TECHNICAL DATA SHEET

Hydrofluorosilicic Acid 23% (HFS)

Revised: 04/27/2026

PRODUCT IDENTIFICATION

Product Name: Hydrofluorosilicic Acid 23% (HFS)
CAS Number: 16961-83-4
Molecular Formula: F_6H_2Si
Molecular Weight: 144.091 g/mol
Grade: Technical
Purity / Concentration: 23%
Synonyms: Fluorosilicic Acid, Hydrofluorosilicic Acid Solution

PRODUCT OVERVIEW

Hydrofluorosilicic Acid 23% is a clear, fuming liquid supplied in Technical grade for consistent industrial performance. With a controlled assay of 23.1% and minimal impurity levels, such as iron at 0.1 ppm, it is a reliable choice for municipal water treatment and chemical synthesis.

Grade Significance: Technical grade indicates that the product is manufactured to meet standard industrial specifications, providing a cost-effective solution for applications where high-purity laboratory standards are not required but consistency remains vital.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	23.1	22	24	Titration with NaOH
Color (APHA)	APHA	10	—	20	ASTM D1209
Specific Gravity (20°C)	g/mL	1.18	1.17	1.19	ASTM D1298
Residue After Ignition	%	0.0010	—	0.01	Gravimetric
Iron (Fe)	ppm	0.1	—	1	ICP-OES
Chloride (Cl^-)	ppm	5	—	25	Ion Chromatography
Sulfate (SO_4^{2-})	ppm	15	—	50	Turbidimetry

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Colorless, fuming liquid	**Odor**	Slightly pungent
Form	Liquid	**Boiling Point**	108°C (226.4°F)
Melting / Freezing Point	-20°C (-4°F)	**Specific Gravity**	1.12
Solubility	Soluble in water and alcohol	**Molecular Formula**	F_6H_2Si
Molecular Weight	144.091 g/mol	**Refractive Index (20°C)**	1.335
Density (25°C)	1.15 g/mL		

APPLICATIONS

1. **Municipal Water Treatment** — It is primarily used as a fluoridating agent in public drinking water supplies to promote dental health and prevent cavities.
2. **Chemical Manufacturing** — The acid serves as a versatile precursor in the synthesis of complex fluorinated organic compounds for various specialized markets.
3. **Industrial Maintenance** — It is utilized in specific industrial applications to inhibit metal corrosion and maintain the integrity of processing equipment.
4. **Water Chemistry** — Operators employ this solution to precisely adjust the pH levels of water systems to meet regulatory and operational standards.

STORAGE & HANDLING

Due to its classification as a corrosive substance capable of causing severe skin burns, this acid must be stored in specialized, corrosion-resistant containment systems. Proper ventilation and secondary containment are essential to manage its fuming nature and mitigate risks to personnel and facility infrastructure.

- Store in a cool, dry place away from direct sunlight.
- Use HDPE containers for compatibility and to prevent leaching.
- Avoid contact with strong bases and oxidizing agents.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.
- Ensure adequate ventilation in storage areas.

AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: Danger

Hazard Statements:

- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]
- H301: Toxic if swallowed

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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