

BARIUM HYDROXIDE OCTAHYDRATE

GHS Safety Data Sheet

Version No:2.0

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

BARIUM HYDROXIDE OCTAHYDRATE

OTHER NAMES

H₂O₂-Ba, Ba(OH)₂, "barium hydrate", "caustic baryta", "soluble barium salt"

PROPER SHIPPING NAME

BARIUM COMPOUND, N.O.S.

PRODUCT USE

In manufacture of alkali, glass; in synthetic rubber vulcanization, in corrosion inhibitors, drilling fluids, lubricants, pesticides, sugar industry; boiler scale remedy; refining animal and vegetable oils; softening water; fresco painting.

SUPPLIER

Company: S D FINE- CHEM LIMITED

Address:

315- 317, T.V. INDUSTRIAL ESTATE,

248, WORLI,

MUMBAI- 400030.INDIA.

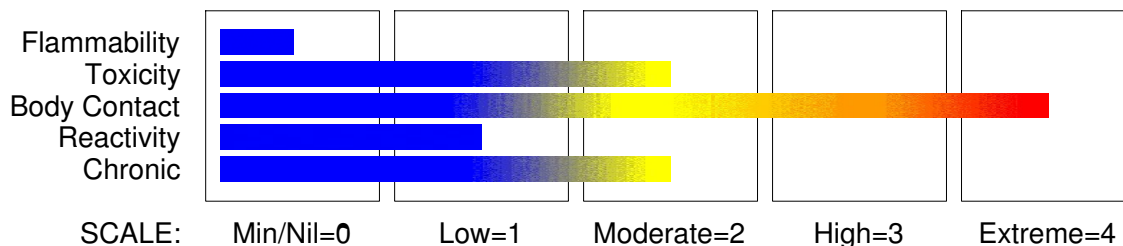
technical@sdfine.com

Telephone: 91- 22- 24959898

Telephone: 91- 22- 24959899

Fax: 91- 22- 24937232

HAZARD RATINGS



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Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity (Inhalation) Category 4

Acute Toxicity (Oral) Category 4

Skin Corrosion/Irritation Category 1C

Skin Sensitizer Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER

Determined by using GHS criteria:

H332 H302 H317 H314

Harmful if inhaled

Harmful if swallowed

May cause allergic skin reaction

Causes severe skin burns and eye damage

PRECAUTIONARY STATEMENTS

Prevention

Wear protective gloves/clothing and eye/face protection.

Use only outdoors or in a well ventilated area.

Do not breathe dust or mist.

Wash thoroughly after handling.

Wash hands thoroughly after handling.

Contaminated clothing should not be allowed out of the workplace.

Avoid breathing dust/fume/gas/mist/vapours/spray.

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

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

If skin irritation or rash occurs, seek medical advice/attention.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Wash contaminated clothing before reuse.

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

If on skin or hair: remove/take off immediately all contaminated clothing. Rinse with water/shower.

Specific treatment: refer to Label or MSDS.

IF ON SKIN: Gently wash with plenty of soap and water.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Immediately call a POISON CENTER or doctor/physician.

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Section 2 - HAZARDS IDENTIFICATION

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
barium hydroxide	17194-00-2	>96
barium carbonate	513-77-9	<4

Section 4 - FIRST AID MEASURES

SWALLOWED

For advice, contact a Poisons Information Centre or a doctor.

· IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.

· For advice, contact a Poisons Information Centre or a doctor.

Where Medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:

· Induce vomiting with fingers down the back of the of the throat, ONLY IF CONSCIOUS.

· Lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration.

NOTE: Wear a protective glove when inducing vomiting by mechanical means.

· In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.

· If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the MSDS should be provided. Further action will be the responsibility of the medical specialist.

· If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the MSDS.

EYE

If this product comes in contact with the eyes:

· Wash out immediately with fresh running water.

· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

· If pain persists or recurs seek medical attention.

· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:

· Immediately remove all contaminated clothing, including footwear.

· Flush skin and hair with running water (and soap if available).

· Seek medical attention in event of irritation.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area.

· Lay patient down. Keep warm and rested.

· Prostheses such as false teeth, which may block airway, should be removed, where

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Section 4 - FIRST AID MEASURES

possible, prior to initiating first aid procedures.

- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

NOTES TO PHYSICIAN

Treat symptomatically as for strong corrosive material.

For ingestion, consider gastric lavage.

- After ingestion of barium acid salts, severe gastro-intestinal irritation followed by muscle twitching, progressive flaccid paralysis and severe hypokalemia and hypertension, occurs.
- Respiratory failure, renal failure and occasional cardiac dysrhythmias may result from an acute ingestion.
- Use sodium sulfate as a cathartic. Add 5-10 gm of sodium sulfate to lavage solution or as fluid supplement to Ipecac syrup (the sulfate salt is not absorbed)
- Monitor cardiac rhythm and serum potassium closely to establish the trend over the first 24 hours. Large doses of potassium may be needed to correct the hypokalemia.
- Administer generous amounts of fluid replacement but monitor the urine and serum for evidence of renal failure. [Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

FIRE FIGHTING

Alert Fire Brigade and tell them location and nature of hazard.

- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water courses.

Use fire fighting procedures suitable for surrounding area.

Use water delivered as a fine spray to control the fire and cool adjacent area.

DO NOT approach containers suspected to be hot.

If safe to do so, remove containers from path of fire.

Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.
- In a fire may decompose on heating and produce toxic / corrosive fumes.

FIRE INCOMPATIBILITY

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Personal Protective Equipment

Breathing apparatus.
Chemical splash suit.

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Clean up all spills immediately.
Control personal contact by using protective equipment.
Use dry clean up procedures and avoid generating dust.
Sweep up.
Place in suitable containers for disposal.

MAJOR SPILLS

Clear area of personnel and move upwind.
Alert Fire Brigade and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.
· Prevent, by any means available, spillage from entering drains or water courses.
Remove all ignition sources.
Use dry clean up procedures and avoid generating dust.
Stop leak if safe to do so.
Collect recoverable product into labelled containers for recycling.
Collect residues and seal in labelled drums for disposal.
If contamination of drains or waterways occurs, advise emergency services.
After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

barium hydroxide 100 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

barium hydroxide 5 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

barium hydroxide 3 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:

barium hydroxide 1 mg/m³

American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

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Section 6 - ACCIDENTAL RELEASE MEASURES

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ + + + + +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Use good occupational work practice.
Avoid generating and breathing dust.
Avoid contact with skin and eyes.
Avoid sources of heat.
Wear protective clothing when risk of exposure occurs.
Use in a well-ventilated area.
Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
Avoid contact with incompatible materials.
Handle and open container with care.
Avoid physical damage to containers.
Keep containers securely sealed when not in use.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.
Launder contaminated clothing before re-use.

SUITABLE CONTAINER

- Check that containers are clearly labelled.

Packaging as recommended by manufacturer.
Glass container.
Plastic container.
Plastic drum.
Polyethylene or polypropylene container.
Multi-ply woven plastic or paper bag with sealed plastic liner
NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

STORAGE INCOMPATIBILITY

Avoid reaction with oxidising agents.
Avoid strong acids, bases.
Segregate from metals, chlorinated rubber.
Barium hydroxide is strongly alkaline and may react vigorously with acids.

STORAGE REQUIREMENTS

- Keep dry.
- Store in original containers.

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Section 7 - HANDLING AND STORAGE

- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials.
- Protect containers against physical damage.
- Check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

- barium hydroxide: CAS:17194- 00- 2 CAS:12230- 71- 6 CAS:80424- 03- 9 CAS:22326- 55- 2 CAS:1304- 17- 2
- barium carbonate: CAS:513- 77- 9

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
barium hydroxide	50	

MATERIAL DATA

The recommended TLV-TWA is based on satisfactory results achieved while employing an internal limit for barium nitrate at a national laboratory. It is not known what degree of added safety this limit incorporates.

INGREDIENT DATA

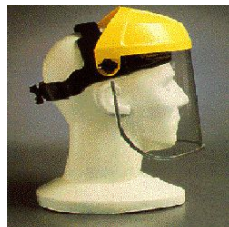
BARIUM CARBONATE:

OEL STEL (Russia): 0.5 mg/m3

The substance is soluble in stomach acids producing

The recommended TLV-TWA is based on satisfactory results achieved while employing an internal limit for barium nitrate at a national laboratory. It is not known what degree of added safety this limit incorporates.

PERSONAL PROTECTION



EYE

- Chemical goggles.
- Full face shield.

DO NOT wear contact lenses.

• Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET

Impervious gloves.
Rubber gloves.
PVC gloves.
Protective footwear.

OTHER

Overalls.
Rubber apron.
· Barrier cream.
· Eyewash unit.
Ensure there is ready access to a safety shower.

RESPIRATOR

Protection Factor	Half- Face Respirator	Full- Face Respirator	Powered Air Respirator
10 x ES	P1 Air- line*	- -	PAPR- P1 -
50 x ES	Air- line**	P2	PAPR- P2
100 x ES	-	P3	-
		Air- line*	-
100+ x ES	-	Air- line**	PAPR- P3

* - Negative pressure demand ** - Continuous flow.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult site specific data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

Local exhaust ventilation may be required for safe working, i.e. to keep exposures below required standards, otherwise PPE is required.
If exposure to workplace dust is not controlled, respiratory protection is required; wear SAA approved dust respirator.
Full-face air supplied breathing apparatus.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Colourless, corrosive crystals which readily absorbs CO₂ from the air, forming white barium carbonate. No odour. Water solubility at 15 C: 5.6 g/100 ml. Slightly soluble in ethanol, insoluble in acetone.
Rapidly absorbs CO₂ from air, becoming completely insoluble in water.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.

Mixes with water.

Molecular Weight: 315.47

Melting Range (°C): 78

Solubility in water (g/L): Miscible

pH (1% solution): >7

Volatile Component (%vol): Not applicable

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not applicable

State: Divided solid

Boiling Range (°C): 780 (- 8H₂O)

Specific Gravity (water=1): 2.18 @ 16

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not available.

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

Presence of incompatible materials.

Storage in unsealed containers.

Stable under normal storage conditions.

Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.

Ingestion of soluble barium compounds may result in ulceration of the mucous membranes of the gastrointestinal tract, tightness in the muscles of the face and neck, gastroenteritis, vomiting, diarrhoea, muscular tremors and paralysis, anxiety, weakness, laboured breathing, cardiac irregularity due to contractions of smooth, striated and cardiac muscles (often violent and painful), slow irregular pulse, hypertension, convulsions and respiratory failure.

EYE

The material can produce severe chemical burns to the eye following direct contact.

Vapours or mists may be extremely irritating.

When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.

SKIN

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

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Section 11 - TOXICOLOGICAL INFORMATION

The material can produce severe chemical burns following direct contact with the skin. Solution of material in moisture on the skin, or perspiration, may markedly increase skin corrosion and accelerate tissue destruction. Open cuts, abraded or irritated skin should not be exposed to this material. Toxic effects may result from skin absorption.

INHALED

Evidence shows, or practical experience predicts, that the material produces irritation of the respiratory system in a substantial number of individuals following inhalation. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

Barium fumes are respiratory irritants. Over-exposure to barium dusts and fume may result in rhinitis, frontal headache, wheezing, laryngeal spasm, salivation and anorexia. Long term effects include nervous disorders and adverse effects on the heart, circulatory system and musculature. Heavy exposures may result in a benign pneumoconiosis.

CHRONIC HEALTH EFFECTS

There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.

Principal routes of exposure are by accidental skin and eye contact and inhalation of generated dusts.

Workers exposed to barium compounds have been reported to show an increased incidence of hypertension, irritation of the respiratory system, and damage to the spleen, liver and bone marrow. Long term exposure to some barium compounds (especially inorganic species) may produce a condition known as baritosis, a form of benign pneumoconiosis. X-ray may show this when no other abnormal signs are present.

Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion, increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. Barium sulfate produces noncollagenous pneumoconiosis identified by minimal stromal reaction, consisting mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible. Miners of ores containing barium sulfate do not show symptoms, abnormal physical signs, an incapacity to work, diminished lung function, an increased likelihood of developing pulmonary or other bronchial infections or other thoracic disease despite the fact that particulate matter may have been retained in the lungs for many years.

TOXICITY AND IRRITATION

No significant acute toxicological data identified in literature search.

BARIUM CARBONATE:

TOXICITY

Oral (human) LDLo: 0.017 mg/kg
Oral (human) TDLo: 11 mg/kg
Oral (human) TDLo: 29 mg/kg
Oral (woman) TDLo: 800 mg/kg
Oral (rat) LD50: 418 mg/kg
Inhalation (rat) TCLo: 1.15 mg/m³/24h
Inhalation (rat) TCLo: 3.13 mg/m³/24h
Oral (Human) LD: 800 mg/kg
Oral (Human) TDLo: 800 mg/kg
Oral (Human) LD: 17 mg/kg

IRRITATION

Nil Reported

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Section 11 - TOXICOLOGICAL INFORMATION

Intravenous (Rat) LD: 20 mg/kg
Oral (Dog) LD: 400 mg/kg
Oral (Cat) LD: 4 mg/kg
Subcutaneous (Rabbit) TDLo: 10 mg/kg
Oral (Mouse) LD50: 200 mg/kg
Intraperitoneal (Mouse) LD50: 50 mg/kg
Intraperitoneal (Rat) LD50: 50 mg/kg

Section 12 - ECOLOGICAL INFORMATION

No data for barium hydroxide.
Refer to data for ingredients, which follows:

BARIUM CARBONATE:
DO NOT discharge into sewer or waterways.

Section 13 - DISPOSAL CONSIDERATIONS

Recycle wherever possible.
Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Neutralize with sodium sulfate or sodium bicarbonate to convert to non soluble form.
Bury residue in an authorized landfill.

Section 14 - TRANSPORTATION INFORMATION



Labels Required: TOXIC
HAZCHEM: 2Z

UNDG:

Dangerous Goods Class:	6.1	Subrisk:	None
UN Number:	1564	Packing Group:	III
Shipping Name: BARIUM COMPOUND, N.O.S.			

Air Transport IATA:

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	None
UN/ID Number:	1564	Packing Group:	III
ERG Code:	6L		
Shipping name: BARIUM COMPOUND, N.O.S.			

Maritime Transport IMDG:

IMDG Class:	6.1	IMDG Subrisk:	None
UN Number:	1564	Packing Group:	III

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Section 14 - TRANSPORTATION INFORMATION

EMS Number: F- A, S- A
Shipping name: BARIUM COMPOUND, N.O.S.

Section 15 - REGULATORY INFORMATION

REGULATIONS

barium hydroxide (CAS: 17194-00-2) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

barium hydroxide (CAS: 12230-71-6) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

barium hydroxide (CAS: 22326-55-2) is found on the following regulatory lists;
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for barium hydroxide as CAS: 80424-03-9, CAS: 1304-17-2.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
barium hydroxide	17194- 00- 2, 12230- 71- 6, 80424- 03- 9, 22326- 55- 2, 1304- 17- 2

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 12-May-2018