

SAFETY DATA SHEET

Preparation Date: 9/4/2015

Revision Date: 9/4/2015

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: B1045
Product Name: BARIUM NITRATE, CRYSTAL, REAGENT, ACS

Other means of identification

Synonyms: Barium dinitrate
 Nitric acid, barium salt
CAS #: 10022-31-8
RTECS # CQ9625000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: In fireworks. Ceramics. Ammunition. Explosives. In pyrotechnics. Research and Development.
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 by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3
Oxidizing solids	Category 2

Label elements

Danger

Hazard statements

Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May intensify fire; 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
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing/ .? /combustible materials
Take any precaution to avoid mixing with combustibles .?
Wear protective gloves
Wear eye/face protection

Precautionary Statements - Response

IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO₂ or Halon may provide limited control.
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 soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position 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 - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Barium Nitrate 10022-31-8	10022-31-8	100

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eyes with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.

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

Irritating to eyes, respiratory system and skin. Causes serious eye irritation. May cause abdominal pain, nausea, vomiting, diarrhea. It may affect respiration (acute respiratory muscle paralysis, apnea). It may affect the lungs. It may affect the kidneys. Hypokalemia. It may affect the heart. Muscle weakness. Central nervous system effects. May affect the cardiovascular system. May cause methemoglobinemia and cyanosis. Exposure to nitrites/nitrates can cause gastroenteritis, abdominal pain, nausea, vomiting, diarrhea, metabolic acidosis, purging, methemoglobinemia/cyanosis, muscle weakness, dizziness, lightheadedness, loss of coordination, fatigue, headache, seizures, convulsions, dyspnea, dysrhythmias, coma, and death. Can affect the liver, metabolism (weight loss), blood (methemoglobinemia), cardiovascular system (bradycardia/tachycardia, hypotension, vasodilation, irregular heartbeat), kidneys.

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. Foam. Halons.

Specific hazards arising from the chemical

Hazardous Combustion Products:

No information available.

Product code: B1045

Product name: BARIUM NITRATE,
CRYSTAL, REAGENT, ACS

3 / 13

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
Will accelerate burning when involved in a fire

Special Protective Actions for Firefighters**Specific Methods:**

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. DO NOT use combustible materials such as sawdust. Do not get water inside containers.

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:**

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

Environmental precautions

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

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. 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 vapours/dust. Do not ingest. 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. Store away from incompatible materials. Store in a segregated and approved area. Do not store near combustible materials.

Incompatible Materials:

Combustible materials. Reducing agents. Powdered metals. Aluminum. Magnesium. Zinc. Organic materials. Strong acids. Alluminum-magnesium alloys. Sulfur.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**National occupational exposure limits****United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Barium Nitrate 10022-31-8	0.5 mg/m ³ TWA (as Ba)	0.5 mg/m ³ TWA Ba	0.5 mg/m ³ TWA (as Ba)	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Barium Nitrate 10022-31-8	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

Australia and Mexico

Components	Australia	Mexico
Barium Nitrate 10022-31-8	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.
- Skin and body protection:** Chemical resistant apron. Gloves. Long sleeved clothing.
- Respiratory protection:** 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

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Physical state: Solid.	Appearance: Crystals.	Color: White.
Odor: Odorless.	Taste No information available	Formula: Ba(NO ₃) ₂
Molecular/Formula weight: 261.35 g/mol	Flammability: No information available	Flash point (°C): No data 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	pH: 5.0-8.0 (5%)
Melting point/range(°C/°F): 592°C/1098°F (dec)	Boiling point/range(°C/°F): No information available	Decomposition temperature(°C/°F): No information available
Bulk density: No information available	Density (g/cm³): 3.24	Specific gravity: No information available
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: Partially soluble in water Slightly soluble in Acetone Slightly soluble in Ethanol

10. STABILITY AND REACTIVITY

Reactivity

Oxidizer. Reacts with reducing agents, organic material, combustible materials, and powdered metals
Violent reaction occurs when Barium nitrate is in contact with aluminum-magnesium alloys
Barium nitrate in contact with sulfur powder and finely divided metals can form shock sensitive compounds
Barium nitrate + magnesium and zinc can explode
Reactive with strong acids

Chemical stability

Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Excess Heat. Incompatible materials. Contact with combustible materials (wood, paper, oil, clothing, etc.).

Incompatible Materials: Combustible materials. Reducing agents. Powdered metals. Aluminum. Magnesium. Zinc. Organic materials. Strong acids. Alluminum-magnesium alloys. Sulfur.

Hazardous decomposition products: Barium oxides. Nitrogen oxides (NO_x).

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

Product code: B1045

Product name: BARIUM NITRATE,
CRYSTAL, REAGENT, ACS

6 / 13

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Ingestion. Inhalation.

Acute Toxicity

Component Information

Barium Nitrate - 10022-31-8

LD50/oral/rat = 355 mg/kg Oral LD50 Rat

LD50/oral/mouse = 266 mg/kg oral LD50 mouse

LD50/dermal/rat = No information available

LD50/dermal/rabbit = 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 = 355mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = 266mg/kg

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 Causes respiratory tract (nose, throat, lung) irritation with coughing and shortness of breath.

Ingestion Harmful if swallowed. May cause gastroenteritis. May cause abdominal pain. May cause nausea. May cause vomiting. May cause hypermotility, diarrhea. May cause hypokalemia. It may affect the cardiovascular system (rapid or slow and irregular pulse). May affect the cardiovascular system (cardiac arrhythmias). May cause muscle weakness. May cause respiratory muscle paralysis. May cause mydriasis (dilated pupils). May affect the kidneys. May cause increase in urine volume. May affect behavior/central nervous system (tremors). May affect behavior/central nervous system (tetany).

Aspiration hazard No information available

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

Chronic Toxicity This product is also a nitrate, therefore nitrate poisoning can occur. Prolonged or repeated nitrate ingestion may affect the urinary system (kidneys) and also may affect the blood, resulting in methemoglobin with attendant cyanosis, anorexia, hyperpnea and later dyspnea and chocolate brown colored blood. The primary toxic effects of nitrates include orthostatic hypotension and methemoglobinemia, Other symptoms include muscular weakness, dizziness, lightheadedness, fatigue, throbbing headache, mental impairment, incoordination, seizures, and convulsions, bradycardia or tachycardia, dysrhythmias, dyspnea. Prolonged or repeated ingestion of large amounts of nitrates may affect the liver and can cause gastroenteritis, nausea, vomiting, abdominal pain, weight loss. Possible coma and death. Prolonged or repeated inhalation may cause Barium to show up as spots in the lungs on chest x-ray
Prolonged or repeated ingestion may affect the kidneys
Prolonged or repeated inhalation may cause bronchitis with coughing, phlegm, and/or shortness of breath

Sensitization: No information available

Mutagenic Effects: No information available

Carcinogenic effects: IARC group 2A - Listed under Nitrate or Nitrite (ingested) under conditions that result in endogenous nitrosation.

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Barium Nitrate	Group 2A - Monograph 94 [2010] (covers ingested nitrates under conditions that result in endogenous nitrosation)	A4 Not Classifiable as a Human Carcinogen	Not listed	Present	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)
IARC (International Agency for Research on Cancer)*

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 Respiratory system.
STOT - repeated exposure No information available
Target Organs: Kidneys. Respiratory system. Lungs. Heart.

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

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 Do not re-use empty containers Dispose of as unused product.

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Barium Nitrate	None	None	None	None

14. TRANSPORT INFORMATION

DOT
UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Subsidiary Risk: 6.1
Packing Group: II
ERG No: 141
Marine Pollutant No data available
DOT RQ (lbs): No information available

Symbol(s):

TDG (Canada)
UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Subsidiary Risk: (6.1)
Packing Group: II
Description: No information available

14. TRANSPORT INFORMATION

ADR

UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Packing Group: II
Subsidiary Risk: 6.1
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Subsidiary Risk: 6.1
Packing Group: II
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Subsidiary Risk: 6.1
Packing Group: II
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Subsidiary Risk: 6.1
Packing Group: II
Description: No information available

IATA

UN-No: UN1446
Proper Shipping Name: Barium nitrate
Hazard Class: 5.1
Subsidiary Risk: 6.1
Packing Group: II
ERG Code: 5P
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Barium Nitrate	Present	Present KE-02070	Present	Present (1)-86	Present	Present	Present 233-020-5

U.S. Regulations

Barium Nitrate

Massachusetts RTK: Present

New Jersey RTK Hazardous Substance List: 0186

2146 (barium compounds)

3722 (nitrate compounds)

New Jersey (EHS) List: 2146 500 lb TPQ (barium compounds (except Barium sulfate)

3722 500 lb TPQ (nitrate compounds)

New Jersey - Discharge Prevention - List of Hazardous Substances: Present (except Barium sulfate)

Pennsylvania RTK: present

Pennsylvania RTK - Environmental Hazard List Present (barium compounds)

Minnesota - Hazardous Substance List: Present

Louisiana Reportable Quantity List for Pollutants: 100 lb RQ

California Directors List of Hazardous Substances: Present

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	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Barium Nitrate	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	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 <i>de minimis</i>
Barium Nitrate	None	None	None	Barium compounds	1.0 % de minimis concentration

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Barium Nitrate	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

C Oxidizing materials

D1A Very toxic materials

D2B Toxic materials

Barium Nitrate

C D1A D2B

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.

Components	WHMIS Ingredient Disclosure List -

Barium Nitrate

Barium Nitrate	1 %
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Inventory

Components	Canada (DSL)	Canada (NDSL)
Barium Nitrate	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Barium Nitrate	Not listed	Not listed

EU Classification**R-phrase(s)**

R20/22 - Harmful by inhalation and if swallowed.
R37/38 - Irritating to respiratory system and skin.

S -phrase(s)

S 2 - Keep out of the reach of children.
S28 - After contact with skin, wash immediately with plenty of water

Components	Classification	Concentration Limits:	Safety Phrases
Barium Nitrate	Xn; R20/22	1%≤C: Xn; R20/22	S2 S28

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

Indication of danger:

Xn - Harmful.

**16. OTHER INFORMATION**

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Preparation Date: 9/4/2015
Revision Date: 9/4/2015
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