

## SAFETY DATA SHEET

Version 6.8  
Revision Date 09/06/2024  
Print Date 09/07/2024

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Barium chlorate monohydrate

Product Number : 244554

Brand : Aldrich

Index-No. : 017-003-00-8

CAS-No. : 10294-38-9

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing solids (Category 1), H271

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Aldrich - 244554

Page 1 of 11

Short-term (acute) aquatic hazard (Category 2), H401  
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard Statements

H271

May cause fire or explosion; strong oxidizer.

H302 + H332

Harmful if swallowed or if inhaled.

H411

Toxic to aquatic life with long lasting effects.

Precautionary Statements

P210

Keep away from heat.

P220

Keep/Store away from clothing/ combustible materials.

P221

Take any precaution to avoid mixing with combustibles.

P261

Avoid breathing dust.

P264

Wash skin thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P271

Use only outdoors or in a well-ventilated area.

P273

Avoid release to the environment.

P280

Wear protective gloves/ eye protection/ face protection.

P283

Wear fire/ flame resistant/ retardant clothing.

P301 + P312 + P330

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P304 + P340 + P312

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P306 + P360

IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P371 + P380 + P375

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

P391

Collect spillage.

P501

Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Formula	:	BaCl <sub>2</sub> O <sub>6</sub> ·H <sub>2</sub> O
Molecular weight	:	322.24 g/mol
CAS-No.	:	10294-38-9
EC-No.	:	236-760-7
Index-No.	:	017-003-00-8

Aldrich - 244554

Page 2 of 11

Component	Classification	Concentration
<b>Barium chlorate monohydrate</b>		
	Ox. Sol. 1; Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H271, H302, H332, H401, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Hydrogen chloride gas

Barium oxide

Not combustible.

Aldrich - 244554

Page 3 of 11

Has a fire-promoting effect due to release of oxygen.  
Ambient fire may liberate hazardous vapours.

### **5.3 Advice for firefighters**

In the event of fire, wear self-contained breathing apparatus.

### **5.4 Further information**

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition.

#### **Hygiene measures**

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Tightly closed. Separately or together with other oxidising substances only and away from sources of ignition and heat. Because of their oxidation potential these products can raise the burning rate of combustible substances substantially or ignite combustible substances on contact with them.

#### **Storage class**

Storage class (TRGS 510): 5.1A: Strongly oxidizing hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Barium chlorate monohydrate	10294-38-9	TWA	0.5 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.5 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		
		TWA	0.5 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		PEL	0.5 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### 8.2 Exposure controls

#### Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### Skin protection

Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

##### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatrill® L

##### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min  
Material tested: KCL 741 Dermatril® L

### **Body Protection**

protective clothing

### **Respiratory protection**

Recommended Filter type: Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

### **Control of environmental exposure**

Do not let product enter drains.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |   |  |
|---|--|
| a) Appearance                                   | Form: powder<br>Color: white                 |
| b) Odor   | No data available                            |
| c) Odor Threshold                               | No data available                            |
| d) pH   | No data available                            |
| e) Melting point/freezing point                 | Melting point/ range: 414 °C (777 °F) - lit. |
| f) Initial boiling point and boiling range      | No data available                            |
| g) Flash point                                  | ( )Not applicable                            |
| h) Evaporation rate                             | No data available                            |
| i) Flammability (solid, gas)                    | No data available                            |
| j) Upper/lower flammability or explosive limits | No data available                            |
| k) Vapor pressure                               | No data available                            |
| l) Vapor density                                | No data available                            |
| m) Density                                      | 3.18 g/mL at 25 °C (77 °F) - lit.            |
| Relative density                                | No data available                            |
| n) Water solubility                             | No data available                            |
| o) Partition coefficient:                       | No data available                            |

Aldrich - 244554

Page 6 of 11

n-octanol/water

- |    |                           |  |
|----|---------------------------|--|
| p) | Autoignition temperature  | No data available  |
| q) | Decomposition temperature | No data available  |
| r) | Viscosity                 | No data available  |
| s) | Explosive properties      | No data available  |
| t) | Oxidizing properties      | The substance or mixture is classified as oxidizing with the category 1. |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat.

no information available

### 10.5 Incompatible materials

Strong acids, Reducing agents, Powdered metals, Aluminum

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Oral: No data available

LD50 Oral - 500.1 mg/kg

LC50 Inhalation - 4 h - 1.5 mg/l - dust/mist

Dermal: No data available

No data available

#### Skin corrosion/irritation

Remarks: No data available

**Serious eye damage/eye irritation**

Remarks: No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer., Vomiting, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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**SECTION 12: Ecological information****12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

Aldrich - 244554

Page 8 of 11



## 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Endocrine disrupting properties

No data available

## 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14: Transport information

### DOT (US)

UN number: 1445 Class: 5.1 (6.1) Packing group: II

Proper shipping name: Barium chlorate, solid

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

### IMDG

UN number: 1445 Class: 5.1 (6.1) Packing group: II

EMS-No: F-H, S-Q

Proper shipping name: BARIUM CHLORATE, SOLID

Marine pollutant : yes

### IATA

UN number: 1445 Class: 5.1 (6.1) Packing group: II

Proper shipping name: Barium chlorate, solid

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## SECTION 15: Regulatory information

### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

Aldrich - 244554

Page 9 of 11

**SARA 311/312 Hazards** : Reactivity Hazard  
Acute Health Hazard  
Chronic Health Hazard

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Barium chlorate monohydrate	10294-38-9	>= 90 - <= 100 %
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## US State Regulations

### Massachusetts Right To Know

Barium chlorate monohydrate	10294-38-9
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### Pennsylvania Right To Know

Barium chlorate monohydrate	10294-38-9
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### Maine Chemicals of High Concern

Product does not contain any listed chemicals

### Vermont Chemicals of High Concern

Product does not contain any listed chemicals

### Washington Chemicals of High Concern

Product does not contain any listed chemicals

## The ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

### TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## SECTION 16: Other information

### Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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