

Safety Data Sheet: Hydrofluoric Acid

1. Identification

Product	Hydrofluoric Acid; CAS 7664-39-3; EC 231-634-8
Use	Professional ingredient and formulation development.
Company	Hainan Zhongxin Chemical Co., Ltd. (ZXCHEM)
Address	Room 1001, Building A, Caohejing Center, No. 1520 Gumei Road, Xuhui District, Shanghai, China
Telephone / email	+86-21-54265599 / sales@zxchem.com.cn
Emergency contact	ZXCHEM office number above, office hours, China time (UTC+8). For urgent medical assistance contact local emergency services.
Scope	Reference safety information for Hydrofluoric Acid. The reference composition, concentration and supply-grade differences are described in Section 3. This document does not certify the composition or transport status of a specific delivered batch or a different formulation.

2. Hazards Identification

Classification	Acute oral toxicity Category 2; acute dermal toxicity Category 1; acute inhalation toxicity Category 2; skin corrosion Category 1A; eye damage Category 1; repeated-exposure organ toxicity Category 1, concentrated aqueous reference.
Signal word / symbols	Danger; GHS05, GHS06, GHS08
Hazard statements	H300: fatal if swallowed. H310: fatal in contact with skin. H330: fatal if inhaled. H314: causes severe skin burns and eye damage. H372: causes organ damage through prolonged or repeated exposure.
Prevention	Use adequate ventilation; avoid inhaling mist. Prevent skin and eye contact. Wear suitable chemical-resistant gloves and eye protection. Wash after handling; keep food and drink out of the work area.
Response	After exposure, stop work and seek medical advice. For severe exposure obtain urgent medical care. Rinse contaminated skin or eyes with water; move an inhalation casualty to fresh air.
Environment	Prevent uncontrolled release to drains, soil or surface water. Collect spills for appropriate disposal.



3. Composition / Information on Ingredients

Reference ingredient	Hydrogen fluoride, CAS 7664-39-3, with water, CAS 7732-18-5. Concentrated reference formulation: HF 60–80%, water 20–40%. Supply grades 30–70% are concentration options; no individual delivered recipe is certified.
Supply grade	HF 30–70% aqueous grades
Applicability	The cited concentration or purity describes the reference material. It is not a certificate of analysis for the delivered batch; different solvents or dilutions require the matching supplier safety document.

4. First-Aid Measures

General	Any HF exposure is a medical emergency. Protect rescuers, call emergency medical services immediately and give medical personnel the product and concentration information. Do not delay assistance because symptoms are initially limited.
Inhalation	Move the casualty to fresh air without exposing rescuers. Obtain immediate medical attention. Trained personnel may provide oxygen or respiratory support under the established emergency protocol.
Skin	Immediately begin copious water decontamination while removing contaminated clothing safely. Obtain emergency medical treatment without delay. Trained site responders may apply the established calcium-gluconate protocol under medical direction; do not delay rinsing or referral.
Eyes	Immediately irrigate continuously with clean water, remove contact lenses if easy and continue rinsing for at least 15 minutes. Obtain immediate specialist medical attention; do not apply skin treatment gel to the eyes.
Ingestion	Do not induce vomiting. Rinse the mouth only if conscious; give nothing by mouth to an unconscious casualty. Obtain immediate emergency medical assistance and follow poison-centre or clinician instructions.
Effects / treatment	HF can penetrate tissue and cause delayed deep injury, severe eye damage and systemic fluoride poisoning, including dangerous electrolyte disturbance and cardiac effects. Immediate emergency medical assessment is necessary even when initial pain is limited. Medical management requires fluoride-exposure assessment and monitoring of electrolytes and cardiac function; treatment is directed by qualified clinicians.

5. Fire-Fighting Measures

Extinguishing media	Select extinguishing media for the surrounding fire using trained chemical emergency response. Avoid directing a water jet into the product; cool closed containers from a safe distance. Prevent exposure to HF fumes and collect contaminated runoff.
Hazards	Heating can release hydrogen-fluoride fumes. Reaction with incompatible metals can generate hydrogen.
Protection	Firefighters require suitable protective clothing and self-contained breathing equipment. Prevent contaminated firefighting water entering drains.

6. Accidental Release Measures

Personnel	Isolate the spill and provide ventilation. Use chemical-resistant gloves and eye protection; avoid contact and mist exposure.
Environment	Contain the release and protect drains and waterways. Report significant environmental contamination to the responsible authority.
Cleanup	Evacuate unprotected personnel. Trained responders should stop and contain the leak only when safe, using HF-compatible equipment and a validated neutralisation or collection procedure. Do not use glass, silicate or concrete absorbents; protect drains and collect waste for authorised disposal.

7. Handling and Storage

Handling	Use closed HF-compatible transfer with effective local extraction. Wear task-qualified HF-resistant gloves, protective clothing and full eye/face protection. Maintain emergency washing facilities and a trained HF exposure-response protocol; obtain immediate medical help after any exposure.
Storage	Store locked, tightly sealed and ventilated in an HF-compatible storage area with secondary containment. Use qualified polyethylene or other specifically approved HF-compatible containers. Keep away from bases and incompatible metals; never use glass or silicate containers.
Incompatibilities	Glass, silica, concrete and silicate materials; bases and incompatible metals. Contact with some metals may generate flammable hydrogen.

8. Exposure Controls / Personal Protection

Exposure limits	Apply current local hydrogen-fluoride and fluoride workplace limits, air monitoring and task-specific containment requirements.
Engineering controls	Use local extraction where mist can be generated. Maintain accessible eyewash and emergency washing facilities.
Personal protection	Wear chemical-resistant gloves selected for the task, suitable protective clothing and splash goggles. Add face protection for splash-prone tasks.
Respiratory protection	Use a properly selected respirator under a respiratory-protection program where engineering controls do not adequately limit airborne exposure.
Hygiene	Wash after handling, remove contaminated clothing promptly and do not eat, drink or smoke in the work area.

9. Physical and Chemical Properties

Appearance	Colourless, clear liquid
Formula / molecular weight	FH / 20.01 g/mol
Physical state	Clear aqueous liquid
Supply concentration options	30–70% HF
Other properties	Product-specific values for odor threshold, vapor pressure, partition coefficient, autoignition temperature and viscosity are not supplied by the selected reference set. No values are inferred.

10. Stability and Reactivity

Stability	Handle and store under the recommended conditions. Prevent contamination and unnecessary heating.
Incompatibilities	Glass, silica, concrete and silicate materials; bases and incompatible metals. Contact with some metals may generate flammable hydrogen.
Decomposition	Heating can release hydrogen-fluoride fumes. Reaction with incompatible metals can generate hydrogen.

11. Toxicological Information

Exposure effects	HF can penetrate tissue and cause delayed deep injury, severe eye damage and systemic fluoride poisoning, including dangerous electrolyte disturbance and cardiac effects. Immediate emergency medical assessment is necessary even when initial pain is limited.
Reference classification	Acute oral toxicity Category 2; acute dermal toxicity Category 1; acute inhalation toxicity Category 2; skin corrosion Category 1A; eye damage Category 1; repeated-exposure organ toxicity Category 1, concentrated aqueous reference.
Data limits	Concentrated reference identifies fatal oral, dermal and inhalation toxicity, corrosivity and repeated-exposure organ damage. No numerical toxicity endpoint is assigned to a delivered concentration.

12. Ecological Information

Environmental effects	Acidification and fluoride release may damage aquatic environments. No biodegradability claim is made for this inorganic acid; contain all releases.
Controls	Prevent uncontrolled release, collect spills and dispose of contaminated material through an authorized route.
Assessment	No product-specific PBT/vPvB assessment is claimed. Absence of data does not establish absence of environmental effects.

13. Disposal Considerations

Product	Collect surplus product and contaminated cleanup material for disposal by an authorized chemical-waste contractor in accordance with local requirements.
Packaging	Containers may retain product residues. Do not reuse contaminated packaging without an approved cleaning process; use an authorized disposal route.

14. Transport Information

Classification	Class 8 — Corrosive; subsidiary risk 6.1
UN number	UN 1790
Shipping name	HYDROFLUORIC ACID
Class / packing group	Road / IMDG / IATA: Class 8 with subsidiary risk 6.1. Not more than 60% hydrogen fluoride: packing group II; more than 60%: packing group I. Apply the actual concentration, approved package and mode-specific limits.
Transport precautions	Protect packaging and closures from damage, secure loads and prevent releases. This reference is not a shipping declaration for a specific consignment.

15. Regulatory Information

Identity	Hydrofluoric Acid; CAS 7664-39-3; EC 231-634-8
HS reference	281111; reference heading rather than a destination customs ruling.
Compliance	Apply applicable workplace, environmental and transport rules. A raw-material listing does not establish authorization for a finished formulation.
Assessment	No ZXCHEM-specific chemical safety assessment or destination registration is asserted.

16. Other Information

Hazard meanings	H300: fatal if swallowed. H310: fatal in contact with skin. H330: fatal if inhaled. H314: causes severe skin burns and eye damage. H372: causes organ damage through prolonged or repeated exposure.
Limitations	Prepared as reference safety information for the identified material. It is not a batch analytical certificate or safety assessment of a different solvent-containing formulation.
Revision	2026.1; prepared 2026-10-07. Customer-document branding and title corrected; technical safety data retained.
Document scope	Reference safety information for the material and grade described in Sections 1 and 3. Different concentrations, solvents or formulations require the applicable safety information. This is not a batch analytical certificate.

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