## 1. Identification of the Substance and Company

Product Name: Ceramic Fluorspar ($CaF_2$ 90–96%)
Product Code: FS-90/96
Form: Lumpy or Crushed form (0–60 mm)
CAS Number: 7789-75-5 (main constituent, natural mineral)
Formula: $CaF_2$
Supplier: Elite Fluor
Origin: Kuh-e-Sefid Mine, Iran
Address: No. 11, Hashemieh 6, Hashemieh Boulevard, Vakilabad Boulevard, Mashhad, Khorasan Razavi Province, Iran (IR)
Email: info@elitefluor.com
Phone: +98 51 31820222
Emergency Contact: +98 912 272 0913 (24-hour emergency contact)
Recommended Use: Used in ceramics, glass, enamel, and as feedstock for hydrofluoric acid and related chemical processes.
Physical Description: Light gray to violet mineral lumps or crushed particles.

## 2. Hazard(s) Identification

Classification according to GHS: Not classified as hazardous under the Globally Harmonized System (GHS).
Signal Word: None required
Hazard Pictogram(s): None required
Hazard Statements:

- This material is not classified as hazardous under normal conditions of use.
- Fine respirable powder may cause temporary mechanical irritation to eyes, skin, or respiratory tract.
- Prolonged inhalation of dust in poorly ventilated areas may cause coughing or discomfort.

Precautionary Statements:

- Avoid generating or breathing dust.
- Use suitable ventilation or local exhaust during handling, mixing, or charging into process.
- Wear protective gloves, goggles, and an N95/P2 dust mask when handling the powder.
- Wash hands and exposed skin thoroughly after handling.

Hazard Overview:
Ceramic fluorspar is a stable, non-reactive, non-flammable mineral. Due to its fine particle size, airborne dust may create inhalation and eye irritation risks if not properly controlled.

## 3. Composition / Information on Ingredients

| Component | CAS No. | Range (%) | Remarks |
|---|---|---|---|
| Calcium Fluoride ($CaF_2$) | 7789-75-5 | 90–96 | Main mineral constituent |
| Silica ($SiO_2$) | 7631-86-9 | ≤6 | Natural gangue mineral |
| Iron Oxide ($Fe_2O_3$) | 1309-37-1 | ≤0.02 | Trace impurity |
| Phosphorus Pentoxide ($P_2O_5$) | 1314-56-3 | ≤0.02 | Trace impurity |
| Loss on Ignition (LOI) | — | 0.2–1 | Includes volatiles and minor carbonates |
| Moisture | — | ≤1.1 | Free surface moisture |

## 4. First Aid Measures

Eye Contact: Rinse immediately with clean water for several minutes. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.
Skin Contact: Wash thoroughly with soap and water. Seek medical attention if irritation develops or persists.
Inhalation: Move the exposed person to fresh air. If breathing irritation or coughing persists, seek medical attention.
Ingestion: Rinse mouth with water. Do not induce vomiting. Seek medical advice if large quantities are swallowed.

## 5. Fire-Fighting Measures

Flammability: Non-combustible.
Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding materials.
Special Hazards: None known.
Protective Equipment for Firefighters: Standard protective gear. No specific chemical firefighting measures required for this product.

## 6. Accidental Release Measures

Avoid creating airborne dust. Isolate spill area and ventilate if necessary.
Collect spilled material mechanically (scoop, vacuum with HEPA) and place into suitable container for reuse or disposal.
Prevent entry into drains, surface water, or soil in the form of fine powder.

## 7. Handling and Storage

Handling: Avoid breathing dust during transfer, mixing, or loading into process. Use local exhaust ventilation for fine powders. Prevent contact with acids (may release hydrogen fluoride gas).
Storage: Store in sealed, moisture-proof bags or containers. Keep dry and away from incompatible materials (strong acids). Avoid conditions that generate airborne dust.

## 8. Exposure Controls / Personal Protection

Exposure Limit (as Fluoride Ion, $F^-$): 2.5 mg/$m^3$ (ACGIH TLV–TWA, 2024)
Engineering Controls:
- Use dust extraction / local exhaust, especially in enclosed processing areas.
- Provide eyewash access in areas of bulk powder handling.
Personal Protective Equipment (PPE):
- Respiratory Protection: N95 / P2 particulate respirator when dust is present.
- Eye Protection: Safety goggles or face shield.
- Skin Protection: Protective gloves and long sleeves to avoid mechanical irritation.
- Hygiene Measures: Wash hands, face, and exposed skin after handling. Do not eat, drink, or smoke while handling the product.

## 9. Physical and Chemical Properties

Appearance: White to light green fine powder
Odor: Odorless
$CaF_2$ Content: 90–96%
Bulk Density: 1.4–1.7 g/$cm^3$
Specific Gravity: 3.18
Solubility: Insoluble in water
pH (10% slurry): Neutral (6.5–7.5)
Melting Point: ~1418°C
Moisture (at packing): ≤1.1%

## 10. Stability and Reactivity

Chemical Stability: Stable under normal conditions.
Incompatibility: Strong acids (releases HF gas).
Decomposition Products: Hydrogen fluoride when exposed to acids.

## 11. Toxicological Information

Acute Toxicity: Low under normal industrial use.
Irritation: Mechanical irritation of eyes, skin, and respiratory tract may occur from fine airborne particles.
Chronic Effects: Long-term, repeated inhalation of respirable fluoride-containing dusts at high levels may contribute to skeletal fluorosis.
Routes of Exposure: Inhalation (primary), eye contact, skin contact.

## 12. Ecological Information

Environmental Behavior: Inorganic, stable, and poorly soluble mineral.
Bioaccumulation: Not expected to bioaccumulate.
Aquatic/Soil Impact: Avoid uncontrolled release of fine particulate matter to the environment.
Persistence and Degradability: Not applicable (inorganic substance).
Mobility in Soil: Very low due to insolubility in water.

## 13. Disposal Considerations

Dispose of material in accordance with local, regional, and national regulations.
Product may be reused in industrial processes when uncontaminated.
Classification: Non-hazardous mineral waste

## 14. Transport Information

UN Number: Not regulated
Hazard Class: Non-hazardous
Packing Group: None
Proper Shipping Name: Calcium Fluoride (natural)
Transport Regulations: Not regulated under ADR/RID/IMDG/IATA.

## 15. Regulatory Information

This product is not classified as hazardous according to the Globally Harmonized System (GHS).
Complies with EU REACH Regulation (EC) No. 1907/2006 and CLP Regulation (EC) No. 1272/2008.
Subject to workplace exposure limits for fluoride-containing dusts.

## 16. Other Information

Prepared by: Elite Fluor – Safety and Quality Department
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Version: 1.0
This SDS applies to Ceramic Fluorspar ($CaF_2$ 90–96%) produced from Kuh-e-Sefid Mine, Iran.
Disclaimer: The information herein is believed to be accurate but does not constitute a warranty, expressed or implied.
Users are responsible for confirming suitability for their specific process and regulatory environment.