

# Barium chloride dihydrate

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830  
Date of issue: 1/28/2019 Revision date: 6/6/2019 Supersedes: 1/28/2019 Version: 2.0

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

#### 1.1. Product identifier

Product form	: Substance
Substance name	: Barium chloride dihydrate
IUPAC name	: barium(2+) dichloride dihydrate
EC-No.	: 600-412-6
CAS-No.	: 10326-27-9
Product code	: 12034507
Formula	: H4BaCl2O2
Product group	: Raw material

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

##### 1.2.1. Relevant identified uses

Main use category	: Professional use, Industrial use
Industrial/Professional use spec	: For professional use only Industrial Laboratory use.

##### 1.2.2. Uses advised against

No additional information available

#### 1.3. Details of the supplier of the safety data sheet

##### Supplier

Scafell Organics  
Molekula Ltd  
Lingfield Way  
Darlington - England  
T +44 (0) 1949 823777 / +44 (0) 7590 545705  
[info@molekula.com](mailto:info@molekula.com) / [kbowen@molekula.com](mailto:kbowen@molekula.com) - [www.molekula.com](http://www.molekula.com)

#### 1.4. Emergency telephone number

Emergency number : +44 (0) 7590 545705

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Acute toxicity (oral), Category 3	H301
Acute toxicity (inhalation:dust,mist) Category 4	H332
Serious eye damage/eye irritation, Category 2	H319
Full text of H statements : see section 16	

##### Adverse physicochemical, human health and environmental effects

No additional information available

#### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS06

Signal word (CLP)	: Danger
Hazard statements (CLP)	: H301 - Toxic if swallowed. H319 - Causes serious eye irritation. H332 - Harmful if inhaled.
Precautionary statements (CLP)	: P260 - Do not breathe dusts or mists. P280 - 280 Wear protective clothing, eye protection, face protection, protective gloves. P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P311 - IF exposed or concerned: Call a POISON CENTER or doctor. P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

#### 2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

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This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### SECTION 3: Composition/information on ingredients

#### 3.1. Substances

Substance type : Mono-constituent

Name	Product identifier	%
Barium chloride dihydrate	(CAS-No.) 10326-27-9 (EC-No.) 600-412-6	100

Full text of H-statements: see section 16

#### 3.2. Mixtures

Not applicable

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If possible show this sheet, if not available show packaging or label. Do not leave affected person unattended.
First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if necessary. If experiencing respiratory symptoms: Get medical advice/attention.
First-aid measures after skin contact	: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Do not remove clothing if it sticks to the skin. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Get medical advice/attention.

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

Symptoms/effects	: Toxic if swallowed. Harmful if inhaled.
Symptoms/effects after inhalation	: Danger of serious damage to health by prolonged exposure through inhalation. CAUSES UPPER RESPIRATORY TRACT IRRITATION.
Symptoms/effects after skin contact	: Dust may cause irritation in skin folds or by contact in combination with tight clothing. Prolonged or repeated contact may cause skin to become dry.
Symptoms/effects after eye contact	: Causes serious eye irritation. redness, itching, tears. Risk of serious damage to eyes.
Symptoms/effects after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Symptoms of ingestion include drowsiness, weakness, headache, dizziness, nausea, vomiting. Burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. Convulsions.

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

Treat symptomatically.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

#### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire	: hydrogen chloride. Barium oxide.
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#### 5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: seal off low-lying areas. Keep container tightly closed and away from heat, sparks and flame.
Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment. Use extinguishing agent suitable for surrounding fire.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.
Other information	: Warn all persons of toxic hazard.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Isolate from fire, if possible, without unnecessary risk. No flames, no sparks. Eliminate all sources of ignition. Avoid dust formation.
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##### 6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Evacuate unnecessary personnel. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Avoid contact with skin, eyes and clothing. Do not breathe dust. Do not touch or walk on the spilled product.

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Measures in case of dust release : Keep upwind. Ventilate the area thoroughly, especially low lying areas (basements, workpits etc).

### 6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Use self-contained breathing apparatus and chemically protective clothing.

Emergency procedures : Ventilate area. Stop leak if safe to do so.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow product to spread into the environment.

### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : On land, sweep or shovel into suitable containers. Minimise generation of dust. Store away from other materials.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Provide local exhaust or general room ventilation. Avoid creating or spreading dust.

Hygiene measures : Take off immediately all contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. Always wash hands after handling the product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat sources. Keep container closed when not in use.

Incompatible products : Strong oxidisers. Strong reducing agents. Acids. Bromine trifluoride.

Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

Storage temperature : < 20 °C

Storage area : Store at ambient temperature.

### 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)

United Kingdom	WEL TWA (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup> Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used
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#### Barium chloride dihydrate (10326-27-9)

##### DNEL/DMEL (Workers)

Long-term - systemic effects, dermal 43.2 mg/kg bodyweight/day

Long-term - systemic effects, inhalation 8.8 mg/m<sup>3</sup>

##### DNEL/DMEL (General population)

Long-term - systemic effects, oral 3.7 mg/kg bodyweight/day

Long-term - systemic effects, inhalation 2.6 mg/m<sup>3</sup>

Long-term - systemic effects, dermal 25.9 mg/kg bodyweight/day

##### PNEC (Water)

PNEC aqua (freshwater) 174 µg/L

##### PNEC (Sediment)

PNEC sediment (freshwater) 908 mg/kg dwt

##### PNEC (Soil)

PNEC soil 314.9 mg/kg dwt

##### PNEC (STP)

PNEC sewage treatment plant 94.3 mg/l

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### 8.2. Exposure controls

#### Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety procedures. Provide local exhaust or general room ventilation.

#### Personal protective equipment:

Wear recommended personal protective equipment. Avoid all unnecessary exposure.

Hand protection:					
The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374					
Type	Material	Permeation	Thickness (mm)	Penetration	Standard
	Nitrile rubber (NBR)	6 (> 480 minutes)	0.35		EN 374
	Butyl rubber, Chloroprene rubber (CR), Natural rubber, Polyvinylchloride (PVC)	6 (> 480 minutes)	0.5		EN 374
	Viton® II, Fluoroelastomer (FKM)	6 (> 480 minutes)	0.4		EN 374

#### Eye protection:

Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Use eye protection according to EN 166, designed to protect against powders and dusts. Chemical goggles or safety glasses

Type	Use	Characteristics	Standard
Face shield, Safety glasses	Dust	With side shields	EN 166

#### Skin and body protection:

Emergency safety showers should be available in the immediate vicinity of any potential exposure. Keep suitable chemically resistant protective clothing readily available for emergency use

Type	Standard
Total impervious protective suits, gloves, and boots must be worn to prevent any contact with the product	EN ISO 13982

#### Respiratory protection:

Self contained breathing apparatus, in case of emergency. Where exposure through inhalation may occur from use, respiratory protection equipment is recommended

Device	Filter type	Condition	Standard
Respiratory protective device with a particle filter	Type P2	Dust protection	EN 14387

#### Other information:

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Molecular mass	: 244.26 g/mol
Colour	: White to off white.
Odour	: No data available.
Odour threshold	: No data available
pH	: 5 (≥ 8) at 50 g/l at 25 °C
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: > 600 °C Test method(s): OECD 102
Freezing point	: No data available
Boiling point	: 1560 °C @ 1013.25 mbar
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available

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Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 3.9 g/cm <sup>3</sup> @ 20°C
Solubility	: soluble in water. Dimethylsulfoxide (DMSO). Formic acid.
Log Pow	: 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

Bulk density : 1500 kg/m<sup>3</sup>

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight.

### 10.5. Incompatible materials

Strong oxidizers. Strong reducing agents. Acids. Bromine trifluoride.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : Barium oxide. hydrogen chloride.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Oral: Toxic if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Inhalation:dust,mist: Harmful if inhaled.

#### Barium chloride dihydrate (10326-27-9)

LD50 oral rat	51 mg/kg
LC50 inhalation rat (mg/l)	1.1 - 5 mg/l
Skin corrosion/irritation	: Not classified pH: 5 (≥ 8) at 50 g/l at 25 °C
Additional information	: Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Causes serious eye irritation. pH: 5 (≥ 8) at 50 g/l at 25 °C
Respiratory or skin sensitisation	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Reproductive toxicity	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-single exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
STOT-repeated exposure	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified
Additional information	: Based on available data, the classification criteria are not met

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Potential adverse human health effects and symptoms : Harmful if inhaled. Toxic if swallowed.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Acute aquatic toxicity : Not classified  
Chronic aquatic toxicity : Not classified

Barium chloride dihydrate (10326-27-9)	
LC50 fish 1	97.5 mg/l 96h - Brachydanio rerio (Zebra Fish)
EC50 Daphnia 1	14.5 mg/l 48h - Daphnia magna
EC50 72h algae (1)	> 30.1 mg/l 72h - Pseudokirchneriella subcapitata
NOEC (chronic)	258 mg/l 21 days - Eisenia Fetida (Earthworm)
NOEC chronic fish	40.3 mg/l 33 days - Brachydanio rerio (Zebra Fish)
NOEC chronic crustacea	2.9 mg/l 21 days - Daphnia magna

#### 12.2. Persistence and degradability

Barium chloride dihydrate (10326-27-9)	
Persistence and degradability	Not applicable. Not biodegradable.

#### 12.3. Bioaccumulative potential

Barium chloride dihydrate (10326-27-9)	
BCF fish 1	37.6 - 99 L/kg w.w
Bioaccumulative potential	Not potentially bioaccumulable.

#### 12.4. Mobility in soil

Barium chloride dihydrate (10326-27-9)	
Ecology - soil	soluble in water.

#### 12.5. Results of PBT and vPvB assessment

Barium chloride dihydrate (10326-27-9)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

#### 12.6. Other adverse effects

Additional information : Avoid release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

### SECTION 14: Transport information






In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number</b>				
1564	1564	1564	1564	1564
<b>14.2. UN proper shipping name</b>				
BARIUM COMPOUND, N.O.S.	BARIUM COMPOUND, N.O.S.	Barium compound, n.o.s.	BARIUM COMPOUND, N.O.S.	BARIUM COMPOUND, N.O.S.
<b>Transport document description</b>				
UN 1564 BARIUM COMPOUND, N.O.S., 6.1, III, (E)	UN 1564 BARIUM COMPOUND, N.O.S., 6.1, III	UN 1564 Barium compound, n.o.s., 6.1, III	UN 1564 BARIUM COMPOUND, N.O.S., 6.1, III	UN 1564 BARIUM COMPOUND, N.O.S., 6.1, III
<b>14.3. Transport hazard class(es)</b>				
6.1	6.1	6.1	6.1	6.1

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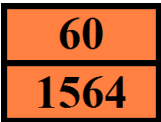
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<b>14.4. Packing group</b>				
III	III	III	III	III
<b>14.5. Environmental hazards</b>				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

### 14.6. Special precautions for user

#### Overland transport

Classification code (ADR)	: T5
Special provisions (ADR)	: 177, 274, 513, 587
Limited quantities (ADR)	: 5kg
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P002, IBC08, LP02, R001
Special packing provisions (ADR)	: B3
Mixed packing provisions (ADR)	: MP10
Portable tank and bulk container instructions (ADR)	: T1
Portable tank and bulk container special provisions (ADR)	: TP33
Tank code (ADR)	: SGAH, L4BH
Tank special provisions (ADR)	: TU15, TE19
Vehicle for tank carriage	: AT
Transport category (ADR)	: 2
Special provisions for carriage - Bulk (ADR)	: VC1, VC2, AP7
Special provisions for carriage - Loading, unloading and handling (ADR)	: CV13, CV28
Special provisions for carriage - Operation (ADR)	: S9
Hazard identification number (Kemler No.)	: 60
Orange plates	: 

Tunnel restriction code (ADR)	: E
EAC code	: 2Z

#### Transport by sea

Special provisions (IMDG)	: 177, 223, 274
Packing instructions (IMDG)	: P002, LP02
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: T1
Tank special provisions (IMDG)	: TP33
EmS-No. (Fire)	: F-A
EmS-No. (Spillage)	: S-A
Stowage category (IMDG)	: A
Properties and observations (IMDG)	: White powder, lumps or crystals. Toxic if swallowed, by skin contact or by inhalation.

#### Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y645
PCA limited quantity max net quantity (IATA)	: 10kg
PCA packing instructions (IATA)	: 670
PCA max net quantity (IATA)	: 100kg
CAO packing instructions (IATA)	: 677

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CAO max net quantity (IATA) : 200kg  
Special provisions (IATA) : A3, A82  
ERG code (IATA) : 6L

### Inland waterway transport

Classification code (ADN) : T5  
Special provisions (ADN) : 177, 274, 513, 587, 802  
Limited quantities (ADN) : 5 kg  
Excepted quantities (ADN) : E1  
Equipment required (ADN) : PP, EP  
Number of blue cones/lights (ADN) : 0

### Rail transport

Classification code (RID) : T5  
Special provisions (RID) : 177, 274, 513, 587  
Excepted quantities (RID) : E1  
Packing instructions (RID) : P002, IBC08, LP02, R001  
Special packing provisions (RID) : B3  
Mixed packing provisions (RID) : MP10  
Portable tank and bulk container instructions (RID) : T1  
Portable tank and bulk container special provisions (RID) : TP33  
Tank codes for RID tanks (RID) : SGAH, L4BH  
Special provisions for RID tanks (RID) : TU15  
Transport category (RID) : 2  
Special provisions for carriage – Bulk (RID) : VC1, VC2, AP7  
Special provisions for carriage - Loading, unloading and handling (RID) : CW13, CW28, CW31  
Colis express (express parcels) (RID) : CE11  
Hazard identification number (RID) : 60

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions  
Barium chloride dihydrate is not on the REACH Candidate List  
Barium chloride dihydrate is not on the REACH Annex XIV List  
Directive 2012/18/EU (SEVESO III)

#### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out for the substance or the mixture by the supplier

## SECTION 16: Other information

### Indication of changes:

Exposure controls/personal protection. Toxicological information. Hazard statements.

Section	Changed item	Change	Comments
2	Additional information	Added	H319
8	Additional information	Added	controls/personal protection
11	Additional information	Added	LC50 inhalation rat (mg/l)
12.	Additional information	Added	Ecological information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.



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Full text of H- and EUH-statements:	
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
H301	Toxic if swallowed.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

SDS EU (REACH Annex II)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*