SAFETY DATA SHEET

Creation Date 16-Nov-2010
Revision Date 19-Jan-2018
Revision Number 3

1. Identification

Product Name  Barium perchlorate, anhydrous
Cat No. : AC221270000; AC221270050; AC221271000; AC221275000
CAS-No  13465-95-7
Synonyms Barium Perchlorate
Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

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

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidizing solids</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute oral toxicity</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute Inhalation Toxicity - Dusts and Mists</td>
<td>Category 4</td>
</tr>
</tbody>
</table>

Label Elements

Signal Word
Danger

Hazard Statements
May cause fire or explosion; strong oxidizer
Harmful if swallowed or if inhaled
Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep/Store away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles
Wear protective gloves/protective clothing/eye protection/face protection
Wear fire/flame resistant/retardant clothing
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion
In case of fire: Use CO2, dry chemical, or foam for extinction
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>13465-95-7</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

4. 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. Get medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation
Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.

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

Most important symptoms and effects
No information available.

Notes to Physician
Treat symptomatically
5. Fire-fighting measures

Unsuitable Extinguishing Media  No information available

Flash Point  No information available
Method -  No information available

Autoignition Temperature  Not applicable
Explosion Limits
Upper  No data available
Lower  No data available

Oxidizing Properties  Oxidizer

Sensitivity to Mechanical Impact  No information available
Sensitivity to Static Discharge  No information available

Specific Hazards Arising from the Chemical
Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

Hazardous Combustion Products
Thermal decomposition can lead to release of irritating gases and vapors. Hydrogen chloride gas.

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

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>OX</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions  Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

Environmental Precautions  Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up
Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling  Wear personal protective equipment/face protection. 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.

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

8. Exposure controls / personal protection

Exposure Guidelines  This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>TWA: 0.5 mg/m³</td>
<td>(Vacated) TWA: 0.5 mg/m³</td>
<td>IDLH: 50 mg/m³ TWA: 0.5 mg/m³</td>
<td>TWA: 0.5 mg/m³</td>
</tr>
</tbody>
</table>

Legend
Barium perchlorate, anhydrous

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Powder Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>White</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>505 °C / 941 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>3.200</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>&gt; 700°C</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>Ba Cl2 O8</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>336.23</td>
</tr>
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</table>

10. Stability and reactivity

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactive Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Stability</td>
<td>Stable under normal conditions. Oxidizer: Contact with combustible/organic material may cause fire.</td>
</tr>
<tr>
<td>Incompatible Materials</td>
<td>Strong reducing agents, Combustible material, Strong oxidizing agents, Alcohols</td>
</tr>
<tr>
<td>Hazardous Decomposition Products</td>
<td>Thermal decomposition can lead to release of irritating gases and vapors, Hydrogen</td>
</tr>
</tbody>
</table>
Barium perchlorate, anhydrous

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chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

### 11. Toxicological information

**Acute Toxicity**

**Product Information**

**Component Information**

**Toxicologically Synergistic** No information available

**Products**

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation** No information available

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>13465-95-7</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** None known

**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** No information available

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

### 12. Ecological information

**Ecotoxicity**

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
### 14. Transport information

**DOT**
- **UN-No**: UN1447
- **Hazard Class**: 5.1
- **Subsidiary Hazard Class**: 6.1
- **Packing Group**: II

**TDG**
- **UN-No**: UN1447
- **Hazard Class**: 5.1
- **Subsidiary Hazard Class**: 6.1
- **Packing Group**: II

**IATA**
- **UN-No**: UN1447
- **Proper Shipping Name**: BARIUM PERCHLORATE, SOLID
- **Hazard Class**: 5.1
- **Subsidiary Hazard Class**: 6.1
- **Packing Group**: II

**IMDG/IMO**
- **UN-No**: UN1447
- **Proper Shipping Name**: BARIUM PERCHLORATE, SOLID
- **Hazard Class**: 5.1
- **Subsidiary Hazard Class**: 6.1
- **Packing Group**: II

### 15. Regulatory information

#### United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active/Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>13465-95-7</td>
<td>X</td>
<td>ACTIVE</td>
<td></td>
</tr>
</tbody>
</table>

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)
- **X** - Listed
- **-'** - Not Listed

**TSCA 12(b) - Notices of Export** Not applicable

#### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>13465-95-7</td>
<td>X</td>
<td>-</td>
<td>236-710-4</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-02082</td>
<td></td>
</tr>
</tbody>
</table>

#### U.S. Federal Regulations

**SARA 313** Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>13465-95-7</td>
<td>&gt;95</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA - Occupational Safety and** Not applicable
Barium perchlorate, anhydrous

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Health Administration

CERCLA  Not applicable

California Proposition 65  This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium perchlorate</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ):  N
DOT Marine Pollutant  N
DOT Severe Marine Pollutant  N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade  No information available

16. Other information

Prepared By  Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date  16-Nov-2010
Revision Date  19-Jan-2018
Print Date  19-Jan-2018
Revision Summary  This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

End of SDS