

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 (Titration)	%	23	22.5	23.5	Titration
Color (APHA/Hazen)	APHA	8	—	200.0	Spectrophotometry
Specific Gravity (20°C)	g/mL	1.2	1.19	1.21	Hydrometer @ 25°C
Arsenic Antimony As As	ppm	≤ 50 ppm	—	—	ICP-MS
Heavy Metals As Pb	ppm	4	0	—	ICP-MS (as Pb)
Iron (Fe)	ppm	≤ 70 ppm	—	—	ICP-MS
Lead Pb	ppm	≤ 200 ppm	—	—	ICP-MS
Phosphate Po4	ppm	0.01	0	4000.0	ICP
Fluoride F	ppm	0.76	0	1	Ion Chromatography

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	Not characterized for the 23% solution
Melting / Freezing Point	Not characterized for the 23% solution	Specific Gravity	1.19
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]

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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