



# SAFETY DATA SHEET

**MATERION**

Version #: 04

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

Registration number	-
Synonyms	None.
Materion Code	1CW
<b>1.1. Product identifier</b>	
Name of the substance	Barium Hydride (BaH <sub>2</sub> ) powder
Identification number	056-002-00-7 (Index number)
<b>1.2. Relevant identified uses of the substance or mixture and uses advised against</b>	
Identified uses	Not available.
Uses advised against	None known.
<b>1.3. Details of the supplier of the safety data sheet</b>	
Supplier	
Company name	Materion Electronic Materials
Address	6070 Parkland Blvd Mayfield Heights, OH 44124 United States
Division	
Telephone	1.216.383.4019
e-mail	Materion-PS@materion.com
Contact person	Product Stewardship Director
<b>1.4. Emergency telephone number</b>	
Document number	1CW

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

#### Classification according to Regulation (EC) No 1272/2008 as amended

##### Physical hazards

Substances and mixtures which, in contact with water, emit flammable gases Category 2

##### Health hazards

Acute toxicity, oral Category 4 H302 - Harmful if swallowed.  
Acute toxicity, inhalation Category 4

### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex

##### Hazard pictograms



##### Signal word

Danger

##### Hazard statements

H260 In contact with water releases flammable gases which may ignite spontaneously.  
H302 Harmful if swallowed.

## Precautionary statements

### Prevention

P271 Use only outdoors or in a well-ventilated area.

### Response

Not available.

### Storage

P402 + P404 Store in a dry place. Store in a closed container.  
P405 Store locked up.

### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

### Supplemental label information

For further information, please contact the Product Stewardship Department at +1.800.862.4118.

### 2.3. Other hazards

This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. The substance is not included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

#### General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex	100	13477-09-3 236-763-3	-	056-002-00-7	#

**Classification:** Water-React. 1;H260, Acute Tox. 4;H302;(ATE: 500 mg/kg bw)

#### List of abbreviations and symbols that may be used above

ATE: Acute toxicity estimate.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Union workplace exposure limit(s).

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

#### Composition comments

The full text for all H-statements is displayed in section 16.

## SECTION 4: First aid measures

#### General information

In case of shortness of breath, give oxygen. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Keep victim under observation. Keep victim warm.

#### 4.1. Description of 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. Get medical attention immediately.

##### Skin contact

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Wash the skin immediately with soap and water. Get medical attention if irritation develops and persists.

##### Eye contact

Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

##### Ingestion

If swallowed, seek medical advice immediately and show this container or label. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

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

Direct contact with eyes may cause temporary irritation.

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

Provide general supportive measures and treat symptomatically. Treat symptomatically. In case of shortness of breath, give oxygen. Oxygen, if needed. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

## SECTION 5: Firefighting measures

#### General fire hazards

In contact with water releases flammable gases.

### 5.1. Extinguishing media

#### Suitable extinguishing media

Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

#### Unsuitable extinguishing media

Water. Do not use a solid water stream as it may scatter and spread fire. Dry chemical.

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

In contact with water releases flammable gases.

### 5.3. Advice for firefighters

#### Special protective equipment for firefighters

Wear suitable protective equipment.

#### Special firefighting procedures

If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Do not get water inside container. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tanks due to fire. 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

Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6: Accidental release measures

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

#### For non-emergency personnel

Avoid inhalation of dust. Wear appropriate personal protective equipment.

#### For emergency responders

Keep unnecessary personnel away. Ensure adequate ventilation. Avoid inhalation of dust. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

### 6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

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

Do not get water on spilled substance or inside containers. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

### 6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Keep away from any possible contact with water, because of violent reaction and possible flash fire. Handle under inert gas. Minimise dust generation and accumulation. All equipment used when handling the product must be grounded. Do not taste or swallow. Avoid breathing dust. Avoid prolonged exposure. When using, do not eat, drink or smoke. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

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

Never allow product to get in contact with water during storage. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Store in a dry place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS).

### 7.3. Specific end use(s)

Observe industrial sector guidance on best practices.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Occupational exposure limits****Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	MAK	0,5 mg/m3	Inhalable fraction.
	STEL	2 mg/m3	Inhalable fraction.

**Belgium. OEL. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1 - Chemical agents, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Bulgaria. OELs. Ordinance No 13 on protection of workers against risks of exposure to chemical agents at work, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	MAC	0,5 mg/m3

**Cyprus. OELs. Occupational Exposure Limit Values of Chemicals at Work (Safety and Health at Work (Chem. Agents) Reg., Ann. 1, R.A.A. 268/2001, as amended)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Czech Republic. Occupational exposure limit values of chemicals at work (Decree on protection of health at work, 361/2007, Annex 2, Part A & Annex 3, Part A, as amended)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	Ceiling	2,5 mg/m3
	TWA	0,5 mg/m3

**Denmark. Work Environment Authority. Exposure Limits for Substances & Materials, Annex 2**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TLV	0,5 mg/m3

**Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**France. OELs. Indicative Occupational Exposure Limits as Prescribed by Order of 30 June 2004, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	VME	0,5 mg/m3

**France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	VME	0,5 mg/m3

**Regulatory status:** Regulatory indicative (VRI)

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG), as updated**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3	Inhalable fraction.

**Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	AGW	0,5 mg/m3	Inhalable fraction.

**Greece. OELs, Presidential Decree No. 307/1986, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Iceland. OELs. Regulation 390/2009 on Pollution Limits and Measures to Reduce Pollution at the Workplace, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Italy. OELs (Legislative Decree n.81, 9 April 2008), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Latvia. OELs. Occupational Exposure Limits of Chemical Substances at Workplace (Reg. No. 325/ 2007, L.V. 80, Annex 1), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Lithuania. OELs. Occupational Exposure Limit Values for Chemical Substances (Hygiene Norm HN 23:2011; Order No. V-824/A1-389), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Luxembourg. OELs. Binding Occupational Exposure Limit Values (Annex I), G.D.R. of 14 November 2016, OJ Memorial A, n ° 235/2016, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Malta. OELs. Protection of Health and Safety of Workers from Risks related to Chemical Agents at Work (L.N 227/2003 Schedules I and V), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Netherlands. OELs per Annex XIII of Working Conditions Regulation (Staatscourant no. 252, 29 December 2006), as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Norway. Regulation No. 1358 on Measures and Limit Values for Physical and Chemical Factors in Work Environment and Infection Groups for Biological Factors, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TLV	0,5 mg/m3

**Poland. Maximum permissible concentrations and intensities of harmful factors in the work environment (Dz.U.Poz. 1286/2018, Annex 1)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Portugal. Decree-Law No. 24/2012, Occupational Exposure Limit Values, Annex II, as amended**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796-2014)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3



**Romania. OELs. Limit Values of Chemical Agents at Workplace (Regulation 1.218/2006, M.O 845, Annex 1, 3&4, as amended)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Slovakia. OELs. Maximum permissible exposure limits for chemical factors in workplace air (Regulation No 355/2006, Annex 1, Table 1, as amended)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Ann. I 100/2001), as amended**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	KTV	0,5 mg/m3	Inhalable fraction.

**Slovenia. OELs. Occupational Exposure Limits of Chemicals at Workplace (Reg. on Protection of Workers from Risks due to Exp. to Chemicals at Work, Annex I), as amended**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3	Inhalable fraction.

**Spain. OELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 1-Valores Límites Ambientales (VLAs)**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as amended**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3	Total dust.

**Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle MAK-Werte**

Material	Type	Value	Form
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	STEL	4 mg/m3	Inhalable fraction.
	TWA	0,5 mg/m3	Inhalable fraction.

**UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU**

Material	Type	Value
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthaleny l aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	TWA	0,5 mg/m3

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Recommended monitoring procedures** Follow standard monitoring procedures.

**Derived no effect levels (DNELs)** Not available.

**Predicted no effect concentrations (PNECs)** Not available.

**Exposure guidelines**

**Latvia OELs: Skin designation**

barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3) Can be absorbed through the skin.

**8.2. Exposure controls**

**Appropriate engineering controls** Good general ventilation 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.

## Individual protection measures, such as personal protective equipment

<b>General information</b>	Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
<b>Eye/face protection</b>	Wear eye/face protection. Wear safety glasses with side shields (or goggles).
<b>Skin protection</b>	
- <b>Hand protection</b>	Wear appropriate chemical resistant gloves.
- <b>Other</b>	Wear suitable protective clothing. Use of an impervious apron is recommended. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Wear protective gloves.
<b>Respiratory protection</b>	Chemical respirator with organic vapour cartridge.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>Hygiene measures</b>	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
<b>Environmental exposure controls</b>	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

## SECTION 9: Physical and chemical properties

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

<b>Physical state</b>	Solid.
<b>Form</b>	Solid.
<b>Colour</b>	Not available.
<b>Odour</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Boiling point or initial boiling point and boiling range</b>	Not available.
<b>Flammability</b>	Flammable solid.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower ( %)</b>	Not available.
<b>Explosive limit – upper ( %)</b>	Not available.
<b>Flash point</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>pH</b>	Not available.
<b>Kinematic viscosity</b>	Not available.
<b>Solubility</b>	
<b>Solubility (water)</b>	Not available.
<b>Partition coefficient (n-octanol/water) (log value)</b>	Not available.
<b>Vapour pressure</b>	<0,0000001 kPa (25 °C (77 °F))
<b>Density and/or relative density</b>	Not available.
<b>Vapour density</b>	Not available.
<b>Particle characteristics</b>	Not available.

### 9.2. Other information

<b>9.2.1. Information with regard to physical hazard classes</b>	No relevant additional information available.
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### 9.2.2. Other safety characteristics

<b>Molecular formula</b>	BaH <sub>2</sub>
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## SECTION 10: Stability and reactivity

<b>10.1. Reactivity</b>	Not available.
<b>10.2. Chemical stability</b>	Risk of ignition.
<b>10.3. Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>10.4. Conditions to avoid</b>	Exposure to moisture. Contact with water liberates flammable gas. Moisture. Contact with incompatible materials.
<b>10.5. Incompatible materials</b>	Water. None known.
<b>10.6. Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11: Toxicological information

<b>General information</b>	Occupational exposure to the substance or mixture may cause adverse effects.
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### Information on likely routes of exposure

<b>Inhalation</b>	Harmful if inhaled.
<b>Skin contact</b>	Due to lack of data the classification is not possible.
<b>Eye contact</b>	Due to lack of data the classification is not possible.
<b>Ingestion</b>	Harmful if swallowed.

<b>Symptoms</b>	Exposure may cause temporary irritation, redness, or discomfort.
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### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

<b>Acute toxicity</b>	In high concentrations, vapours are anaesthetic and may cause headache, fatigue, dizziness and central nervous system effects. Harmful if inhaled. Harmful if swallowed. Harmful if swallowed.
<b>Skin corrosion/irritation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Serious eye damage/eye irritation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Respiratory sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Skin sensitisation</b>	Due to partial or complete lack of data the classification is not possible.
<b>Germ cell mutagenicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Reproductive toxicity</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - single exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - repeated exposure</b>	Due to partial or complete lack of data the classification is not possible.
<b>Aspiration hazard</b>	Due to partial or complete lack of data the classification is not possible.
<b>Mixture versus substance information</b>	No information available.

### 11.2. Information on other hazards

<b>Endocrine disrupting properties</b>	This substance does not have endocrine disrupting properties with respect to human health, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.
<b>Other information</b>	Not available.

## SECTION 12: Ecological information

<b>12.1. Toxicity</b>	Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.
<b>12.2. Persistence and degradability</b>	No data is available on the degradability of this product.
<b>12.3. Bioaccumulative potential</b>	No data available.
<b>Partition coefficient n-octanol/water (log Kow)</b>	Not available.
<b>Bioconcentration factor (BCF)</b>	Not available.
<b>12.4. Mobility in soil</b>	No data available.
<b>12.5. Results of PBT and vPvB assessment</b>	This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

<b>12.6. Endocrine disrupting properties</b>	This substance does not have endocrine disrupting properties with respect to the environment, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.
<b>12.7. Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.
<b>12.8. Additional information</b>	
<b>Estonia Dangerous substances in soil Data</b>	
barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex (CAS 13477-09-3)	Barium (Ba) 2000 mg/kg  Barium (Ba) 500 mg/kg Barium (Ba) 750 mg/kg

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Residual waste</b>	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). Avoid discharge into water courses or onto the ground.
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>EU waste code</b>	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company. Waste codes should be assigned by the user based on the application for which the product was used.
<b>Disposal methods/information</b>	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. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Special precautions</b>	Dispose in accordance with all applicable regulations.

## SECTION 14: Transport information

### ADR

<b>14.1. UN number</b>	UN1409
<b>14.2. UN proper shipping name</b>	Metal hydrides, water reactive, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.3
<b>Hazard No. (ADR)</b>	Not assigned.
<b>Tunnel restriction code</b>	Not assigned.
<b>14.4. Packing group</b>	II
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### RID

<b>14.1. UN number</b>	UN1409
<b>14.2. UN proper shipping name</b>	Metal hydrides, water reactive, n.o.s.
<b>14.3. Transport hazard class(es)</b>	
<b>Class</b>	4.3
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	4.3
<b>14.4. Packing group</b>	II
<b>14.5. Environmental hazards</b>	No.
<b>14.6. Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### ADN

<b>14.1. UN number</b>	UN1409
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**14.2. UN proper shipping name** Metal hydrides, water reactive, n.o.s.

**14.3. Transport hazard class(es)**

**Class** 4.3

**Subsidiary risk** -

**Label(s)** 4.3

**14.4. Packing group** II

**14.5. Environmental hazards** No.

**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**IATA**

**14.1. UN number** UN1409

**14.2. UN proper shipping name** Metal hydrides, water reactive, n.o.s. (Barium hydride)

**14.3. Transport hazard class(es)**

**Class** 4.3

**Subsidiary risk** -

**Label(s)** 4.3

**14.4. Packing group** II

**14.5. Environmental hazards** No.

**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

**14.1. UN number** UN1409

**14.2. UN proper shipping name** Metal hydrides, water reactive, n.o.s. (Barium hydride)

**14.3. Transport hazard class(es)**

**Class** 4.3

**Subsidiary risk** -

**Label(s)** 4.3

**14.4. Packing group** II

**14.5. Environmental hazards**

**Marine pollutant** No.

**EmS** Not assigned.

**14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**ADN; ADR; IATA; IMDG; RID**



## SECTION 15: Regulatory information

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

#### EU regulations

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**  
Not listed.

**Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**  
Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

#### Authorisations

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

#### Restrictions on use

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended - Conditions of restriction given for the associated entry number should be considered**

Not listed.

**Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.**

Not listed.

**Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended**

Not listed.

**Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended**

Not listed.

#### Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

#### National regulations

Follow national regulation for work with chemical agents.

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

#### France regulations

**France INRS Table of Occupational Diseases**

Not regulated.

#### 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

### SECTION 16: Other information

#### List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.  
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.  
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).  
CAS: Chemical Abstract Service.  
CEN: European Committee for Standardization.  
IATA: International Air Transport Association.  
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.  
IMDG: International Maritime Dangerous Goods.  
MAC: Maximum Allowed Concentration.  
MARPOL: International Convention for the Prevention of Pollution from Ships.  
PBT: Persistent, bioaccumulative and toxic.  
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.  
STEL: Short term exposure limit.  
TLV: Threshold Limit Value.  
TWA: Time Weighted Average.  
VLE: Exposure Limit Value.  
VME: Exposure Average Value.  
vPvB: Very persistent and very bioaccumulative.

#### References

ACGIH  
EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents

<b>Information on evaluation method leading to the classification of mixture</b>	Not applicable.
<b>Full text of any statements, which are not written out in full under sections 2 to 15</b>	<p>H260 In contact with water releases flammable gases which may ignite spontaneously.</p> <p>H302 Harmful if swallowed.</p>
<b>Revision information</b>	This document has undergone significant changes and should be reviewed in its entirety.
<b>Training information</b>	Follow training instructions when handling this material.
<b>Further information</b>	<p>Transportation Emergency</p> <p>Call Chemtrec at:</p> <p>US: 800.424.9300</p> <p>International: 703.741.5970</p> <p>Spain: 900.868.538</p> <p>Switzerland: 0800.564.402</p> <p>Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059</p> <p>South Korea Toll-free Number – 080-880-0468</p>
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