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

1.1 Product identifier
- Trade name: BARIUM SULFATE PRECIPITATED - BLANC FIXE HD80
- Chemical name: Barium sulfate
- Molecular formula: BaSO4

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

Uses of the Substance / Mixture
- Manufacture of pigments
- Manufacture of plastics products
- Manufacture of paper
- Manufacture of batteries and accumulators
- Industrial manufacture of coatings and inks
- Manufacture of paints and coatings
- Industrial and professional use of paints and coatings
- Cosmetics
- Fillers

Uses advised against
- none

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 (24-Hour Number): 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although WHMIS 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
- Not classified as hazardous product under the regulation above.

2.2 Label elements

Hazardous Products Regulations (WHMIS 2015)
- Not labelled as hazardous product under the regulation above.
2.3 Other hazards which do not result in classification
- Product dust may be irritating to eyes, skin and respiratory system.
- Possible risk of irreversible effects through inhalation.
- Risk of pulmonary overload (respirable particulates)

SECTION 3: Composition/information on ingredients

3.1 Substance

<table>
<thead>
<tr>
<th>WHMIS Hazardous Ingredients and Impurities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical name</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Barium sulfate</td>
</tr>
</tbody>
</table>

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.
- If symptoms persist, call a physician.

In case of skin contact
- Wash off with soap and water.

In case of eye contact
- Rinse thoroughly with plenty of water, also under the eyelids.
- If eye irritation persists, consult a specialist.

In case of ingestion
- Rinse mouth with water.
- Do NOT induce vomiting.
- If symptoms persist, call a physician or Poison Control Center immediately.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects
- May cause nose, throat, and lung irritation.
  Repeated or prolonged exposure
  - Risk of pulmonary overload (respirable particulates)

In case of skin contact

Effects
- No known effect.
- See Toxicological Information Section 11.
In case of eye contact

Effects
- Contact with eyes may cause irritation.

In case of ingestion

Effects
- Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician
- If accidentally swallowed obtain immediate medical attention.
- When symptoms persist or in all cases of doubt seek medical advice.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media
- None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting
- Not combustible.

Hazardous combustion products:
- Barium oxide
- Sulfur oxides

5.3 Advice for firefighters

Special protective equipment for fire-fighters
- In the event of fire, wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel
- Evacuate personnel to safe areas.
- Avoid dust formation.

Advice for emergency responders
- Use personal protective equipment.
- 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
- Sweep up and shovel into suitable 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
- Ensure adequate ventilation.

Hygiene measures
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- 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.
- Store in a well-ventilated place.
- Keep in a dry place.
- Keep container closed.

Packaging material

Suitable material
- Paper.
- Polyethylene

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

Consult local authorities for acceptable exposure limits.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Value type</th>
<th>Value</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particles not otherwise specified (PNOS)</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
</tbody>
</table>
Form of exposure: Inhalable fraction

The goal of the TLV®-CS Committee is to recommend TLVs® for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace. When a sufficient body of evidence exists for a particular substance, a TLV® is established. Thus, by definition the substances covered by this recommendation are those for which little data exist. The recommendation at the end of this Appendix is supplied as a guideline rather than a TLV® because it is not possible to meet the standard level of evidence used to assign a TLV®. In addition, the PNOS TLV® and its predecessors have been misused in the past and applied to any unlisted particles rather than those meeting the criteria listed below. The recommendations in this Appendix apply to particles that: - Do not have an applicable TLV®; - Are insoluble or poorly soluble in water (or, preferably, in aqueous lung fluid if data are available); and - Have low toxicity (i.e. are not cytotoxic, genotoxic or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or the mechanism of 'lung overload'). ACGIH® believes that even biologically inert, insoluble, or poorly soluble particles may have adverse effects and recommends that airborne concentrations should be kept below 3 mg/m³, respirable particles, and 10 mg/m³, inhalable particles, until such time as a TLV® is set for a particular substance.

Particles not otherwise specified (PNOS)

Form of exposure: Respirable fraction

The goal of the TLV®-CS Committee is to recommend TLVs® for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace. When a sufficient body of evidence exists for a particular substance, a TLV® is established. Thus, by definition the substances covered by this recommendation are those for which little data exist. The recommendation at the end of this Appendix is supplied as a guideline rather than a TLV® because it is not possible to meet the standard level of evidence used to assign a TLV®. In addition, the PNOS TLV® and its predecessors have been misused in the past and applied to any unlisted particles rather than those meeting the criteria listed below. The recommendations in this Appendix apply to particles that: - Do not have an applicable TLV®; - Are insoluble or poorly soluble in water (or, preferably, in aqueous lung fluid if data are available); and - Have low toxicity (i.e. are not cytotoxic, genotoxic or otherwise chemically reactive with lung tissue, and do not emit ionizing radiation, cause immune sensitization, or cause toxic effects other than by inflammation or the mechanism of 'lung overload'). ACGIH® believes that even biologically inert, insoluble, or poorly soluble particles may have adverse effects and recommends that airborne concentrations should be kept below 3 mg/m³, respirable particles, and 10 mg/m³, inhalable particles, until such time as a TLV® is set for a particular substance.

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 sulfate</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>American Conference of Governmental Industrial Hygienists</td>
</tr>
</tbody>
</table>

Form of exposure: Inhalable fraction

Pneumoconiosis, The value is for particulate matter containing no asbestos and < 1% crystalline silica
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
- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.
- Respirator with a particle filter (EN 143)

Hand protection
- Wear suitable gloves.

Suitable material
- PVC
- Natural Rubber

Eye protection
- Dust proof goggles, if dusty.

Skin and body protection
- Dust impervious protective suit

Hygiene measures
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- 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

Appearance
Form: Crystalline powder
Physical state: solid
Color: white
Particle size: ca. 0.8 - 6 µmMean diameter

Odor
odorless

Odor Threshold
No data available

Molecular weight
233.39 g/mol

pH
ca. 9.0

pKa:
Not applicable
Melting point/freezing point
- Decomposition: yes
- Not applicable

Initial boiling point and boiling range
- Boiling point/boiling range: Not applicable
- Thermal decomposition: yes
- Not applicable

Flash point
- Not applicable

Evaporation rate (Butylacetate = 1)
- Not applicable

Flammability (solid, gas)
- No data available

Flammability (liquids)
- No data available

Flammability / Explosive limit
- Explosiveness: Not explosive

Autoignition temperature
- Not applicable

Vapor pressure
- Not applicable

Vapor density
- Not applicable

Density
- Relative density: 4.5

Solubility
- Water solubility: 3.1 mg/l (77 °F (25 °C))
- Insoluble

Partition coefficient: n-octanol/water
- Not applicable

Decomposition temperature
- > 2,912 °F (> 1,600 °C)

Viscosity
- Viscosity, dynamic: Not applicable

Explosive properties
- No data available

Oxidizing properties
- Not considered as oxidizing.

9.2 Other information
- No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
- According to experience not expected

10.2 Chemical stability
- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- According to experience not expected

10.4 Conditions to avoid

- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials

- none

10.6 Hazardous decomposition products

- Barium oxide
- Sulfur oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50</td>
<td>&gt; 5,000 mg/kg , male</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td></td>
<td>Not classified as harmful if swallowed</td>
<td>Published data</td>
</tr>
</tbody>
</table>

Acute inhalation toxicity

No data available

Acute dermal toxicity

By analogy

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 Dermal</td>
<td>&gt; 2,000 mg/kg - Rat</td>
<td>OECD Test Guideline 405</td>
</tr>
<tr>
<td></td>
<td>Not classified as harmful by contact with skin</td>
<td>Published data</td>
</tr>
</tbody>
</table>

Acute toxicity (other routes of administration)

No data available

Skin corrosion/irritation

By analogy

No skin irritation

in vitro test

Unpublished reports

Serious eye damage/eye irritation

Rabbit

No eye irritation

Method: OECD Test Guideline 405

Unpublished reports
**Respiratory or skin sensitization**

By analogy

Local lymph node assay - Mouse
Does not cause skin sensitization.
Method: OECD Test Guideline 429
Unpublished reports

**Mutagenicity**

**Genotoxicity in vitro**

By analogy

In vitro tests did not show mutagenic effects

**Genotoxicity in vivo**

No data available

**Carcinogenicity**

By analogy

Rat
Mouse

Oral
Exposure duration: 2 y
No carcinogenic effects have been observed
Published data

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

**Toxicity for reproduction and development**

**Toxicity to reproduction / fertility**

No data available

**Developmental Toxicity/Teratogenicity**

No data available

**STOT**

**STOT-single exposure**

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

**STOT-repeated exposure**

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

Oral exposure 90-day - Rat , for males and females
NOAEL: > 104 mg/kg
Target Organs: Cardio-vascular system, hematology system, Adrenal gland drinking water
Published data
Experience with human exposure

No data available

Aspiration toxicity

No data available

Further information

Health injuries are not known or expected under normal use.
No data exists on the effects of nanometer sized particles on the body.
Other dangerous properties can not be excluded.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

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

Acute toxicity to daphnia and other aquatic invertebrates

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

Toxicity to aquatic plants

ErC50 - 72 h: > 1.15 mg/l - Pseudokirchneriella subcapitata (microalgae)
static test
Analytical monitoring: yes
Test substance: Barium chloride dihydrate
Method: OECD Test Guideline 201
Unpublished internal reports

NOEC - 72 h: > 1.15 mg/l - Pseudokirchneriella subcapitata (microalgae)
static test
Analytical monitoring: yes
Endpoint: Growth rate
Test substance: Barium chloride dihydrate
Method: OECD Test Guideline 201
Unpublished internal reports
**SAFETY DATA SHEET**

**BARIUM SULFATE PRECIPITATED - BLANC FIXE HD80**

**Revision Date 06/01/2018**

**Toxicity to microorganisms**

NOEC - 3 h : 622 mg/l - activated sludge  
Respiration inhibition  
Analytical monitoring: yes  
Test substance: Barium chloride dihydrate  
Method: OECD Test Guideline 209  
Unpublished internal reports

**Chronic toxicity to fish**

NOEC: > 1.26 mg/l - 33 d - Danio rerio (zebra fish)  
semi-static test  
Analytical monitoring: yes  
Test substance: Barium chloride dihydrate  
Method: OECD Test Guideline 210  
Unpublished internal reports

**Chronic toxicity to daphnia and other aquatic invertebrates**

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

**Terrestrial Compartment**

**Toxicity to soil dwelling organisms**

By analogy  
NOEC: 258 mg/kg - 21 Days - Eisenia fetida (earthworms)  
Reproduction Test  
Test substance: Barium  
Published data  
By analogy  
NOEC: 211 mg/kg - 28 Days - Folsomia candida  
Reproduction Test  
Test substance: Barium  
Published data

**12.2 Persistence and degradability**

**Abiotic degradation**

**Photodegradation**
inert product in normal environmental conditions

Medium
Water
Soil
<table>
<thead>
<tr>
<th><strong>Physical- and photo-chemical elimination</strong></th>
<th>No data available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biodegradation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Biodegradability</strong></td>
<td>The methods for determining biodegradability are not applicable to inorganic substances.</td>
</tr>
<tr>
<td><strong>12.3 Bioaccumulative potential</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Bioconcentration factor (BCF)</strong></td>
<td>Bioaccumulation is unlikely.</td>
</tr>
<tr>
<td><strong>12.4 Mobility in soil</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Adsorption potential (Koc)</strong></td>
<td>Water/soil</td>
</tr>
<tr>
<td></td>
<td>low solubility and mobility potential adsorption</td>
</tr>
<tr>
<td></td>
<td>Air</td>
</tr>
<tr>
<td></td>
<td>mobility as solid aerosols</td>
</tr>
<tr>
<td><strong>Known distribution to environmental compartments</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>12.5 Results of PBT and vPvB assessment</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>12.6 Other adverse effects</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ecotoxicity assessment</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Acute aquatic toxicity</strong></td>
<td>No toxicity at the limit of solubility.</td>
</tr>
<tr>
<td><strong>Chronic aquatic toxicity</strong></td>
<td>No adverse chronic effect observed up to and including the threshold of 1 mg / L.</td>
</tr>
<tr>
<td><strong>Remarks</strong></td>
<td>Contains a(many) hazardous substance(s) for the environment., Under massive form, product is biologically inert and non-degradable., Ingestion of solids may cause harm to wildlife due to intestinal mechanical blockage or starvation from false feeling of satiation.</td>
</tr>
</tbody>
</table>

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

- **Product Disposal**
  - In accordance with local and national regulations.
  - Dispose of wastes in an approved waste disposal facility.
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

TDG
not regulated

DOT
not regulated

NOM
not regulated

IMDG
not regulated

IATA
not regulated

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 Chemicals List (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>- When purchased from a European Solvay legal entity, this product is compliant with the registration provisions of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt, pre-registered and/or registered. When purchased from a legal entity outside of Europe, please contact your local representative for additional information.</td>
</tr>
</tbody>
</table>

15.2 National Regulations

Canada. CEPA 1999 Significant New Activity (SNAc) List:
- No substances are subject to a Significant New Activity Notification.

SECTION 16: Other information

Revision Date: 06/01/2018

NFPA (National Fire Protection Association) - Classification

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1 slight</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Instability or Reactivity</td>
<td>1 slight</td>
</tr>
<tr>
<td>Special Notices</td>
<td>None</td>
</tr>
</tbody>
</table>
HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1 slight</td>
</tr>
<tr>
<td>Flammability</td>
<td>0 minimal</td>
</tr>
<tr>
<td>Reactivity</td>
<td>1 slight</td>
</tr>
<tr>
<td>PPE</td>
<td>Determined by User; dependent on local conditions</td>
</tr>
</tbody>
</table>

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

- **PEL** Permissible exposure limit
- **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.