Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

**Product Name**: Calcium Fluoride (EU)

**Synonyms**: CaF2/EuF3

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

**Relevant identified use(s)**: Scintillation material for Radiation Detection

1.3 Details of the supplier of the safety data sheet

**Manufacturer**: Saint-Gobain Crystals

17900 Great Lakes Parkway
Hiram, OH 44234
United States

[website]

**Telephone (General)**: 440-834-5600

1.4 Emergency telephone number

**Manufacturer**: 1-800-424-9300 - ChemTrec

**Manufacturer**: 703-525-3887 - Outside U.S.

Section 2: Hazards Identification

EU/EEC


According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

**CLP**

- Skin Irritation 2 - H315
- Eye Irritation 2 - H319
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335

**DSD/DPD**

- Irritant (Xi)

  R36, R37, R38

2.2 Label Elements

**CLP**

**WARNING**

**Hazard statements**: H315 - Causes skin irritation
Precautionary statements

**Prevention**
- P261 - Avoid breathing dust.
- P264 - Wash thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.

**Response**
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
- P321 - Specific treatment, see supplemental first aid information.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P362 - Take off contaminated clothing and wash before reuse.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P337+P313 - If eye irritation persists: Get medical advice/attention.

**Storage/Disposal**
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P405 - Store locked up.
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Risk phrases
- R36 - Irritating to eyes.
- R37 - Irritating to respiratory system.
- R38 - Irritating to skin.

Safety phrases
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

2.3 Other Hazards

**CLP**
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

**DSD/DPD**
- According to European Directive 1999/45/EC this material is considered dangerous.

United States (US)
According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

**OSHA HCS 2012**
- Skin Irritation 2 - H315
- Eye Irritation 2 - H319
- Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335

2.2 Label elements

**OSHA HCS 2012**

**WARNING**

**Hazard statements**
- Causes skin irritation - H315
- Causes serious eye irritation - H319
- May cause respiratory irritation - H335

**Precautionary statements**

**Prevention**
- Avoid breathing dust. - P261
- Wash thoroughly after handling. - P264
Use only outdoors or in a well-ventilated area. - P271
Wear protective gloves/protective clothing/eye protection/face protection. - P280

**Response**

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
- Call a PoISON CENTER or doctor/physician if you feel unwell. - P312
- If on skin: Wash with plenty of water .
- Specific treatment, see supplemental first aid information. - P321
- Take off contaminated clothing and wash before reuse. - P362
- If skin irritation occurs: Get medical advice/attention. - P332+P313
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
- If eye irritation persists: Get medical advice/attention. - P337+P313

**Storage/Disposal**

- Store in a well-ventilated place. Keep container tightly closed. - P403+P233
- Store locked up. - P405
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

### 2.3 Other hazards

**OSHA HCS 2012**


---

### Section 3 - Composition/Information on Ingredients

#### 3.1 Substances

- Material does not meet the criteria of a substance.

#### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Identifiers</th>
<th>%</th>
<th>LD50/LC50</th>
<th>Classifications According to Regulation/Directive</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium fluoride</td>
<td>CAS:7789-75-5</td>
<td>98%</td>
<td>Ingestion/Oral-Rat LD50 • 4250 mg/kg</td>
<td>EU DSD/DPD: Not Classified</td>
<td>NDA</td>
</tr>
<tr>
<td></td>
<td>EC Number:232-188-7</td>
<td></td>
<td></td>
<td>EU CLP: Not Classified</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSHA HCS 2012: Not Classified</td>
<td></td>
</tr>
</tbody>
</table>
Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation  
Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.

Skin  
Wash skin with soap and water. If irritation develops and persists, get medical attention.

Eye  
In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion  
Give large quantities of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed  
Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician  
All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media  
Use water, carbon dioxide or foam.

Unsuitable Extinguishing Media  
No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards  
Not a fire or explosion hazard.

Hazardous Combustion Products  
This product will emit toxic fumes when heated above 1400°C.

5.3 Advice for firefighters  
Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions  
Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures  
As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away.

6.2 Environmental precautions  
Avoid release to the environment.

6.3 Methods and material for containment and cleaning up
**Section 7 - Handling and Storage**

### 7.1 Precautions for safe handling

**Handling**
- Use only with adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

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

**Storage**
- Keep container/package tightly closed and in a well-ventilated place.

### 7.3 Specific end use(s)
- Refer to Section 1.2 - Relevant identified uses.

**Section 8 - Exposure Controls/Personal Protection**

### 8.1 Control parameters

**Exposure Limits/Guidelines**
- No applicable exposure limits available for product or components.

### 8.2 Exposure controls

**Engineering Measures/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.

**Personal Protective Equipment**

**Respiratory**
- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

**Eye/Face**
- Wear safety goggles.

**Skin/Body**
- Wear appropriate gloves. Wear long sleeves and/or protective coveralls.

**Environmental Exposure Controls**
- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

**Section 9 - Physical and Chemical Properties**

### 9.1 Information on Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Material Description</th>
<th>Solid</th>
<th>Appearance/Description</th>
<th>Transparent odorless solid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Transparent</td>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Data lacking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Properties</th>
<th></th>
<th>Melting Point</th>
<th>1400 C(2552 F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>2500 C(4532 F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Data lacking</td>
<td>pH</td>
<td>Not relevant</td>
</tr>
</tbody>
</table>
Specific Gravity/Relative Density | 3.2 Water=1 | Water Solubility | Insoluble
---|---|---|---
Viscosity | Data lacking | Explosive Properties | Data lacking
Oxidizing Properties: | Data lacking |

**Flammability**

<table>
<thead>
<tr>
<th>Vapor Pressure</th>
<th>Data lacking</th>
<th>Vapor Density</th>
<th>Data lacking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaporation Rate</td>
<td>Data lacking</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Explosive Properties**

<table>
<thead>
<tr>
<th>Flash Point</th>
<th>Not relevant</th>
<th>UEL</th>
<th>Not relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEL</td>
<td>Not relevant</td>
<td>Autoignition</td>
<td>Data lacking</td>
</tr>
</tbody>
</table>

**Flammability (solid, gas)**

| Data lacking |

**Environmental**

| Octanol/Water Partition coefficient | Data lacking |

### 9.2 Other Information

- No additional physical and chemical parameters noted.

### Section 10: Stability and Reactivity

**10.1 Reactivity**

- No dangerous reaction known under conditions of normal use.

**10.2 Chemical stability**

- Stable under normal temperatures and pressures.

**10.3 Possibility of hazardous reactions**

- Hazardous polymerization not indicated.

**10.4 Conditions to avoid**

- None expected.

**10.5 Incompatible materials**

- No data available.

**10.6 Hazardous decomposition products**

- Will emit toxic fumes when heated to temperatures above melting point (1400°C)

### Section 11 - Toxicological Information

#### 11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Calcium fluoride (98%)</th>
<th>7789-75-5</th>
<th><strong>Acute Toxicity:</strong> Ingestion/Oral-Rat LD50 • 4250 mg/kg; Behavioral:Somnolence (general depressed activity); Behavioral:Ataxia; Lungs, Thorax, or Respiration:Respiratory depression; Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 44 g/kg 31 Day(s)-Intermittent; Cardiac:EKG changes not diagnostic of above; Musculoskeletal:Changes in teeth and supporting structures; Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Transaminases</th>
</tr>
</thead>
</table>

**GHS Properties**

<table>
<thead>
<tr>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
</tr>
<tr>
<td>OSHA HCS 2012 • Data lacking</td>
</tr>
</tbody>
</table>
### Potential Health Effects

#### Inhalation
- **Acute (Immediate)** May cause respiratory irritation.
- **Chronic (Delayed)** Repeated and prolonged exposure to dust may cause lung effects including pneumoconiosis.

#### Skin
- **Acute (Immediate)** Causes skin irritation.
- **Chronic (Delayed)** No data available.

#### Eye
- **Acute (Immediate)** Causes serious eye irritation.
- **Chronic (Delayed)** No data available.

#### Ingestion
- **Acute (Immediate)** May cause irritation to the gastrointestinal tract, nausea, vomiting, headaches and dizziness.
- **Chronic (Delayed)** No data available.

---

### Section 12 - Ecological Information

#### 12.1 Toxicity

Material data lacking.
12.2 Persistence and degradability
   Material data lacking.

12.3 Bioaccumulative potential
   Material data lacking.

12.4 Mobility in Soil
   Material data lacking.

12.5 Results of PBT and vPvB assessment
   No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects
   No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods
   Product waste: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.
   Packaging waste: Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

<table>
<thead>
<tr>
<th>DOT</th>
<th>TDG</th>
<th>IMO/IMDG</th>
<th>IATA/ICAO</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN proper shipping name</td>
<td>Transport hazard class(es)</td>
<td>Packing group</td>
</tr>
<tr>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
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<tr>
<td>NDA</td>
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<td>NDA</td>
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<tr>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
</tr>
</tbody>
</table>

14.6 Special precautions for user
   None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
   Data lacking.

Section 15 - Regulatory Information

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

SARA Hazard Classifications
   | Acute |

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium fluoride</td>
<td>7789-75-5</td>
<td>No</td>
</tr>
<tr>
<td>Europium</td>
<td>7440-53-1</td>
<td>No</td>
</tr>
</tbody>
</table>
### Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>Canada DSL</th>
<th>Canada NDSL</th>
<th>China</th>
<th>EU EINECS</th>
<th>EU ELNICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium fluoride</td>
<td>7789-75-5</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Europium</td>
<td>7440-53-1</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Inventory (Con’t.)

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>Korea KECL</th>
<th>TSCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium fluoride</td>
<td>7789-75-5</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Europium</td>
<td>7440-53-1</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Canada

#### Labor

- **Canada - WHMIS - Classifications of Substances**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

- **Canada - WHMIS - Ingredient Disclosure List**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

### Environment

- **Canada - CEPA - Priority Substances List**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

### United States

#### Labor

- **U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

- **U.S. - OSHA - Specifically Regulated Chemicals**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

#### Environment

- **U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

- **U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

- **U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed

- **U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs**
  - Calcium fluoride: 7789-75-5, Not Listed
  - Europium: 7440-53-1, Not Listed
Calcium Fluoride (EU)

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs
- Calcium fluoride 7789-75-5 Not Listed
- Europium 7440-53-1 Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting
- Calcium fluoride 7789-75-5 Not Listed
- Europium 7440-53-1 Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing
- Calcium fluoride 7789-75-5 Not Listed
- Europium 7440-53-1 Not Listed

United States - California

Environment
- U.S. - California - Proposition 65 - Carcinogens List
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

- U.S. - California - Proposition 65 - Developmental Toxicity
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

- U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

- U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

- U.S. - California - Proposition 65 - Reproductive Toxicity - Female
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

- U.S. - California - Proposition 65 - Reproductive Toxicity - Male
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

United States - Pennsylvania

Labor
- U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

- U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances
  - Calcium fluoride 7789-75-5 Not Listed
  - Europium 7440-53-1 Not Listed

15.2 Chemical Safety Assessment
- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Preparation Date: 08/January/2015
Revision Date: 08/January/2015
Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgement.

Key to abbreviations
NDA = No data available