



# SAFETY DATA SHEET

Creation Date 16-Nov-2010

Revision Date 01-Aug-2013

Revision Number 3

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

Product Description:	Barium perchlorate, anhydrous
Cat No.	221270000; 221270050; 221271000; 221275000
Synonyms	Barium Perchlorate
CAS-No	13465-95-7
EC-No.	236-710-4
Molecular Formula	Ba Cl <sub>2</sub> O <sub>8</sub>

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

Recommended Use	Laboratory chemicals
Uses advised against	No Information available

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

Company	Acros Organics BVBA Janssen Pharmaceuticaaan 3a 2440 Geel, Belgium
E-mail address	begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - Regulation (EC) No 1272/2008

##### Physical hazards

Oxidizing solids	Category 1
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##### Health hazards

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4

##### Environmental hazards

Based on available data, the classification criteria are not met

#### Classification according to EU Directives 67/548/EEC or 1999/45/EC

Symbol(s)	Xn - Harmful O - Oxidizing
R-phrases	R 9 - Explosive when mixed with combustible material R20/22 - Harmful by inhalation and if swallowed

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

### 2.2. Label elements



Signal Word

Danger

**Hazard Statements**

H271 - May cause fire or explosion; strong oxidizer

H332 - Harmful if inhaled

H302 - Harmful if swallowed

**Precautionary Statements**

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell

P220 - Keep/Store away from clothing/ combustible materials

P221 - Take any precaution to avoid mixing with combustibles

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

**2.3. Other hazards**

No information available.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008	DSD Classification - 67/548/EEC
Barium perchlorate	13465-95-7	EEC No. 236-710-4	>95	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Ox. Sol. 1 (H271)	Xn; R20/22 O; R9

*For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16***SECTION 4: FIRST AID MEASURES****4.1. Description of first aid measures****General Advice**

If symptoms persist, call a physician.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Ingestion**

Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Inhalation**

Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

**Protection of First-aiders**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination

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

No information available

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

Notes to Physician

Treat symptomatically

**SECTION 5: FIREFIGHTING MEASURES****5.1. Extinguishing media****Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

**Extinguishing media which must not be used for safety reasons**

No information available.

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

Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood, paper, oil, clothing, etc.).

**Hazardous Combustion Products**

Hydrogen chloride gas, Thermal decomposition can lead to release of irritating gases and vapors.

**5.3. Advice for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.

**6.2. Environmental precautions**

Should not be released into the environment.

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

Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

**6.4. Reference to other sections**

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7: HANDLING AND STORAGE****7.1. Precautions for safe handling**

Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation. Keep away from clothing and other combustible materials.

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

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials.

**7.3. Specific end use(s)**

Use in laboratories

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s):

**EU** - Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.

Component	European Union	The United Kingdom	France	Belgium	Spain
Barium perchlorate	TWA: 0.5 mg/m <sup>3</sup> 8 hr	STEL: 1.5 mg/m <sup>3</sup> 15 min TWA: 0.5 mg/m <sup>3</sup> 8 hr	TWA / VME: 0.5 mg/m <sup>3</sup> (8 heures). indicative limit		TWA / VLA-ED: 0.5 mg/m <sup>3</sup> (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Barium perchlorate		TWA: 0.5 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 1 TWA: 0.5 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 4 mg/m <sup>3</sup>	TWA: 0.5 mg/m <sup>3</sup> 8 horas		TWA: 0.5 mg/m <sup>3</sup> 8 tunteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Barium perchlorate	STEL: 2 mg/m <sup>3</sup> 15 Minuten TWA: 0.5 mg/m <sup>3</sup> 8 Stunden		STEL: 1 mg/m <sup>3</sup> 15 Minuten MAK: 0.5 mg/m <sup>3</sup> 8 Stunden		TWA: 0.5 mg/m <sup>3</sup> 8 timer

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Barium perchlorate		TWA: 0.5 mg/m <sup>3</sup> 8 satima.			

#### Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

#### Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

**Derived No Effect Level (DNEL)** No information available.

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral Dermal Inhalation				

**Predicted No Effect Concentration (PNEC)** No information available.

### 8.2. Exposure controls

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Barium perchlorate, anhydrous

## Engineering Measures

Ventilation systems. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

## Personal protective equipment

### Eye Protection

Goggles (European standard - EN 166)

### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Remove gloves with care avoiding skin contamination.

### Skin and body protection

Long sleeved clothing

### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators  
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

### Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced..  
**Recommended Filter type:** Particulates filter conforming to EN 143.

### Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Particle filtering: EN149:2001  
When RPE is used a face piece Fit Test should be conducted.

## Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

## Environmental exposure controls

No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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

Appearance	White	
Physical State	Powder, Solid.	
Odor	odorless	
Odor Threshold	No data available	
pH	No information available. 5.6	100g/l aq.sol.(20°C)
Melting Point/Range	505°C / 941°F	
Softening Point	No data available	
Boiling Point/Range	No information available.	
Flash Point	No information available.	<b>Method -</b> No information available.

Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available.	
Explosion Limits	No data available.	

Vapor Pressure	No data available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	3.200	
Bulk Density	No data available	
Water Solubility	soluble	
Solubility in other solvents	No information available.	

Partition Coefficient (n-octanol/water)

Autoignition Temperature	No data available	
Decomposition temperature	> 700°C	
Viscosity	Not applicable	Solid
Explosive Properties	No information available.	
Oxidizing Properties	Oxidizer	

## 9.2. Other information

Molecular Formula	Ba Cl <sub>2</sub> O <sub>8</sub>
Molecular Weight	336.23

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity**  
None known, based on information available.

**10.2. Chemical stability**  
Stable under normal conditions. Oxidizer: Contact with combustible/organic material may cause fire.

## 10.3. Possibility of hazardous reactions

Hazardous Polymerization	No information available
Hazardous Reactions	None under normal processing.

**10.4. Conditions to avoid**  
Incompatible products, Excess heat, Avoid dust formation, Combustible material.

**10.5. Incompatible materials**  
Strong reducing agents. Combustible material. Strong oxidizing agents. Alcohols.

**10.6. Hazardous decomposition products**  
Hydrogen chloride gas, Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Product Information

(a) acute toxicity;	
Oral	Category 4
Dermal	No data available
Inhalation	Category 4

(b) skin corrosion/irritation;	No data available
(c) serious eye damage/irritation;	No data available
(d) respiratory or skin sensitization;	No data available
Respiratory	No data available
Skin	No data available
(e) germ cell mutagenicity;	No data available
(f) carcinogenicity;	No data available
	There are no known carcinogenic chemicals in this product
(g) reproductive toxicity;	No data available
(h) STOT-single exposure;	No data available
(i) STOT-repeated exposure;	No data available
Target Organs	No information available.
(j) aspiration hazard;	Not applicable
	Solid
Symptoms / effects, both acute and delayed	No information available.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

### 12.2. Persistence and degradability

#### Persistence

Soluble in water, Persistence is unlikely, based on information available.

#### Degradability

Not relevant for inorganic substances.

### 12.3. Bioaccumulative potential

Bioaccumulation is unlikely

### 12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

### 12.5. Results of PBT and vPvB assessment

No data available for assessment

### 12.6. Other adverse effects

#### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

#### Persistent Organic Pollutant

This product does not contain any known or suspected substance

#### Ozone Depletion Potential

This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### Waste from Residues / Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

<b>Contaminated Packaging</b>	Dispose of this container to hazardous or special waste collection point..
<b>European Waste Catalogue (EWC)</b>	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
<b>Other Information</b>	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

**SECTION 14: TRANSPORT INFORMATION****IMDG/IMO**

<b>14.1. UN number</b>	1447
<b>14.2. UN proper shipping name</b>	BARIUM PERCHLORATE, SOLID
<b>14.3. Transport hazard class(es)</b>	5.1
<b>Subsidiary Hazard Class</b>	6.1
<b>14.4. Packing group</b>	II

**ADR**

<b>14.1. UN number</b>	1447
<b>14.2. UN proper shipping name</b>	BARIUM PERCHLORATE, SOLID
<b>14.3. Transport hazard class(es)</b>	5.1
<b>Subsidiary Hazard Class</b>	6.1
<b>14.4. Packing group</b>	II

**IATA**

<b>14.1. UN number</b>	1447
<b>14.2. UN proper shipping name</b>	BARIUM PERCHLORATE, SOLID
<b>14.3. Transport hazard class(es)</b>	5.1
<b>Subsidiary Hazard Class</b>	6.1
<b>14.4. Packing group</b>	II

<b>14.5. Environmental hazards</b>	No hazards identified
<b>14.6. Special precautions for user</b>	No special precautions required
<b>14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable, packaged goods

**SECTION 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**International Inventories** X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Barium perchlorate	236-710-4	-		X	X	-	X	X	X	X	X

**National Regulations**

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Barium perchlorate	WGK 1	

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

Take note of Dir 94/33/EC on the protection of young people at work

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

**15.2. Chemical safety assessment**



A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

### Full text of R-phrases referred to under sections 2 and 3

R 9 - Explosive when mixed with combustible material

R20/22 - Harmful by inhalation and if swallowed

### Full text of H-Statements referred to under sections 2 and 3

H271 - May cause fire or explosion; strong oxidizer

H302 - Harmful if swallowed

H332 - Harmful if inhaled

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Existing and Evaluated Chemical Substances

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Industrial Hygiene

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japan Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - Volatile Organic Compounds

### Key literature references and sources for data

Suppliers safety data sheet,  
Chemadvisor - LOLI,  
Merck index,  
RTECS

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

**Creation Date** 16-Nov-2010

**Revision Date** 01-Aug-2013

**Revision Summary**

**Reason for revision** Not applicable

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

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**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of Safety Data Sheet**