

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Hydrofluoric Acid (40% Aqueous Solution)
- English Name: Hydrofluoric Acid; Hydrogen Fluoride Solution
- CAS Number:7664-39-3
- Formula:HF (Aqueous Solution)
- Molecular Weight:20.01 g/mol (Pure Substance)
- Product Characteristics: Colorless clear liquid with a pungent odor. High-purity strong acid with extreme corrosivity (especially to glass and 骨骼). Toxic by inhalation and skin contact, non-flammable. Suitable for semiconductor etching, metal processing, and laboratory research.

2. Technical Specifications

| Item | Specification |
|------------------------------------|---|
| Appearance | Colorless clear liquid |
| Concentration (w/w) | 40.0 ± 1.0% |
| Fluoride (F ⁻) Content | 39.0-41.0% |
| Heavy Metals (Pb) | ≤ 0.5 ppm |
| Heavy Metals (As) | ≤ 0.1 ppm |
| Iron (Fe) | ≤ 1 ppm |
| Density (20°C) | 1.128-1.132 g/cm ³ |
| Boiling Range | 112°C |
| Viscosity (20°C) | 1.2 mPa·s |
| Corrosivity | Extremely corrosive to glass, metals, and tissues |

3. Product Advantages

1. High Purity: Low impurity content ensures precise etching and synthesis performance.
2. Controlled Concentration: 40% aqueous solution balances reactivity and handling safety.
3. Selective Corrosion: Ideal for semiconductor and glass etching (selectively attacks silica).
4. Reliable Quality: Strict control of heavy metals and fluoride content meets industrial standards.

4. Application Fields

- Semiconductor Industry: Etching of silicon wafers and glass substrates.
- Metal Processing: Pickling and passivation of aluminum and stainless steel.
- Glass Industry: Etching and frosting of glass products.
- Laboratory Research: Analytical reagent and fluoride synthesis.

5. Usage Methods

- Dosage: 5-20% concentration (dilute with water for low-corrosivity use).
- Application: Use in plastic (PTFE/HDPE) equipment; add slowly to reactions.
- Optimal Conditions: Operate in well-ventilated areas; avoid contact with glass, metals, and strong bases.



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6. Packaging & Storage

- Packaging: 5L HDPE bottles, 20L HDPE drums, 200L HDPE drums (UN-approved).
- Storage: Cool, dry, well-ventilated warehouse ($\leq 25^{\circ}\text{C}$); sealed, away from glass/metals/strong bases.
- Shelf Life: 12 months (unopened, specified conditions).
- Transportation: Classified as corrosive and toxic hazardous goods; transport per regulations.

7. Safety & Protection

- Extremely corrosive, toxic, and bone-damaging: No smoking near storage/use areas.
- Wear chemical safety goggles, face shield, nitrile rubber gloves, and chemical-resistant clothing.
- Have calcium gluconate gel on-site for emergency skin contact treatment.
- Avoid inhalation, skin contact, and ingestion; ensure local exhaust ventilation.

8. Quality Assurance

- Manufactured under ISO 9001 quality management system.
- Each batch comes with a COA for compliance verification.
- Provide technical support for safe application and corrosion control.



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