

## 1 Identification

### Product identifier

**Product name:** Barium perchlorate trihydrate

**Stock number:** A17598

**CAS Number:**  
10294-39-0

**EC number:**  
236-710-4

**Index number:**  
017-007-00-X

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

**Identified use:** SU24 Scientific research and development

### Details of the supplier of the safety data sheet

#### Manufacturer/Supplier:

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
Email: tech@alfa.com  
www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

### Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS03 Flame over circle

Ox. Sol. 1 H271 May cause fire or explosion; strong oxidizer.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS03 GHS07

### Signal word

Danger

### Hazard statements

H271 May cause fire or explosion; strong oxidizer.

H302+H332 Harmful if swallowed or if inhaled.

### Precautionary statements

P221 Take any precaution to avoid mixing with combustibles.

P283 Wear fire/ flame resistant/retardant clothing.

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P306+P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

C - Oxidizing materials

D1B - Toxic material causing immediate and serious toxic effects



### Classification system

#### HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 2 Health (acute effects) = 2

FIRE 0 Flammability = 0

REACTIVITY 3 Physical Hazard = 3

### Other hazards

#### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

## 3 Composition/information on ingredients

### Chemical characterization: Substances

#### CAS# Description:

10294-39-0 Barium perchlorate trihydrate

#### Identification number(s):

EC number: 236-710-4

Index number: 017-007-00-X

**Product name:** Barium perchlorate trihydrate

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**4 First-aid measures**

**Description of first aid measures**  
**General information** Immediately remove any clothing soiled by the product.  
**After inhalation**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.  
**After skin contact**  
Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.  
**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.  
**After swallowing** Seek medical treatment.  
**Information for doctor**  
**Most important symptoms and effects, both acute and delayed** No further relevant information available.  
**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**5 Fire-fighting measures**

**Extinguishing media**  
**Suitable extinguishing agents** Product is not flammable. Use fire-fighting measures that suit the surrounding fire.  
**For safety reasons unsuitable extinguishing agents** Halocarbon extinguisher  
**Special hazards arising from the substance or mixture**  
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.  
If this product is involved in a fire, the following can be released:  
Barium oxide  
Hydrogen chloride (HCl)  
**Advice for firefighters**  
**Protective equipment:**  
Wear self-contained respirator.  
Wear fully protective impervious suit.

**6 Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
**Ensure adequate ventilation**  
**Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.  
**Methods and material for containment and cleaning up:**  
Dispose of contaminated material as waste according to section 13.  
**Ensure adequate ventilation.**  
**Prevention of secondary hazards:**  
Acts as an oxidizing agent on organic materials such as wood, paper and fats  
Keep away from combustible material.  
**Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

**Handling**  
**Precautions for safe handling**  
Handle under dry protective gas.  
Keep container tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation at the workplace.  
**Information about protection against explosions and fires:**  
Substance/product can reduce the ignition temperature of flammable substances.  
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.  
**Conditions for safe storage, including any incompatibilities**  
**Storage**  
**Requirements to be met by storerooms and receptacles:** No special requirements.  
**Information about storage in one common storage facility:**  
Store away from flammable substances.  
Store away from reducing agents.  
Do not store with organic materials.  
Store away from metal powders.  
Store away from water/moisture.  
**Further information about storage conditions:**  
Store under dry inert gas.  
This product is hygroscopic.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and water.  
**Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

**Additional information about design of technical systems:**  
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

**10294-39-0 Barium perchlorate trihydrate (100.0%)**

PEL (USA)	Long-term value: 0.5 mg/m³ as Ba
TLV (USA)	Long-term value: 0.5 mg/m³ as Ba

**Additional information:** No data

**Exposure controls**  
**Personal protective equipment**  
**General protective and hygienic measures**  
The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.

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Product name: **Barium perchlorate trihydrate**

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Remove all soiled and contaminated clothing immediately.  
Wash hands before breaks and at the end of work.  
Maintain an ergonomically appropriate working environment.  
**Breathing equipment:** Use suitable respirator when high concentrations are present.  
**Recommended filter device for short term use:**  
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.  
**Protection of hands:**  
Impervious gloves  
Check protective gloves prior to each use for their proper condition.  
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.  
**Material of gloves** Nitrile rubber, NBR  
**Penetration time of glove material (in minutes)** Not determined  
**Eye protection:** Safety glasses  
**Body protection:** Protective work clothing.

9 Physical and chemical properties

<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
Form:	Crystalline powder
Color:	White
Odor:	Odorless
Odor threshold:	Not determined.
pH-value:	Not applicable.
<b>Change in condition</b>	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Flammability (solid, gaseous)	Contact with combustible material may cause fire.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
<b>Danger of explosion:</b>	
Explosive when mixed with combustible material.	
<b>Explosion limits:</b>	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not applicable.
Density at 20 °C (68 °F):	2.74 g/cm³ (22.865 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.
<b>Solubility in / Miscibility with</b>	
Water at 33 °C (91 °F):	1980 g/l
Partition coefficient (n-octanol/water):	Not determined.
<b>Viscosity:</b>	
dynamic:	Not applicable.
kinematic:	Not applicable.
<b>Other information</b>	
No further relevant information available.	

10 Stability and reactivity

**Reactivity**  
May intensify fire; oxidizer.  
May cause fire or explosion; strong oxidizer.  
**Chemical stability** Stable under recommended storage conditions.  
**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.  
**Possibility of hazardous reactions**  
Reacts with reducing agents  
Reacts with flammable substances  
**Conditions to avoid** No further relevant information available.  
**Incompatible materials:**  
Reducing agents  
Water/moisture  
Flammable substances  
Organic materials  
Metal powders  
**Hazardous decomposition products:**  
Barium oxide  
Hydrogen chloride (HCl)

11 Toxicological information

**Information on toxicological effects**  
**Acute toxicity:**  
Harmful if inhaled.  
Harmful if swallowed.  
**LD/LC50 values that are relevant for classification:** No data  
**Skin irritation or corrosion:** May cause irritation  
**Eye irritation or corrosion:** May cause irritation  
**Sensitization:** No sensitizing effects known.  
**Germ cell mutagenicity:** No effects known.  
**Carcinogenicity:**  
EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.  
ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.  
(inhalation) EPA-CBD: Carcinogenic potential cannot be determined.  
(oral) EPA-NL: Not likely to be carcinogenic to humans.  
**Reproductive toxicity:** No effects known.  
**Specific target organ system toxicity - repeated exposure:** No effects known.  
**Specific target organ system toxicity - single exposure:** No effects known.  
**Aspiration hazard:** No effects known.





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Product name: **Barium perchlorate trihydrate**

Subacute to chronic toxicity: No effects known.  
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. (Contd. of page 3)

**12 Ecological information**  
Toxicity  
Aquatic toxicity: No further relevant information available.  
Persistence and degradability No further relevant information available.  
Bioaccumulative potential No further relevant information available.  
Mobility in soil No further relevant information available.  
Additional ecological information:  
General notes:  
Do not allow material to be released to the environment without proper governmental permits.  
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.  
Avoid transfer into the environment.  
Results of PBT and vPvB assessment  
PBT: Not applicable.  
vPvB: Not applicable.  
Other adverse effects No further relevant information available.

**13 Disposal considerations**  
Waste treatment methods  
Recommendation Consult state, local or national regulations to ensure proper disposal.  
Uncleaned packagings:  
Recommendation: Disposal must be made according to official regulations.

**14 Transport information**  
UN-Number  
DOT, IMDG, IATA UN1447  
UN proper shipping name  
DOT Barium perchlorate, solid  
IMDG, IATA BARIUM PERCHLORATE, SOLID  
Transport hazard class(es)  
DOT  
  
Class 5.1 Oxidising substances.  
Label 5.1+6.1  
Class 5.1 (OT2) Oxidizing substances  
Label 5.1+6.1  
IMDG, IATA  
  
Class 5.1 Oxidising substances.  
Label 5.1+6.1  
Packing group  
DOT, IMDG, IATA II  
Environmental hazards: Not applicable.  
Special precautions for user Warning: Oxidizing substances  
EMS Number: F-H,S-Q  
Segregation groups Perchlorates  
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.  
Transport/Additional information:  
DOT  
Marine Pollutant (DOT): No  
UN "Model Regulation": UN1447, Barium perchlorate, solid, 5.1 (6.1), II

**15 Regulatory information**  
Safety, health and environmental regulations/legislation specific for the substance or mixture  
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)  
Hazard pictograms  
  
GHS03 GHS07  
Signal word Danger  
Hazard statements  
H271 May cause fire or explosion; strong oxidizer.  
H302+H332 Harmful if swallowed or if inhaled.  
Precautionary statements  
P221 Take any precaution to avoid mixing with combustibles.  
P283 Wear fire/flame resistant/retardant clothing.  
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P306+P360 IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.  
P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.  
National regulations  
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
All components of this product are listed on the Canadian Domestic Substances List (DSL). (Contd. on page 5)  
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Product name: **Barium perchlorate trihydrate**

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**SARA Section 313 (specific toxic chemical listings)**  
10294-39-0 | Barium perchlorate trihydrate

**California Proposition 65**  
**Prop 65 - Chemicals known to cause cancer** Substance is not listed.  
**Prop 65 - Developmental toxicity** Substance is not listed.  
**Prop 65 - Developmental toxicity, female** Substance is not listed.  
**Prop 65 - Developmental toxicity, male** Substance is not listed.  
**Information about limitation of use:** For use only by technically qualified individuals.  
**Other regulations, limitations and prohibitive regulations**  
**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.  
**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**  
Substance is not listed.  
**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.  
**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

**16 Other information**  
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department  
**Date of preparation / last revision** 11/24/2015 / -

**Abbreviations and acronyms:**  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
ICAO: International Civil Aviation Organization  
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
HMIS: Hazardous Materials Identification System (USA)  
WHMIS: Workplace Hazardous Materials Information System (Canada)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
vPvB: very Persistent and very Bioaccumulative  
ACGIH: American Conference of Governmental Industrial Hygienists (USA)  
OSHA: Occupational Safety and Health Administration (USA)  
NTP: National Toxicology Program (USA)  
IARC: International Agency for Research on Cancer  
EPA: Environmental Protection Agency (USA)

USA