

PRODUCT IDENTIFICATION



Product Name: Sulfuric Acid 93% Technical Grade

CAS Number: 7664-93-9

Molecular Formula: $\text{H}_2\text{O}_4\text{S}$

Molecular Weight: 98.08 g/mol

Grade: Technical Grade

Purity / Concentration: 93%

Synonyms: Oil of Vitriol, Sulfuric Acid Solution

PRODUCT OVERVIEW

Alliance Chemical offers high-quality Sulfuric Acid 93% Technical Grade, a clear and oily liquid essential for industrial chemical processes. With a precise assay of 93.57% and low impurity levels, such as iron at 1.37 ppm, this product provides the consistency required for demanding applications like battery electrolyte production.

Grade Significance: Technical Grade signifies that this product is manufactured for industrial and commercial use where efficiency is prioritized, providing a cost-effective solution without the premium costs associated with high-purity analytical reagents.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (Titration)	%	93.57	93	94.2	Titration
Color (APHA/Hazen)	APHA	3	—	100.0	Spectrophotometry
Specific Gravity (20°C)	g/mL	1.8279	1.8259	1.8299	Hydrometer @ 20°C
Non-Volatile Residue	%	0.0030	—	0.01	Residue on Ignition
Arsenic Antimony As As	ppm	0.0048	—	0.0097	ICP-MS
Heavy Metals As Pb	ppm	0.097	0	0.97	ICP-MS (as Pb)
Iron (Fe)	ppm	1.37	—	50	ICP-MS
Chloride Cl	ppm	0.048	0	0.19	ICP
Nitrate No3	ppm	0.097	0	0.48	ICP
Mercury Hg	ppm	0.48	—	4.84	ICP-MS
Sulfite So3	ppm	6.81	0	9.7	ICP
Turbidity	NTU	1	—	50	EPA 180.1

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Oily, clear liquid	Odor	Odorless
Form	Liquid	Boiling Point	276 °C (529 °F) (93% solution)
Melting / Freezing Point	-29.5 °C (-21 °F) freezing point (93% solution)	Flash Point	Not applicable (non-flammable)
Specific Gravity	1.835	Solubility	High water solubility, miscible with polar solvents
Molecular Formula	H ₂ O ₄ S	Molecular Weight	98.08 g/mol
Vapor Pressure (20°C)	0.3 mmHg	Viscosity (25°C)	1.0 cP (liquid); note: highly concentrated acids may show apparent higher viscosity due to coning
Refractive Index (20°C)	1.406	Density (25°C)	1.84 g/mL

APPLICATIONS

- Energy Storage** — Functions as the critical electrolyte in lead-acid batteries, facilitating the chemical reaction necessary for energy storage and discharge.
- Chemical Manufacturing** — Serves as a primary reactant in the synthesis of diverse chemical products, including fertilizers and industrial explosives.
- Water Treatment** — Utilized as an effective agent for adjusting pH levels in wastewater treatment facilities to ensure regulatory compliance.
- Organic Synthesis** — Acts as a powerful dehydrating agent in laboratory and industrial organic synthesis processes.

STORAGE & HANDLING

Proper storage is critical because this acid is highly corrosive to metals and poses severe risks of skin burns and eye damage. It must be kept in secondary containment and compatible materials to prevent hazardous leaks and environmental exposure.

- Store in a cool, dry, well-ventilated area away from incompatible materials.
- Use corrosion-resistant containers (e.g., HDPE, glass) for storage.
- Avoid contact with metals and organic materials to prevent violent reactions.
- Always wear appropriate personal protective equipment (PPE) including gloves and goggles.
- Ensure proper ventilation when handling to minimize inhalation risks.

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
- H314: Causes severe skin burns and eye damage
- H350: May cause cancer

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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