

1. Identification

Product identifier	BARIUM PERCHLORATE, TRIHYDRATE, REAGENT	
Other means of identification		
Product code	8	
Recommended use	professional, scientific and technical activities: other professional, scientific and technical activities	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell OH 43065 US	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Oxidizing solids	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA hazard(s)	Not classified.	
Label elements		



Signal word	Danger
Hazard statement	May cause fire or explosion; strong oxidizer. Harmful if swallowed. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation.
Precautionary statement	
Prevention	Keep away from heat. Use only outdoors or in a well-ventilated area. Keep/Store away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Avoid breathing dust/fume. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/eye protection/face protection. Keep away from clothing and other combustible materials.
Response	In case of fire: Use appropriate media for extinction. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Rinse mouth. If eye irritation persists: Get medical advice/attention. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container to an approved waste disposal plant.
Hazard(s) not otherwise classified (HNOC)	Not classified.

3. Composition/information on ingredients

Substances

Hazardous components Chemical name	Common name and synonyms	CAS number	%
BARIUM PERCHLORATE		10294-39-0	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
Eye contact	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.
Ingestion	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media	Water.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	May cause fire or explosion; strong oxidizer. Strong oxidizer - contact with other material may cause fire.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire-fighting equipment/instructions	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Stop the flow of material, if this is without risk. Following product recovery, flush area with water. Prevent entry into waterways, sewer, basements or confined areas. For waste disposal, see section 13 of the MSDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Take any precaution to avoid mixing with combustibles. Keep away from heat. Minimize dust generation and accumulation. Do not taste or swallow. Avoid breathing dust. Avoid contact with eyes. Use only outdoors or in a well-ventilated area. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.
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Conditions for safe storage, including any incompatibilities

Keep away from heat. Store in a well-ventilated place. Keep container tightly closed. Do not store near combustible materials. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
BARIUM PERCHLORATE (CAS 10294-39-0)	PEL	0.5 mg/m ³

US. ACGIH Threshold Limit Values

Material	Type	Value
BARIUM PERCHLORATE (CAS 10294-39-0)	TWA	0.5 mg/m ³

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
BARIUM PERCHLORATE (CAS 10294-39-0)	TWA	0.5 mg/m ³

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection.

Skin protection

Hand protection Wear protective gloves.

Other Wear suitable protective clothing. Wear fire/flame resistant/retardant clothing. Wear protective gloves.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not available.

General hygiene considerations

When using, do not eat, drink or smoke. Avoid contact with eyes. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Crystalline.

Physical state Solid.

Form Solid.

Color White.

Odor Odorless.

Odor threshold Not available.

pH 5 - 8 (5% solution)

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	77.2 % @ 0 C, approximately
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	752 °F (400 °C) Approximately
Viscosity	Not available.
Other information	
Density	2.74 g/cm ³
Molecular formula	Ba(ClO ₄).3H ₂ O
Molecular weight	390.28
Specific gravity	2.74

10. Stability and reactivity

Reactivity	Combustible material.
Chemical stability	Material is stable under normal conditions. Risk of explosion.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from combustible material. Excessive heat.
Incompatible materials	Combustible material.
Hazardous decomposition products	Barium oxide.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Skin contact	Due to lack of data the classification is not possible.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Not available.

Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful if swallowed.
Skin corrosion/irritation	Due to lack of data the classification is not possible.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory sensitization	Due to lack of data the classification is not possible.
Skin sensitization	Due to lack of data the classification is not possible.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Due to lack of data the classification is not possible. The perchlorate ion competes with iodide in the mechanism that governs uptake into the thyroid gland for growth hormone production. This effect is routinely countered by ensuring sufficient dietary intake of iodine, as perchlorate does not accumulate in the body. Studies on workers in plants where perchlorates are manufactured have shown no thyroid abnormalities; various clinical studies are ongoing. Perchlorates occur naturally in trace amounts in the environment, and are not classified as carcinogenic.
Aspiration hazard	Due to lack of data the classification is not possible.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity	No ecotoxicity data noted for the ingredient(s).
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Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	Not available.
Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Not available.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D005: Waste Barium
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1447
UN proper shipping name	Barium perchlorate, solid
Transport hazard class(es)	5.1
Subsidiary class(es)	6.1(PGI, II)
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Labels required	5.1, 6.1
Special provisions	IB6, IP2, T3, TP33
Packaging exceptions	152
Packaging non bulk	212
Packaging bulk	242

IATA

UN number	UN1447
UN proper shipping name	Barium perchlorate, solid
Transport hazard class(es)	5.1
Subsidiary class(es)	6.1(PGI, II)
Packaging group	II
Environmental hazards	No
Labels required	Not available.
ERG Code	5P
Special precautions for user	Not available.

IMDG

UN number	UN1447
UN proper shipping name	BARIUM PERCHLORATE, SOLID
Transport hazard class(es)	5.1
Subsidiary class(es)	6.1(PGI, II)
Packaging group	II
Environmental hazards	
Marine pollutant	No
Labels required	Not available.
EmS	F-H, S-Q
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available.
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DOT



IATA; IMDG



15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

2 mg/l
2 mg/l
Monitoring

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA)

Not regulated.

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

BARIUM PERCHLORATE (CAS 10294-39-0) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

Not regulated.

US. Rhode Island RTK

BARIUM PERCHLORATE (CAS 10294-39-0)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision**Issue date** July-25-2013**Version #** 01**Further information** Not available.

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision Information Product and Company Identification: Physical States
 Hazards Identification: US Hazard Categories
 Physical & Chemical Properties: Multiple Properties
 Transport Information: Proper Shipping Name/Packing Group