

Elite FLUOR- SAFETY DATA SHEET (SDS)

Prepared according to GHS (Rev.9) and ISO 11014:2022

1. Identification of the Substance and Company

Product Name: Acid Grade Fluorspar (CaF_2 >97%)

Product Code: FS-97+

Form: Fine powder (mesh 100–300)

CAS Number: 7789-75-5 (main constituent, natural mineral)

Formula: CaF_2

Supplier: Elite Fluor

Origin: Kuh-e-Sefid Mine, Iran

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Recommended Use: Raw material for hydrofluoric acid production and related chemical processes.

Physical Description: White to pale green fine mineral powder.

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 storage and handling conditions.
- Contact with acids liberates toxic gas (hydrogen fluoride, HF).
- Fine dust may cause temporary irritation to eyes, skin, and respiratory tract.

Precautionary Statements:

- Avoid generating or breathing dust.
- Keep away from strong acids.
- Use suitable ventilation during handling and mixing.
- Wear protective gloves, goggles, and an N95/P2 dust mask when handling the powder.
- Wash hands and exposed skin thoroughly after handling.

Hazard Overview:

Acid Grade Fluorspar is a stable, non-flammable mineral under normal conditions. Contact with acids releases toxic hydrogen fluoride (HF) gas, which is highly corrosive and hazardous by inhalation.

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3. Composition / Information on Ingredients

Component	CAS No.	Range (%)	Remarks
Calcium Fluoride (CaF ₂)	7789-75-5	>97	Main mineral constituent
Silica (SiO ₂)	7631-86-9	≤1.5	Natural gangue mineral
Iron Oxide (Fe ₂ O ₃)	1309-37-1	≤0.05	Trace impurity
Phosphorus Pentoxide (P ₂ O ₅)	1314-56-3	≤0.03	Trace impurity
Loss on Ignition (LOI)	—	0.1-0.3	Includes volatiles and minor carbonates
Moisture	—	≤0.8	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. If irritation occurs, get medical attention.

Inhalation: Move person to fresh air. If symptoms such as coughing or shortness of breath develop, seek medical attention.

Ingestion: Rinse mouth. Do not induce vomiting. Seek medical attention if large quantities are ingested.

5. Fire-Fighting Measures

Flammability: Non-combustible.

Suitable Extinguishing Media: Use extinguishing media suitable for surrounding materials.

Special Hazards: None under normal conditions. When in contact with acids, releases hydrogen fluoride (HF) gas, which is toxic and corrosive.

Protective Equipment: Standard protective gear; firefighters should use self-contained breathing apparatus in case of HF release.

6. Accidental Release Measures

Avoid generating dust. Prevent contact with acids. Isolate spill area and ventilate if necessary. Collect spilled material mechanically and store in suitable containers. Avoid release into drains or natural watercourses.

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7. Handling and Storage

Handling: Avoid dust generation and direct contact with skin and eyes. Keep away from acids. Use local exhaust ventilation when transferring or mixing material.

Storage: Store in sealed, moisture-proof bags or containers. Keep dry and away from strong acids and reactive substances.

8. Exposure Controls / Personal Protection

Exposure Limit (as Fluoride Ion, F⁻): 2.5 mg/m³ (ACGIH TLV-TWA, 2024)

Engineering Controls:

- Use adequate ventilation or local exhaust during processing or mixing.
- Provide eyewash stations in areas where material is handled.

Personal Protective Equipment (PPE):

- Respiratory Protection: N95 / P2 particulate respirator when dust is present.
- Eye Protection: Safety goggles or face shield.
- Skin Protection: Gloves, long sleeves, and protective clothing.
- Hygiene: Wash hands, face, and exposed skin after handling. Avoid eating or smoking during work.

9. Physical and Chemical Properties

Appearance: White to pale green fine powder

Odor: Odorless

CaF₂ Content: >97%

Bulk Density: 1.4–1.7 g/cm³

Specific Gravity: 3.18

Solubility: Insoluble in water

pH (10% slurry): Neutral (6.5–7.5)

Melting Point: ~1418°C

Moisture (at packing): ≤0.8%

10. Stability and Reactivity

Chemical Stability: Stable under normal storage and handling conditions.

Incompatibility: Strong acids (liberates hydrogen fluoride gas).

Decomposition Products: Hydrogen fluoride (HF) when in contact with acids or exposed to high temperatures.

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11. Toxicological Information

Acute Toxicity: Low under normal use.

Irritation: Dust may cause temporary irritation to eyes, skin, or respiratory tract.

Chronic Effects: Long-term exposure to fluoride dusts may cause skeletal fluorosis.

Routes of Exposure: Inhalation (primary), eye contact, and skin contact.

12. Ecological Information

Environmental Impact: Inorganic, stable, and poorly soluble mineral. Not expected to bioaccumulate. Avoid uncontrolled release into watercourses, as low solubility fluoride ions may affect aquatic organisms.

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 regulations. Avoid contact with acids during disposal.

Non-hazardous mineral waste; may be reused in compatible industrial processes.

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 compounds.

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16. Other Information

Prepared by: Elite Fluor – Safety and Quality Department

Issue Date: February 2026

Version: 1.0

This SDS applies to Acid Grade Fluorspar ($\text{CaF}_2 >97\%$) produced from Kuh-e-Sefid Mine, Iran.

Disclaimer: The information provided herein is believed to be accurate but does not constitute a warranty, expressed or implied.

Users must ensure suitability for their specific application and compliance with applicable regulations.