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

1.1 Product identifier
- Trade name: BARIUM HYDROXIDE OCTAHYDRATE - HIGH PURITY
- Chemical name: Barium hydroxide octahydrate
- Synonyms: Barium salt
- Molecular formula: Ba(OH)2.8H2O

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

Uses of the Substance / Mixture
- Chemical industry
- Electronic industry

1.3 Details of the supplier of the safety data sheet

Company
SOLVAY FLUORIDES, LLC
3737 Buffalo Speedway,
Suite 800,
Houston, TX 77098
USA
Tel: 800-515-6065

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture

HCS 2012 (29 CFR 1910.1200)
Acute toxicity, Category 4
Skin corrosion, Category 1A
Serious eye damage, Category 1
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram

Signal Word
- Danger
Hazard Statements
- H302  Harmful if swallowed.
- H314  Causes severe skin burns and eye damage.

Precautionary Statements

Prevention
- P260  Do not breathe dusts or mists.
- P264  Wash skin thoroughly after handling.
- P270  Do not eat, drink or smoke when using this product.
- P280  Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
- P301 + P312 + P330  IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- P301 + P330 + P331  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310  IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
- P305 + P351 + P338 + P310  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P363  Wash contaminated clothing before reuse.

Storage
- P405  Store locked up.

Disposal
- P501  Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards which do not result in classification
- H401: Toxic to aquatic life.

SECTION 3: Composition/information on ingredients

3.1 Substance

Hazardous Ingredients and Impurities

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identification number CAS-No.</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>12230-71-6</td>
<td>&gt;= 93</td>
</tr>
<tr>
<td>Strontium hydroxide</td>
<td>18480-07-4</td>
<td>&lt; 3</td>
</tr>
</tbody>
</table>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Identification number CAS-No.</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>12230-71-6</td>
<td>&gt;= 90 - &lt; 95</td>
</tr>
<tr>
<td>Strontium hydroxide</td>
<td>18480-07-4</td>
<td>&gt;= 3 - &lt; 5</td>
</tr>
</tbody>
</table>

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

3.2 Mixture

Not applicable, this product is a substance.
SECTION 4: First aid measures

4.1 Description of first-aid measures

In case of inhalation
- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

In case of skin contact
- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control center immediately.
- Wash contaminated clothing before re-use.

In case of eye contact
- Call a physician or poison control center immediately.
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Take victim immediately to hospital.

In case of ingestion
- Call a physician or poison control center immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation
Symptoms
- Breathing difficulties
- Cough
- Chemical pneumonitis
- Pulmonary edema

Effects
- Corrosive to respiratory system.

Repeated or prolonged exposure
- Nose bleeding
- Risk of chronic bronchitis

In case of skin contact
Symptoms
- Redness
- Swelling of tissue

Effects
- Corrosive
- Causes severe burns.

In case of eye contact
**Symptoms**
- Redness
- Lachrymation
- Swelling of tissue

**Effects**
- Corrosive
- Causes severe burns.
- May cause irreversible eye damage.
- May cause blindness.

**In case of ingestion**

**Effects**
- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
- Acute intoxication by inhalation or ingestion of water soluble barium salts causes vomiting, diarrhea, convulsive tremors and muscular paralysis.
- Risk of convulsions, loss of consciousness, deep coma and cardiopulmonary arrest.
- Risk of throat (o)edema and suffocation.
- Risk of shock.

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

**Notes to physician**
- Take victim immediately to hospital.
- Immediate medical attention is required.
- Consult with an ophthalmologist immediately in all cases.
- Burns must be treated by a physician.
- If swallowed
- Avoid gastric lavage (risk of perforation).
- Keep under medical supervision for at least 48 hours.

---

**SECTION 5: Firefighting measures**

**Flash point**
Not applicable

**Autoignition temperature**
Not applicable

**Flammability / Explosive limit**
no data available

**5.1 Extinguishing media**

**Suitable extinguishing media**
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**
- None.

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

**Specific hazards during fire fighting**
- Not combustible.

**Hazardous combustion products:**
- Barium oxide
- Other hazardous decomposition products may be formed.

5.3 Advice for firefighters

**Special protective equipment for fire-fighters**
- Exposure to decomposition products may be a hazard to health.
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit

---

**SECTION 6: Accidental release measures**

6.1 Personal precautions, protective equipment and emergency procedures

**Advice for non-emergency personnel**
- Keep people away from and upwind of spill/leak.
- Avoid dust formation.

**Advice for emergency responders**
- Wear self-contained breathing apparatus and protective suit.
- Sweep up to prevent slipping hazard.
- Prevent further leakage or spillage.

6.2 Environmental precautions
- Should not be released into the environment.
- Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up
- Pick up and arrange disposal without creating dust.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
- Refer to protective measures listed in sections 7 and 8.

---

**SECTION 7: Handling and storage**

7.1 Precautions for safe handling
- Use only in well-ventilated areas.
- Keep away from incompatible products

**Hygiene measures**
- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities
Technical measures/Storage conditions
- Store in original container.
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep container closed.
- Avoid dust formation.
- Electrical equipment should be protected to the appropriate standard.
- Keep away from incompatible products

Packaging material
Suitable material
- Paper + PE coating.

Unsuitable material
- no data available

7.3 Specific end use(s)
- Contact your supplier for additional information

SECTION 8: Exposure controls/personal protection
Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Value type</th>
<th>Value</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>TWA</td>
<td>0.5 mg/m³</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expressed as :Barium</td>
</tr>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>TWA</td>
<td>0.5 mg/m³</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expressed as :Barium</td>
</tr>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>TWA</td>
<td>0.5 mg/m³</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expressed as :Barium</td>
</tr>
</tbody>
</table>
NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>12230-71-6</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>12230-71-6</td>
<td>50 mg/m³</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Control measures

Engineering measures
- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures

Respiratory protection
- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Self-contained breathing apparatus in confined spaces/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.

Hand protection
- Impervious gloves

Suitable material
- PVC
- Neoprene
- Natural Rubber

Eye protection
- Chemical resistant goggles must be worn.

Skin and body protection
- Long sleeved clothing
- Apron/boots of PVC, neoprene in case of dusts.

Hygiene measures
- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.
SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>crystalline</td>
</tr>
<tr>
<td>Physical state</td>
<td>solid</td>
</tr>
<tr>
<td>Color</td>
<td>white</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>315.5 g/mol</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>13.1 (68 °F (20 °C)) saturated aqueous solution</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 172 °F (78 °C)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Boiling point/boiling range: 1436 °F (780 °C)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate (Butylacetate = 1)</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>no data available</td>
</tr>
<tr>
<td>Flammability / Explosive limit</td>
<td>Explosiveness: Not explosive</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Density</td>
<td>2.18 g/cm³ (61 °F (16 °C))</td>
</tr>
<tr>
<td>Bulk density</td>
<td>900 - 1,100 kg/m³</td>
</tr>
<tr>
<td>Relative density</td>
<td>no data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>Water solubility: 40 - 60 g/l (68 °F (20 °C))</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
SECTION 10: Stability and reactivity

10.1 Reactivity
   - Contact with acids liberates CO2, sometimes violently.

10.2 Chemical stability
   - Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
   - no data available

10.4 Conditions to avoid
   - none

10.5 Incompatible materials
   - Acids

10.6 Hazardous decomposition products
   - Barium oxide
   - Other hazardous decomposition products may be formed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity
Barium hydroxide octahydrate  LD50 : 333 mg/kg - Rat, male and female
Method: OECD Test Guideline 401

Acute inhalation toxicity
Barium hydroxide octahydrate  Corrosive to the respiratory tract.
study scientifically unjustified

Acute dermal toxicity
Barium hydroxide octahydrate  study scientifically unjustified
Corrosive

Acute toxicity (other routes of administration)  no data available
**Skin corrosion/irritation**

Barium hydroxide octahydrate  
Corrosive

**Serious eye damage/eye irritation**

Barium hydroxide octahydrate  
Risk of serious damage to eyes.  
Corrosive

**Respiratory or skin sensitization**

Barium hydroxide octahydrate  
By analogy  
Local lymph node assay - Mouse  
Does not cause skin sensitization.  
Method: OECD Test Guideline 429  
Unpublished internal reports

**Mutagenicity**

**Genotoxicity in vitro**

Barium hydroxide octahydrate  
By analogy  
Ames test  
with and without metabolic activation  
negative  
Method: OECD Test Guideline 471  
Published data  
In vitro tests did not show mutagenic effects  
By analogy  
Chromosome aberration test in vitro  
Strain: Chinese hamster ovary cells  
with and without metabolic activation  
negative  
Method: OECD Test Guideline 473  
Published data  
In vitro tests did not show mutagenic effects  
By analogy  
Gene mutation assays in mammalian cells.  
Strain: Mouse  
with and without metabolic activation  
negative  
Method: OECD Test Guideline 476  
Published data  
In vitro tests did not show mutagenic effects

**Genotoxicity in vivo**

no data available
Carcinogenicity

Barium hydroxide octahydrate By analogy
Rat
Mouse
Oral
Exposure time: two-year
No carcinogenic effects have been observed
Published data

This product does not contain any ingredient designated as probable or suspected human carcinogens by:
NTP
IARC
OSHA

Toxicity for reproduction and development

Toxicity to reproduction / fertility
Barium hydroxide octahydrate By analogy

Fertility NOAEL Parent: 179.5 - 201.5 mg/kg
Published data

Developmental Toxicity/Teratogenicity
Barium hydroxide octahydrate By analogy
Oral
Test period: 20 Days
General Toxicity Maternal NOAEL: 16.9 mg/kg
Teratogenicity NOAEL:> 56.2mg/kg
Method: OECD Test Guideline 414
Test substance, Barium, Gavage, Unpublished internal reports

STOT

STOT-single exposure
Barium hydroxide octahydrate The substance or mixture is not classified as specific target organ toxicant, single exposure according to GHS criteria.

STOT-repeated exposure
Barium hydroxide octahydrate The substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria.

Barium hydroxide octahydrate By analogy
- Rat
- Mouse
Oral 90-day, male and female
NOAEL: 61 - 81 mg/kg
Experience with human exposure

no data available

CMR effects

Carcinogenicity

Barium hydroxide octahydrate

No evidence of carcinogenicity in animal studies.

Mutagenicity

Barium hydroxide octahydrate

Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Aspiration toxicity

no data available

Further information

Barium hydroxide octahydrate

Corrosive effect for the skin, the eyes and respiratory tract
Harmful if swallowed.
The toxicity is mainly linked to the barium ion (nervous, cardiovascular, respiratory and gastro-intestinal troubles).

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

Barium hydroxide octahydrate

LC50 - 96 h : > 3.5 mg/l - Danio rerio (zebra fish)
static test
Analytical monitoring: yes

Test substance: Barium chloride dihydrate
Method: OECD Test Guideline 203
Unpublished internal reports
Not harmful to fish (LC/LL50 > 100 mg/L)
Acute toxicity to daphnia and other aquatic invertebrates.

Barium hydroxide octahydrate

**EC50 - 48 h**: 14.5 mg/l - *Daphnia magna* (Water flea)
- Static test
- Analytical monitoring: yes
- Test substance: Barium chloride dihydrate
- Method: OECD Test Guideline 202
- Published data
- Not harmful to aquatic invertebrates. (EC/EL50 > 100 mg/L)

Toxicity to aquatic plants

Barium hydroxide octahydrate

**ErC50 - 72 h**: > 1.15 mg/l - *Pseudokirchneriella subcapitata* (green algae)
- Static test
- Analytical monitoring: yes
- Test substance: Barium chloride dihydrate
- Method: OECD Test Guideline 201
- Unpublished internal reports
- Not harmful to algae (EC/EL50 > 100 mg/L)

**NOEC - 72 h**: > 1.15 mg/l - *Pseudokirchneriella subcapitata* (green algae)
- Static test
- Analytical monitoring: yes
- Endpoint: Growth rate
- Test substance: Barium
- Method: OECD Test Guideline 201
- Unpublished internal reports
- No adverse chronic effect observed up to and including the threshold of 1 mg / L.

Toxicity to microorganisms

Barium hydroxide octahydrate

**NOEC - 3 h**: 622 mg/l - Activated sludge
- Static test
- Analytical monitoring: yes
- Test substance: Barium chloride dihydrate
- Method: OECD Test Guideline 209
- Unpublished internal reports

Chronic toxicity to fish

Barium hydroxide octahydrate

**NOEC**: > 1.26 mg/l - 33 Days - *Danio rerio* (zebra fish)
- Semi-static test
- Analytical monitoring: yes
- Test substance: Barium chloride dihydrate
- Method: OECD Test Guideline 210
- Unpublished internal reports
- No adverse chronic effect observed up to and including the threshold of 1 mg / L.
Chronic toxicity to daphnia and other aquatic invertebrates.

Barium hydroxide octahydrate

NOEC: 2.9 mg/l - 21 Days - Daphnia magna (Water flea)
semi-static test
Analytical monitoring: yes
Test substance: Barium chloride dihydrate
Method: OECD Test Guideline 211
Published data
No adverse chronic effect observed up to and including the threshold of 1 mg / L.

Chronic Toxicity to aquatic plants

no data available

12.2 Persistence and degradability

Abiotic degradation

no data available

Physical- and photo-chemical elimination

no data available

Biodegradation

Biodegradability

Barium hydroxide octahydrate

Not applicable

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

no data available

Bioconcentration factor (BCF)

Barium hydroxide octahydrate

potential accumulation of the cation

12.4 Mobility in soil

Adsorption potential (Koc)

Barium hydroxide octahydrate

Water/soil
considerable solubility but mobility reduced by cation precipitation in the presence of sulfates or carbonates

Soil/sediments
adsorption on mineral and organic soil constituents
Barium

Air
mobility as solid aerosols

Known distribution to environmental compartments

no data available
12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Other adverse effects

Ecotoxicity assessment

**Acute aquatic toxicity**
Barium hydroxide octahydrate
No toxicity at the limit of solubility.

**Chronic aquatic toxicity**
Barium hydroxide octahydrate
No adverse chronic effect observed up to and including the threshold of 1 mg / L.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product Disposal**
- In accordance with local and national regulations.
- Use a solution of sodium or magnesium sulfate or possibly a dilute solution of sulfuric acid to form a sulfate precipitate.
- Dispose of wastes in an approved waste disposal facility.

**Waste Code**
- Environmental Protection Agency
- Hazardous Waste – YES
- RCRA Hazardous Waste (40 CFR 302)
- D005 - Barium

**Advice on cleaning and disposal of packaging**
- Containers that cannot be cleaned must be treated as waste.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

SECTION 14: Transport information

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

**DOT**

14.1 UN number
UN 1564

14.2 Proper shipping name
BARIUM COMPOUNDS, N.O.S. (Barium hydroxide monohydrate)

14.3 Transport hazard class
6.1
Label(s)
6.1

14.4 Packing group
Packing group
III
ERG No
154
14.5 Environmental hazards
Marine pollutant

NO

**TDG**

14.1 UN number
UN 1564

14.2 Proper shipping name
BARIUM COMPOUND, N.O.S. (Barium hydroxide monohydrate)

14.3 Transport hazard class
6.1
Label(s)
6.1

14.4 Packing group
Packing group
III
ERG No
154

14.5 Environmental hazards
Marine pollutant

NO

**NOM**

14.1 UN number
UN 1564

14.2 Proper shipping name
BARIUM COMPOUND, N.O.S. (Barium hydroxide monohydrate)

14.3 Transport hazard class
6.1
Label(s)
6.1

14.4 Packing group
Packing group
III
ERG No
154

14.5 Environmental hazards
Marine pollutant

NO

**IMDG**

14.1 UN number
UN 1564

14.2 Proper shipping name
BARIUM COMPOUND, N.O.S. (Barium hydroxide monohydrate)

14.3 Transport hazard class
6.1
Label(s)
6.1

14.4 Packing group
Packing group
III

14.5 Environmental hazards
Marine pollutant

NO
14.6 Special precautions for user
EmS
F-A, S-A
For personal protection see section 8.

IATA

14.1 UN number
UN 1564

14.2 Proper shipping name
BARIUM COMPOUND, N.O.S. (Barium hydroxide monohydrate)

14.3 Transport hazard class
6.1

14.4 Packing group
Packing group
III

Packing instruction (cargo aircraft)
Max net qty / pkg
200.00 kg

Packing instruction (passenger aircraft)
Max net qty / pkg
100.00 kg

14.5 Environmental hazards
NO

14.6 Special precautions for user
For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.
SECTION 15: Regulatory information

15.1 Notification status

<table>
<thead>
<tr>
<th>Inventory Information</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States TSCA Inventory</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Mexico INSQ (INSQ)</td>
<td>In compliance with the inventory</td>
</tr>
<tr>
<td>Canadian Domestic Substances List (DSL)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>New Zealand. Inventory of Chemical Substances</td>
<td>In compliance with the inventory</td>
</tr>
<tr>
<td>Australia Inventory of Chemical Substances (AICS)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Japan. CSCL - Inventory of Existing and New Chemical Substances</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Korea. Korean Existing Chemical Substances Inventory (KECI)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>China. Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Listed on Inventory</td>
</tr>
<tr>
<td>EU. European Registration, Evaluation, Authorisation and Restriction of Chemical (REACH)</td>
<td>If product is purchased from Solvay in Europe it is in compliance with REACH, if not please contact the supplier.</td>
</tr>
</tbody>
</table>

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

**SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370)**

<table>
<thead>
<tr>
<th>Hazard Designation</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin corrosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye irritation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The categories not mentioned are not relevant for the product.

**Section 313 Toxic Chemicals (40 CFR 372.65)**

The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium hydroxide octahydrate</td>
<td>12230-71-6</td>
<td>90- 100%</td>
</tr>
</tbody>
</table>

**Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)**

This material does not contain any components with a section 302 EHS TPQ.

**Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)**

This material does not contain any components with a SARA 302 RQ.

**Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)**

This material does not contain any components with a section 304 EHS RQ.

**US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)**

This material does not contain any components with a CERCLA RQ.
15.3 State Regulations

US, California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information

NFPA (National Fire Protection Association) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2 moderate</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Instability or Reactivity</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Special Notices</td>
<td>None</td>
</tr>
</tbody>
</table>

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2 moderate</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0 minimal</td>
</tr>
<tr>
<td>PPE</td>
<td>Determined by User; dependent on local conditions</td>
</tr>
</tbody>
</table>

Further information

- Product evaluated under the US GHS format.

Date Prepared: 12/19/2017

Key or legend to abbreviations and acronyms used in the safety data sheet

- TWA 8-hour, time-weighted average
- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.