

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 Grade

Purity / Concentration: 23%

Synonyms: Fluorosilicic Acid, Hydrofluorosilicic Acid Solution

PRODUCT OVERVIEW

Hydrofluorosilicic Acid 23% is a technical-grade, colorless fuming liquid widely utilized for municipal water fluoridation and industrial chemical synthesis. With a specific gravity of 1.2 g/mL and controlled impurity levels, including iron at or below 70 ppm, this solution provides consistent performance for demanding treatment applications.

Grade Significance: Technical Grade indicates that this product is manufactured to meet industrial specifications for performance and reliability, ensuring it is suitable for large-scale treatment and synthesis applications.

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 @ 20°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

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 fluoride additive in public drinking water systems to support community dental health and prevent cavities.
2. **Chemical Manufacturing** — This acid acts as a versatile precursor in the synthesis of various fluorinated organic compounds used in specialty chemical production.
3. **Industrial Maintenance** — It is utilized in specific industrial processes to help manage and prevent corrosion on treated surfaces.
4. **Water Chemistry** — The acid is applied to adjust pH levels in industrial water systems to ensure optimal operational conditions.

STORAGE & HANDLING

Due to its corrosive nature, this acid must be stored in specialized containers that are resistant to chemical attack to prevent leaks and infrastructure damage. Proper ventilation is essential to manage fuming, while strict temperature control ensures the stability of the 23% concentration and minimizes hazardous vapor release.

- 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:

- H290: May be corrosive to metals
- H302: Harmful if swallowed
- H312: Harmful in contact with skin
- H314: Causes severe skin burns and eye damage
- H332: Harmful if inhaled
- 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.

Alliance Chemical | 204 South Edmond St, Taylor, Texas 76574 | 512-365-6838 | www.alliancechemical.com

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