

# Ammonium bromide

sc-202932



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

Ammonium bromide

### 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

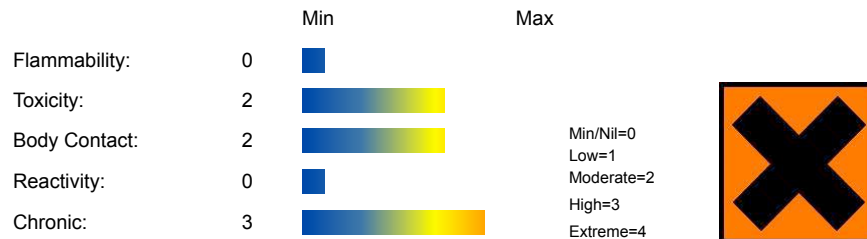
ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

NH<sub>3</sub> HBr, NH<sub>4</sub>-Br, "hydrobromic acid monoammoniate"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS



## CANADIAN WHMIS SYMBOLS



### EMERGENCY OVERVIEW

#### RISK

Irritating to eyes and skin.

Harmful to aquatic organisms.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

#### SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.

■ Bromide poisoning causes intense vomiting so the dose is often removed.

Effects include drowsiness, irritability, inco-ordination, vertigo, confusion, mania, hallucinations and coma.

■ Large doses of ammonia or injected ammonium salts may produce diarrhea and may be sufficiently absorbed to produce increased production of urine and systemic poisoning.

Symptoms include weakening of facial muscle, tremor, anxiety, reduced muscle and limb control.

#### EYE

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

#### SKIN

■ This material can cause inflammation of the skin on contact in some persons.

■ The material may accentuate any pre-existing dermatitis condition.

■ Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction.

■ 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

■ The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models).

Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

■ 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

■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

There is some evidence that human exposure to the material may result in developmental toxicity. This evidence is based on animal studies where effects have been observed in the absence of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not secondary non-specific consequences of the other toxic effects.

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.

Chronic intoxication with ionic bromides, historically, has resulted from medical use of bromides but not from environmental or occupational exposure; depression, hallucinosis, and schizophreniform psychosis can be seen in the absence of other signs of intoxication. Bromides may also induce sedation, irritability, agitation, delirium, memory loss, confusion, disorientation, forgetfulness (aphasias), dysarthria, weakness, fatigue, vertigo, stupor, coma, decreased appetite, nausea and vomiting, diarrhoea, hallucinations, an acne like rash on the face, legs and trunk, known as bronchoderma (seen in 25-30% of case involving bromide ion), and a profuse discharge from the nostrils (coryza). Ataxia and generalised hyperreflexia have also been observed. Correlation of neurologic symptoms with blood levels of bromide is inexact. The use of substances such as brompheniramine, as antihistamines, largely reflect current day usage of bromides; ionic bromides have been largely withdrawn from therapeutic use due to their toxicity. Several cases of foetal abnormalities have been described in mothers who took large doses of bromides during pregnancy.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ammonium bromide	12124-97-9	>99

## Section 4 - FIRST AID MEASURES

### SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

### 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 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

■ Treatment of intoxication by the bromide ion includes hydration, the maintenance of mild water diuresis, and sodium, or even better, ammonium chloride (10-15 gm. daily in divided doses) with an osmotic or high ceiling diuretic.

## Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHG):	Negligible.
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	2.429 @ 25 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: hydrogen bromide, nitrogen oxides (NOx).  
May emit poisonous fumes.  
May emit corrosive fumes.  
Corrodes metals at fire temperatures.

### FIRE INCOMPATIBILITY

‡ None known.

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## 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.

**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**

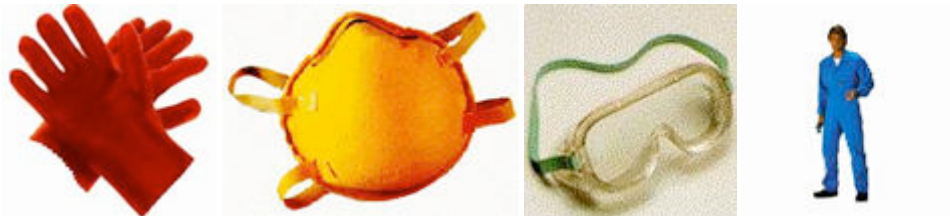
**EXPOSURE CONTROLS**

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
Canada - Ontario Occupational Exposure Limits	ammonium bromide (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)						
Canada - British Columbia Occupational Exposure Limits	ammonium bromide (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)						
Canada - Ontario Occupational Exposure Limits	ammonium bromide (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	ammonium bromide (Particulates not otherwise regulated Respirable fraction)		5						
US - California Permissible Exposure Limits for Chemical Contaminants	ammonium bromide (Particulates not otherwise regulated Respirable fraction)		5						(n)

US - Oregon Permissible Exposure Limits (Z-1)	ammonium bromide (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10	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 - Michigan Exposure Limits for Air Contaminants	ammonium bromide (Particulates not otherwise regulated, Respirable dust)		5	
US - Oregon Permissible Exposure Limits (Z-1)	ammonium bromide (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	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 - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	ammonium bromide (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)		5	
Canada - Prince Edward Island Occupational Exposure Limits	ammonium bromide (Particles (Insoluble or Poorly Soluble) [NOS] Inhalable particles)		10	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)

**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:

- 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.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	97.94
Melting Range (°F)	846(sublimes)	Viscosity	Not Applicable
Boiling Range (°F)	455 (vac.)	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not Applicable	pH (1% solution)	4.5 - 6.0 (5%)
Decomposition Temp (°F)	Not Applicable	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available.	Vapor Pressure (mmHG)	Negligible.
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	2.429 @ 25 C
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Negligible	Evaporation Rate	Not applicable

### APPEARANCE

Odorless, slightly hygroscopic crystals or granules, pungent saline taste, becomes yellowish in air; sublimes at high temperatures without melting. Freely soluble in water, acetone, ammonia. Slightly soluble in ether; practically insoluble in ethyl acetate.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

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

### STORAGE INCOMPATIBILITY

· Contact with acids produces toxic fumes.

Segregate from acids, alkalis, acid salts, nitrous ether, alkaloids, salts of lead, mercury and silver, bromine trifluoride, iodine heptafluoride and potassium.

In the presence of acids, hydrogen bromide is evolved.  
 In the presence of alkalis, ammonia is evolved.  
 Avoid reaction with bromine trifluoride (BrF<sub>3</sub>), iodine heptafluoride (IF<sub>7</sub>), and potassium (K).  
 Reacts explosively with bromine tetrafluoride.  
 For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

ammonium bromide

### TOXICITY AND IRRITATION

#### AMMONIUM BROMIDE:

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

TOXICITY	IRRITATION
Oral (rat) LD50: 2714 mg/kg *	Nil Reported *[Sigma/Aldrich]

### CARCINOGEN

ammonium bromide	US - Rhode Island Hazardous Substance List	IARC	
BROMINE COMPOUNDS (ORGANIC OR INORGANIC)	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC

## Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

## Section 13 - DISPOSAL CONSIDERATIONS

### 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.

For small quantities:

- Neutralize an aqueous solution of the material.
- Filter solids for disposal to approved land fill.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

## Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

**ammonium bromide (CAS: 12124-97-9) is found on the following regulatory lists;**

"Canada Domestic Substances List (DSL)", "US - Massachusetts Oil & Hazardous Material List", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US Inventory of Effective Food Contact Substance Notifications", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Ingestion may produce health damage\*.
- Cumulative effects may result following exposure\*.
- May be harmful to the foetus/ embryo\*.

\* (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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