



## Safety Data Sheet

## Fluorspar (Acid Grade)

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** Fluorite, Fluorspar  
**Recommended Use:** Flux in ferrous metallurgy, Glass & Hydrofluoric Acid Production  
**Manufactured For:** Seaforth Mineral & Ore Co., Inc.  
3690 Orange Place, Suite 495  
Cleveland, Ohio, 44122  
Phone: (216) 292-5820  
**Emergency Telephone:** 800-292-9022

### 2. HAZARDS IDENTIFICATION

**Classification of the Substance:** May cause cancer by inhalation. Category 1A due to accompanying high amounts of crystalline silica which is an accompanying impurity. May cause eye irritation, class 2 classification.

**Hazard Statements:** (The mixture) May cause cancer by inhalation. (The mixture) May cause eye irritation.



Pictograms:

**Signal Word:** Danger

**Hazard Pictogram:** Irritant, suspected carcinogen.

**Precautionary Statements:** Wash (Hands, Face, contaminated skin) thoroughly after handling. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. May be Harmful if swallowed or inhaled. May cause irritation to skin, eyes and respiratory tract.

**In Eyes:** Rinse Cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**If on Skin:** Wash with plenty of soap and water. If skin irritation occurs, get medical advice. Wash contaminated clothing before reuse.

**If inhaled:** Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**If Swallowed:** Call a poison center or doctor/physician. Rinse mouth.

Containers: Dispose of contents/containers in full compliance with Federal, State and local regulations.

**Other Hazards:** Reactive with Acids. Release of hydrogen fluoride (toxic and corrosive gas) under specific moisture and very high temperature conditions. Dust: Possibility of mechanical; irritation of eyes and skin, mucous membranes, upper respiratory tract, lungs.

**Not Regulated by DOT (USA-HCS)**



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**Risk Phrases:** Harmful by inhalation and if swallowed. Irritating to eyes, respiratory system and skin.

**Safety Phrase:** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Wear suitable protective clothing.

**Other hazards:** No known effects from chronic exposure.

**N.B.** The European Union (REACH) has issued this statement for Fluorspar:  
“Product contains no hazardous substances. Fluorspar is not chemically modified. The following substances which occur in nature: Minerals, ores, ore concentrates, raw and processed natural gas, crude oil, coal.”

“Substance is not classified as dangerous according to Directive 1999/45/ec. Annex V exemptions from the obligation to register in accordance with article 2(7)(b).”

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Name                                      | CAS No.   | Per Cent |
|---|-----------|----------|
| Calcium Fluoride                          | 7789-75-5 | 94-97.5  |
| Crystalline Silica Dioxide<br>Quartz Sand | 7631-86-9 | 0.09-2.8 |
| Calcium Carbonate                         | 1317-65-3 | 1.0-2.9  |

### 4. FIRST AID MEASURES

- Eye Contact** Remove contact lenses if present. Immediately rinse eyes with plenty of water, holding eyelids open for at least 20 minutes. Consult a physician. Dust may irritate eyes.
- Skin Contact** Remove contaminated clothing. Wash skin with water and soap. Dust: possible skin irritation.
- Inhalation** Remove the person from exposure. Bring to fresh air. If breathing is difficult, give oxygen. Get **immediate** medical attention. Possible irritation: mucous membranes, upper respiratory tract and lungs.
- Ingestion** Rare in industry. Induce vomiting. Give a large quantity of water to dilute. UNCONSCIOUS person: DO NOT induce vomiting or give any liquid. Consult a physician.

### 5. FIRE FIGHTING MEASURES

- Flash Point** Not applicable
- Flammable Limits** Not applicable
- Auto-Ignition Temperature** Not applicable



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|                               |  |
|-------------------------------|--|
| <b>Products of Combustion</b> | Calcium oxide; Carbon dioxide; Hydrogen fluoride   |
| <b>Fire Hazard</b>            | Dust: Flammable when exposed to heat or flames. If heated to decomposition (1500°F) may liberate very irritating and toxic fumes or gases (fluorine).<br>Flammable when exposed to flames or by chemical reaction with oxidants. |
| <b>Explosion Hazard</b>       | Not explosive (mechanical impact). Dusts: Slightly explosive in presence of open flames and sparks.  |
| <b>Extinguishing Media</b>    | NON-FLAMMABLE. Use fire-fighting materials and procedures adapted to the immediate environment.  |
| <b>Protective Equipment</b>   | Firefighters must wear self-contained breathing apparatus (SCBA)   |

### 6. ACCIDENTAL RELEASE MEASURES

|                            |  |
|----------------------------|--|
| <b>Spill</b>               | Avoid raising dust. Use appropriate tools to put the spilled solid in a convenient recycling container. Finish cleaning by spreading water on the contaminated surface. Collect the dampened spilled material and place into the recycling container.                  |
| <b>Personal Protection</b> | Large concentrations of fumes or dusts: Use a self-contained breathing apparatus (SCBA) to avoid inhalation of material.<br>Small concentrations: Use a NIOSH/OSHA approved full face cartridge respirator or the equivalent. Full protective clothing. Boots, Gloves. |
| <b>Waste Disposal</b>      | Recycle to process, if possible. Consult your local or regional authorities for acceptable disposal methods..  |

### 7. HANDLING AND STORAGE

|                 |  |
|-----------------|--|
| <b>Handling</b> | <b>DO NOT</b> ingest or inhale dusts or fumes. Keep away from incompatibles (acids).<br>Ingestion or inhalation: Seek medical advice <b>immediately</b> and show the label or the copy of this SDS to medical personnel. |
| <b>Storage</b>  | Dry, cool and well-ventilated area. Away from acids. In low fire-risk area.  |



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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

| Name                 | CAS No.   | PerCent (%) | ACGIH 2014 TLV-TWA (mg/m <sup>3</sup> ) | OSHA PEL-TWA                              |
|----------------------|-----------|-------------|---|---|
|                      |           |             |   | NIOSH REL-TWA (mg/m <sup>3</sup> )        |
| CalciumFluoride      | 7789-75-5 | 94-97.5     | 2.5 (F)                                 | 2.5 ( F)<br>2.5 ( F)                      |
| Silica (crystalline) | 7631-86-9 | 0.09-2.8    | 0.025 (respirable particulate)          | 10/%(SiO <sub>2</sub> +2) Respirable Dust |
|                      |           |             |   | 0.05<br>IDLH: 50mg/m <sup>3</sup>         |
| Calcium Carbonate    | 1317-65-3 | 1.0-2.9     | Not established                         | 15 (total dust)<br>5 respirable fraction  |
|                      |           |             |   | 5 (respirable fraction)<br>10 (Total)     |

*ACGIH: American Conference of Governmental Industrial Hygienists.*

*OSHA: Occupational Safety and Health Administration.*

**Note:** **Calcium (fluoride):** DNEL (systemic inhalation) : 5 mg/m<sup>3</sup>  
**Silica (amorphous):** DNEL (systemic inhalation): 4 mg/m<sup>3</sup>  
**Calcium (carbonate):** DNEL (systemic inhalation): 10 mg/m<sup>3</sup>

*Consult local authorities for acceptable exposure limits.*

**Personal Protection** Large concentrations of fumes or dusts: Use a self-contained breathing apparatus (SCBA) to avoid inhalation of material. Small concentrations: Use a NIOSH/OSHA approved full face cartridge respirator or the equivalent, full protective clothing, boots, gloves. Ensure that eyewash stations and safety showers are close to the workstation location.

**Engineering Controls** Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.



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### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### SECTION 3 – PHYSICAL AND CHEMICAL PROPERTIES

|                                      |                                  |                               |              |
|--------------------------------------|----------------------------------|-------------------------------|--------------|
| <b>Physical State and Appearance</b> | Solid (Crystalline powder)       | <b>Odor</b>                   | Odorless     |
| <b>Molecular Weight</b>              | Not applicable                   | <b>Taste</b>                  | N/A          |
| <b>pH (1% soln/water)</b>            | Not applicable                   | <b>Color</b>                  | White to tan |
| <b>Boiling Point</b>                 | 2 500°C (4 532°F)                | <b>Volatility</b>             | N/A          |
| <b>Melting Point</b>                 | 1 420°C (2 588°F)                | <b>% Moisture</b>             | N/A          |
| <b>Critical Temperature</b>          | Not available                    | <b>Odor Threshold</b>         | N/A          |
| <b>Specific Gravity</b>              | 3.18 (Water=1)                   | <b>Water/Oil Dist. Coeff.</b> | N/A          |
| <b>Vapor Pressure</b>                | Not applicable                   | <b>Ionicity (in water)</b>    | N/A          |
| <b>Vapor Density</b>                 | Not available                    | <b>Dispersion</b>             | N/A          |
| <b>Solubility</b>                    | No (water); Yes (ammonium salts) |                               |              |

### 10. STABILITY AND REACTIVITY

|                                   |  |
|-----------------------------------|--|
| <b>Stability</b>                  | stable under normal conditions.  |
| <b>Conditions of Instability:</b> | Strong acid at high temperatures   |
| <b>Incompatibilities:</b>         | Reactive with acids.<br><b>Calcium (fluoride):</b> with acids, chemically active metals, reducing agents, water.<br>Contact with hot concentrated sulfuric acid: possible production of hydrofluoric acid (Hydrogen fluoride).<br><b>Silica (crystalline):</b> violent reaction with: fluoride, oxygen difluoride, chlorine trifluoride.<br><i>NOTE: This list of products is not exhaustive. Verify technical documents to determine any incompatibilities with your process.</i> |
| <b>Corrosivity</b>                | None   |

### 11. TOXICOLOGICAL INFORMATION

|                                 |  |
|---------------------------------|--|
| <b>Routes of Entry</b>          | Ingestion. Inhalation. Eye and skin contacts.  |
| <b>Acute Toxicity</b>           | <b>Calcium Fluoride:</b> Oral acute (LD50): 4,250 mg/Kg (Rat). Intraperitoneal (LD50) > 1500 mg/Kg (rat), 2638 mg/Kg Mouse, (RTECS)_<br><b>Silica crystalline (Quartz)</b> Oral acute (LoTD) : 120mg/Kg (rat) Inhalation acute LoTC 40mg/Kg (Mouse). Intratracheal acute (LoTD): 15.69 mg/Kg (Rat); 16.7 mg/Kg (Mouse) Intravenous acute )LoLD; 90 mg/Kg Rat); 40 mg/Kg Mouse. RTECS |
| <b>Irritation-sensitisation</b> | <b>Calcium Carbonate:</b> Oral Acute LD50: 6450 (Rat). RTECS<br>Possibility of eyes and skin, upper respiratory tract irritation. Sensitisation. ; No known effects.<br><b>Calcium carbonate:</b> Severe irritation: 750 ug/24 hour (Eye, Rabbit.) Moderate irritation : 500 mg/24 hour (Skin, Rabbit). RTECS)   |
| <b>Acute Effects</b>            | Solid form: No health hazards. Conditions and work practices which generate dusts or fumes should be avoided or controlled. . Ingestion and inhalation: possibility of diffuse abdominal pain, nausea, vomiting, diarrhea, thirst, saliva, albuminuria, shock.<br>Respiratory system. Exposure to fibrous form may cause silicosis (Fibrosis of the lungs), inflammation, emphysema. |



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### Chronic Effects

No known effects from chronic exposure. Repeated or prolonged exposure (Normal work conditions). Do not aggravate medical conditions.

**Silica crystalline (Quartz):** the evidence of carcinogenicity to humans is limited to crystalline silica. The silica in this product contains varying concentrations of crystalline (quartz) and amorphous silica. Target organs: respiratory system. Signs or symptoms of overexposure, shortness of breath, silicosis, emphysema..

**Calcium Carbonate:** No chronic effects of exposure have been reported, Irritant for : skin eyes, nose throat respiratory tract can cause: sneezing and coughing, use as an antacid (small quantity). Calcium supplement.

**Toxicity:** Workers with the following pre-existing conditions warrant particular attention:

**Silica (crystalline):** tuberculosis.

**Calcium (carbonate):** respiratory diseases.

*Eating, drinking, and smoking must be prohibited in areas where this material is handled and processed. Wash hands and face before eating, drinking, and smoking.*

### CARCINOGENICITY:

Calcium carbonate ; Calcium fluoride: NOT A CARCINOGEN 9IARC0. NOT CLASSIFIABLE (Human, A4, ADGIH) Silica crystalline (quartz) PROVEN Group 1 , IARC) (NTP); CARCINOGEN (NIOSH SUSPECTED (Human A2, ACGIH)

### MUTAGENICITY, TERATOGENICITY

Calcium fluoride: Cytogenetic analysis: 1 g/Kg (Ascites tumor, Rat) (RTECS)  
Calcium Fluoride: INTRAPERITONEAL LoTD:: 3200 mg/Kg (9 day pregnant) (Mouse) effects on fertility: Pos-t implantation mortality (e.g. dead and/or resorbed implants per total number of implants) 67,200 mg/Kg (1-21 day pregnant) other developmental abnormalities (RTECS).

Repeated or prolonged exposure (normal work conditions): do not aggravate medical conditions.

### Silica Crystalline (quartz):

DNA damages: 120mg/l/24 hour (Cells,Human; 3 mg/Kg intratraeal, Rat\_, RTECS

**Calcium (fluoride):** not carcinogen (IARC). Chronic overexposure: may cause increased bone density. Irritant for: skin, eyes, nose, throat and respiratory tract. May cause: coughing, chest discomfort.

**Silica (amorphous):** target organ for acute and chronic overexposure respiratory system. Possible signs after chronic overexposure: shortness of breath. Prolonged dust inhalation can cause silicosis (fibrosis of the lungs).

Calcium (carbonate): not considered a carcinogen (IARC). No chronic effects of exposure have been reported. Irritant for: skin, eyes, nose, throat, respiratory tract. Can cause: sneezing and coughing, use an antacid (small quantity); calcium supplement.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Toxic to aquatic life. May cause long terms harmful effects in aquatic environment

### Toxicity to Animals

**Calcium (fluoride):** ACUTE oral (LD50): 4 250 mg/kg (rat)

### Mobility (Soil)

Not water soluble. Soluble compounds produced by acidic conditions becomes mobile in water.



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|   |                    |
|---|--------------------|
| <b>Biodegradation Products</b>            | Not biodegradeable |
| <b>Biodegradation Products (Toxicity)</b> | Not applicable     |
| <b>BOD and COD</b>                        | Not available      |

### 13. DISPOSAL CONSIDERATIONS

**Disposal methods** Recycle to process, if possible. Consult local or regional authorities. If the product becomes a waste, material should be tested to determine if it must be classified as a hazardous waste under the Resource Conservation Recovery Act (RCRA 40CFR261.3). Discard in full compliance with Federal, Provincial and local regulations.

**RCRA P-Series and RCRA U-Series:** Not listed.

### 14. TRANSPORT INFORMATION

|                                       |                 |
|---------------------------------------|-----------------|
| <b>ADR</b>                            | Not applicable. |
| <b>PIN</b>                            | Not applicable. |
| <b>Special Provisions (Transport)</b> | Not applicable. |
| <b>DOT (USA)</b>                      | Not Regulated   |

### 15. REGULATORY INFORMATION

|                                   |   |
|-----------------------------------|---|
| <b>TSCA</b>                       | (EPA, Toxic Substance Control Act) Chemical Inventory (40CFR710): Listed Calcium fluoride: Silica dioxide (crystalline)               |
| <b>CEPA DSL Canada</b>            | Canadian Environmental Protection Act (DEPA) on Domestic Substances List (DSL); Acceptable for use under the provisions of CEPA       |
| <b>Other Regulations</b>          | CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): On the Domestic Substances List (DSL); Acceptable for use under the provisions of CEPA. |
| <b>Classification HCS (USA)</b>   | Not regulated   |
| <b>Classifications DSCL (EEC)</b> | Not regulated   |

#### NFPA (National Fire Protection Association) (USA)

**Fire Hazard**      0      **Reactivity**      0      **Health**      1      **Special Hazard**



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### 16. OTHER INFORMATION

- References**
- TLVs and BEIs (2009). Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. ACGIH, Cincinnati, OH – <http://www.acgih.org>
  - CCOHS (2009) – Canadian Centre for Occupational Health and Safety – <http://www.ccohs.ca/>
  - ERG (2008). Emergency Response Guidebook, US Department of Transportation, Transport Canada, et le Secretariat of Communications and Transportation of Mexico
  - HSDB (2009) – Hazardous Substances Data Bank. TOXNET® Network of databases on toxicology, hazardous chemicals, and environmental health. NLM Databases & Electronic Resources, US National Library of Medicine, NHI, 8600 Rockville Pike, Bethesda, MD 20894 – <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
  - ESIS: C&L (Classification and Labeling), substances or preparations in accordance with Directive 67/548/EEC (substances) and 1999/45/EC (preparations),
  - ESIS: EINECS (European Inventory of Existing Commercial Chemical Substances) O.J. C 146A, 15.6.1990
  - ESIS: EINECS corrections published in O.J. C 54/13 01.03.2002, 2002/C54/08.
  - IARC – Monographs on the Evaluation of Carcinogenic Risks to Humans (collection) – <http://www-cie.iarc.fr/>
  - Merck Index (1999). Merck & Co., Inc., 12<sup>th</sup> edition
  - NIOSH US (2009) – Pocket Guide to Chemical Hazards – <http://www.edc.gov/niosh/npg/>
  - Patty's Industrial Hygiene and Toxicology, 3<sup>rd</sup> Revised Edition
  - Reglement sur les produits controles (Canada)
  - RTECS (2009). Registry of Toxic Effects of Chemical Substances, NIOSH, CDC
  - Toxicologie industrielle & intoxication professionnelle, 3e edition, Lauwerys
  - TSCA (2009) – US EPA Toxic Substance Control Act, Chemical Inventory. System of Registries (SoR), Substance Registry Services, [http://iaspub.epa.gov/sor\\_internet/registry/substreg/searchandretrieve/substancesearch/search.do](http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/substancesearch/search.do)

|                 |        |  |
|-----------------|--------|--|
| <b>Glossary</b> | ACGIH: | American Conference of Governmental Industrial Hygienists. |
|                 | HSDB:  | Hazardous Substances Data Bank.                            |
|                 | IARC:  | International Agency for Research on Cancer.               |
|                 | NIOSH: | National Institute of Occupational Safety and Health.      |
|                 | NTP:   | US National Toxicology Program.                            |
|                 | OSHA:  | Occupational Safety and Health Administration.             |
|                 | RTECS: | Registry of Toxic Effects of Chemical Substances.          |

### WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

Issue Date: 3//3/16