

SAFETY DATA SHEET

Preparation Date: 11/16/2017

Revision Date: 11/16/2017

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: B1052
Product Name: BARIUM PERCHLORATE, TRIHYDRATE, REAGENT

Other means of identification

Synonyms: No information available
CAS #: Mixture
RTECS # Not available
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300

Contact Person: Martin LaBenz (West Coast)

Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Oxidizing solids	Category 1

Label elements

Danger

Hazard statements

Causes skin irritation
 Causes serious eye irritation
 Harmful if swallowed

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Harmful if inhaled
May cause fire or explosion; strong oxidizer



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing and other combustible materials
Take any precaution to avoid mixing with combustibles
Wear fire/flame resistant/retardant clothing

Precautionary Statements - Response

Call a POISON CENTER or doctor/physician if you feel unwell

IN CASE OF FIRE: Flood with water to extinguish.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of water

If skin irritation occurs: Get medical advice/attention

Wash contaminated clothing before reuse

Take off contaminated clothing and wash it before reuse

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

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Barium Perchlorate, Trihydrate	10294-39-0	100

4. FIRST AID MEASURES

First aid measures

General Advice:

National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothing and

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shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eyes with water for 15 minutes. Get medical attention.

Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms

Causes skin irritation
Causes serious eye irritation
Harmful by inhalation
Harmful if swallowed
May cause respiratory irritation
May cause digestive (gastrointestinal) tract irritation

Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.

Unsuitable Extinguishing Media:

Dry chemical. Halons. Foam.

Specific hazards arising from the chemical

Hazardous Combustion Products:

Metallic Oxides. Hydrogen Chloride Gas. Barium oxides.

Specific hazards:

Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.) The product is not flammable, but it may cause fire when in contact with other material. Contact with combustible or organic materials may cause fire. Contact with finely divided (powdered) metals may cause ignition (fire) or explosion. Will accelerate burning when involved in a fire. Container explosion may occur under fire conditions or when heated.

Special Protective Actions for Firefighters

Specific Methods:

For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water. Do not get water inside containers. DO NOT use combustible materials such as sawdust.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Avoid dust formation. Remove all sources of ignition. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Ensure adequate ventilation. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust. Keep away from combustible material. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Do not store near combustible materials. Store in a segregated and approved area.

Incompatible Materials:

Strong reducing agents
Combustible materials
Strong oxidizing agents
Alcohols
Organic materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Barium Perchlorate, Trihydrate	10294-39-0	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWA (as Ba)	None

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Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Barium Perchlorate, Trihydrate	10294-39-0	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWAEV (as Ba)

Australia and Mexico

Components	CAS-No.	Australia	Mexico
Barium Perchlorate, Trihydrate	10294-39-0	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWA (as Ba)

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection:

Goggles or Safety glasses with side-shields

Skin and body protection:

Gloves
Long sleeved clothing
Chemical resistant apron

Respiratory protection:

Wear respirator with dust filter. or. Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures:

Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid

Appearance:

Crystalline. Crystals.

Color:

White. Colorless.

Odor:

Odorless.

Taste

No information available.

Formula:

Ba(ClO₄)₂·3H₂O

Molecular/Formula weight:

390.32

Flammability:

No information available

Flashpoint (°C/°F):

No information available.

Flash Point Tested according to:

Not available

Autoignition Temperature (°C/°F):

No information available

Lower Explosion Limit (%):

No information available

Upper Explosion Limit (%):

No information available

Melting point/range(°C/°F):

No information available

Decomposition temperature(°C/°F):

400 °C (752 °F)

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Boiling point/range(°C/°F):
No information available

Bulk density:
No information available

Density (g/cm3):
2.74

Specific gravity:
2.74

pH:
pH of a 5% solution = 5.0-8.0

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Soluble in cold water
Soluble in hot water
Soluble in Acetone

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents

Reactive with reducing agents

Reactive with alcohols

Oxidizer. Reacts with reducing agents, organic material, combustible materials, and powdered metals

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Avoid dust formation. Contact with combustible materials (wood, paper, oil, clothing, etc.). Heat. Ignition sources.

Incompatible Materials: Strong reducing agents
Combustible materials
Strong oxidizing agents
Alcohols
Organic materials

Hazardous decomposition products: No information available.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Skin. Eyes. Ingestion. Inhalation.

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Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document
Component Information

Barium Perchlorate, Trihydrate	
CAS-No.	10294-39-0

LD50/oral/rat = No information available
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = No information available

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation.

Eye Contact: Causes serious eye irritation.

Inhalation May cause irritation of respiratory tract. May be harmful if inhaled.

Ingestion Harmful if swallowed. May cause digestive (gastrointestinal) tract irritation. May cause abdominal pain, nausea, vomiting, diarrhea. May affect behavior/central nervous system (tremors, muscle twitching). May affect respiration (dyspnea - difficulty breathing and shortness of breath). May affect the cardiovascular system (hypotension or hypertension, tachycardia). May affect the cardiovascular system (cardiac arrhythmias). May affect urinary system (kidneys). May cause hypokalemia.

Aspiration hazard No information available.

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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Chronic exposure may affect the kidneys and cause kidney damage. Prolonged or repeated inhalation may cause Baritosis. Baritosis is one of the benign pneumoconioses in which inhaled particulate matter lies in the lungs for years without producing symptoms of bronchitis or emphysema, or without abnormal physical signs, incapacity for work, interference with lung function, or liability to develop pulmonary or bronchial infections or other thoracic disease.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Barium Perchlorate, Trihydrate	10294-39-0	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: Kidneys.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

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Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Barium Perchlorate, Trihydrate	10294-39-0	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Subsidiary Class: 6.1
Packing group: II
Emergency Response Guide Number: 141
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: IB6, IP2, T3, TP33
Symbol(s): No information available
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

TDG (Canada)

UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No Information available
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

ADR

UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Packing Group: II
Subsidiary Risk: No information available
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

IMO / IMDG

UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No information available
EMS: F-H
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

RID

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UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

ICAO

UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

IATA

UN-No: UN1447
Proper Shipping Name: Barium perchlorate, solid
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 5P
Special Provisions No information available
Description: UN1447, Barium perchlorate, solid, 5.1 (6.1), II

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Barium Perchlorate, Trihydrate	10294-39-0	Not Listed	Not present	Present	Not present	Not present	Present	Not present

U.S. Regulations

Barium Perchlorate, Trihydrate

- New Jersey RTK Hazardous Substance List:** sn 2146 (as barium compounds)
- New Jersey (EHS) List:** SN2146 500 lb TPQ (as barium compounds)
- New Jersey - Discharge Prevention - List of Hazardous Substances:** Present (as barium compounds)
- Pennsylvania RTK:** Environmental hazard (as barium compounds)
- Pennsylvania RTK - Environmental Hazard List** Present (as barium compounds)
- Minnesota - Hazardous Substance List:** Present (as barium soluble compounds)
- California Directors List of Hazardous Substances:** Present (as barium soluble compounds)

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Barium Perchlorate, Trihydrate	10294-39-0	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

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Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Barium Perchlorate, Trihydrate	10294-39-0	None	None	None	None	None

U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Barium Perchlorate, Trihydrate	10294-39-0	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Barium Perchlorate, Trihydrate
10294-39-0 (100)

WHMIS 2015 Hazard Classification
Oxidizing solids - Undefined: Oxidizing solids - undefined category (hazard class was established from consulted scientific literature but did not allow to specify hazard category); Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation. (due to lack of data, this classification was established by analogy to Sodium perchlorate)

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

WHMIS 1988 Hazard Class

C Oxidizing materials
D1A Very toxic materials

Components
Barium Perchlorate, Trihydrate

WHMIS 1988
C D1A

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Barium Perchlorate, Trihydrate	10294-39-0	Not Listed	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Barium Perchlorate, Trihydrate	10294-39-0	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Barium Perchlorate, Trihydrate	10294-39-0	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Barium Perchlorate, Trihydrate	10294-39-0	Oxidizing solids - Ox. Sol. 1: H271 May cause fire or explosion, strong

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		oxidizer.; Acute toxicity - Oral - Acute Tox. 4: H302 Harmful if swallowed. (Minimum classification); Acute toxicity - Inhalation - Acute Tox. 4: H332 Harmful if inhaled. (Minimum classification)017-007-00-X
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EU - CLP (1272/2008)

R-phrase(s)

R 9 - Explosive when mixed with combustible material.
R20/22 - Harmful by inhalation and if swallowed.

S -phrase(s)

S 2 - Keep out of the reach of children.
S27 - Take off immediately all contaminated clothing.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Barium Perchlorate, Trihydrate	10294-39-0		No information	S:(2)-27

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Xn - Harmful.
O - Oxidising.



16. OTHER INFORMATION

Preparation Date: 11/16/2017
Revision Date: 11/16/2017
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet

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