7,13462-86-7) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada Domestic Substances List (DSL)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","International Air Transport Association (IATA) Dangerous Goods Regulations","International Council of Chemical Associations (ICCA) - High Production Volume List","US - Alaska Limits for Air Contaminants","US - Hawaii Air Contaminant Limits","US - Idaho - Limits for Air Contaminants","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - Oregon Permissible Exposure Limits (Z-1)","US - Pennsylvania - Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)","US DOE Temporary Emergency Exposure Limits (TEELs)","US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives","US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion","US NIOSH Recommended Exposure Limits (RELs)","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Cumulative effects may result following exposure\*.
- May produce discomfort of the respiratory system\*.

\* (limited evidence).

### Ingredients with multiple CAS Nos

Ingredient Name CAS barium sulfate 7727-43-7, 13462-86-7

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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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