

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Substance name	: Barium Chloride, Dihydrate
CAS No	: 10326-27-9
Formula	: BaCl ₂ .2H ₂ O
Synonyms	: barium dichloride, dihydrate / muriate of barium, dihydrate

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

Use of the substance/mixture	: Chemical intermediate Insecticide
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1.3. Details of the supplier of the safety data sheet

Shri Shanti Laboratories,
Shri Shanti Niwas,
Gangashahar Road, Bikaner,
India-334001

1.4. Emergency telephone number

Emergency number : +91-9571511119

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 3 (Oral) H301
Aquatic Acute 3 H402

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



GHS06

Signal word (GHS-US)	: Danger
Hazard statements (GHS-US)	: H301 - Toxic if swallowed H402 - Harmful to aquatic life
Precautionary statements (GHS-US)	: P264 - Wash exposed skin thoroughly after handling P270 - Do not eat, drink or smoke when using this product P273 - Avoid release to the environment P301+P310 - IF SWALLOWED: immediately call a POISON CENTER or doctor/physician P330 - If swallowed, rinse mouth P405 - Store locked up P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS-US)

No data available

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SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Barium Chloride, Dihydrate (Main constituent)	(CAS No) 10326-27-9	100	Acute Tox. 3 (Oral), H301 Aquatic Acute 3, H402

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
- First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
- First-aid measures after skin contact : Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.
- First-aid measures after eye contact : Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.
- First-aid measures after ingestion : Rinse mouth with water. Give nothing to drink. Victim is fully conscious: immediately induce vomiting. Induce vomiting by giving a 0.9 % saline solution. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Doctor: administration of chemical antidote. Doctor: gastric lavage.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing.
- Symptoms/injuries after eye contact : Redness of the eye tissue.
- Symptoms/injuries after ingestion : Vomiting. Nausea. Abdominal pain. Blood in stool. Bleeding of the gastrointestinal tract. Increased salivation. Myasthenia. Cramps/uncontrolled muscular contractions. Paralysis. Disturbances of heart rate. High arterial pressure.

4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : EXTINGUISHING MEDIA FOR SURROUNDING FIRES: All extinguishing media allowed.
- Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : DIRECT FIRE HAZARD. Non combustible.
- Explosion hazard : DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.
- Reactivity : On burning: release of toxic and corrosive gases/vapours (hydrogen chloride). Reacts with (strong) oxidizers. Reacts with (some) acids: release of toxic and corrosive gases/vapours (hydrogen chloride).

5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Reactivity hazard: compressed air/oxygen apparatus. Reactivity hazard: gas-tight suit.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.
- Measures in case of dust release : In case of dust production: keep upwind. In case of dust production: consider evacuation. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

- Protective equipment : Do not breathe dust. Equip cleanup crew with proper protection.
- Emergency procedures : Stop release. Ventilate area. If a major spill occurs, all personnel should be immediately evacuated and the area ventilated.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. If reacting: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water and soap solution. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Pulverization rapidly increases toxic concentration.
- Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
- Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

- Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.
- Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids.
- Storage area : Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Unauthorized persons are not admitted. Meet the legal requirements.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: steel. stainless steel. paper with plastic inner lining. cardboard. synthetic material. MATERIAL TO AVOID: aluminium.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Barium Chloride, Dihydrate (10326-27-9)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.5 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.5 mg/m ³

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8.2. Exposure controls

Appropriate engineering controls	: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.
Materials for protective clothing	: GIVE GOOD RESISTANCE: butyl rubber. chloroprene rubber. chlorinated polyethylene. neoprene. PVC. viton.
Hand protection	: Gloves.
Eye protection	: Safety glasses. In case of dust production: protective goggles.
Skin and body protection	: Protective clothing.
Respiratory protection	: Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid. Powder. Crystalline powder. Grains.
Molecular mass	: 244.28 g/mol
Colour	: Colourless to white.
Odour	: Odourless.
Odour threshold	: No data available
pH	: 5 - 8 (5 %)
pH solution	: 5 %
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 963 °C
Freezing point	: No data available
Boiling point	: 1560 °C
Flash point	: Not applicable
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: < 0.1 hPa
Relative vapour density at 20 °C	: No data available
Relative density	: 3.1
Density	: 3100 kg/m ³
Solubility	: Soluble in water. Water: 36 g/100ml
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content	: Not applicable
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SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (hydrogen chloride). Reacts with (strong) oxidizers. Reacts with (some) acids: release of toxic and corrosive gases/vapours (hydrogen chloride).

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

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10.4. Conditions to avoid

Incompatible materials. Moisture.

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Hydrogen chloride. barium.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed.

Barium Chloride, Dihydrate (V)10326-27-9	
LD50 oral rat	118 mg/kg (Rat)

Skin corrosion/irritation : Not classified
pH: 5 - 8 (5 %)

Serious eye damage/irritation : Not classified
pH: 5 - 8 (5 %)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : EXPOSURE TO HIGH CONCENTRATIONS: Dry/sore throat. Coughing.

Symptoms/injuries after eye contact : Redness of the eye tissue.

Symptoms/injuries after ingestion : Vomiting. Nausea. Abdominal pain. Blood in stool. Bleeding of the gastrointestinal tract. Increased salivation. Myasthenia. Cramps/uncontrolled muscular contractions. Paralysis. Disturbances of heart rate. High arterial pressure.

Likely routes of exposure : Inhalation;Skin and eye contact

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Mild water pollutant (surface water). Ground water pollutant. Maximum concentration in drinking water: 250 mg/l (chloride) (Directive 98/83/EC). Slightly harmful to fishes (LC50 100-1000 mg/l). Harmful to invertebrates (Daphnia). Harmful to aquatic plants. Not harmful to bacteria (EC50 >1000 mg/l). Insufficient data available on ecotoxicity.

Barium Chloride, Dihydrate (10326-27-9)	
LC50 fishes 1	158 - 500 mg/l (Pisces; Lethal)
EC50 Daphnia 1	21.9 mg/l (48 h; Daphnia magna; Anhydrous form)
LC50 fish 2	870 mg/l (Leuciscus idus)
Threshold limit algae 1	15 mg/l (Scenedesmus subspicatus; Anhydrous form)
Threshold limit algae 2	34 mg/l (Algae)

12.2. Persistence and degradability

Barium Chloride, Dihydrate (10326-27-9)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

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12.3. Bioaccumulative potential

Barium Chloride, Dihydrate (10326-27-9)

Bioaccumulative potential : No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Detoxicate. Remove to an authorized dump (Class I).

Additional information : Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1564 Barium compounds, n.o.s. (Barium Chloride), 6.1, III

UN-No.(DOT) : 1564

DOT NA no. : UN1564

DOT Proper Shipping Name : Barium compounds, n.o.s.
Barium Chloride

Department of Transportation (DOT) Hazard Classes : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132

Hazard labels (DOT) : 6.1 - Poison inhalation hazard



DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102) : IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).

IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.

T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

DOT Packaging Non Bulk (49 CFR 173.xxx) : 213

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 100 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 200 kg

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DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Additional information

Other information : No supplementary information available.

State during transport (ADR-RID) : as solid.

ADR

Transport document description : UN 1564 Barium compound, n.o.s., 6.1, III, (E)

Packing group (ADR) : III

Class (ADR) : 6.1 - Toxic substances

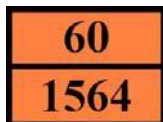
Hazard identification number (Kemler No.) : 60

Classification code (ADR) : T5

Danger labels (ADR) : 6.1 - Toxic substances



Orange plates :



Tunnel restriction code : E

Transport by sea

UN-No. (IMDG) : 1564

Class (IMDG) : 6.1 - Toxic substances

EmS-No. (1) : F-A

EmS-No. (2) : S-A

Air transport

UN-No.(IATA) : 1564

Class (IATA) : 6 -

Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Barium Chloride, Dihydrate (10326-27-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

15.2. International

regulations CANADA

Barium Chloride, Dihydrate (10326-27-9)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification : Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 3 (Oral) H301

Acute Tox. 4 (Inhalation) H332

Full text of H-phrases: see section 16

Barium Chloride, Dihydrate

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Classification according to Directive 67/548/EEC or 1999/45/EC

T; R25

Xn; R20

Full text of R-phrases: see section 16

15.2.2. National regulations

Barium Chloride, Dihydrate (10326-27-9)

Listed on the Canadian Ingredient Disclosure List

15.3. US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases: see section 16:

Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Aquatic Acute 3	Hazardous to the aquatic environment — AcuteHazard, Category 3
H301	Toxic if swallowed
H402	Harmful to aquatic life

NFPA health hazard

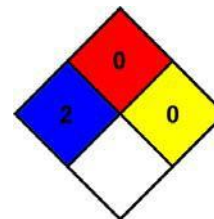
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

Personal Protection : E