

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 provides high-quality 93% Technical Grade Sulfuric Acid, a versatile and essential industrial reagent. With a precise assay of 93.57% and low impurity levels, such as 1.37 ppm iron, this clear, oily liquid is optimized for demanding chemical manufacturing and processing applications.

Grade Significance: Technical Grade indicates that this product is manufactured for industrial and commercial utility where high performance is required, though it is not intended for food, drug, or medical use.

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

- 1. Energy Storage** — Functions as the critical electrolyte in lead-acid batteries, facilitating the chemical reactions necessary for efficient energy storage.
- 2. Chemical Manufacturing** — Serves as a fundamental reactant in the synthesis of diverse chemical products, including agricultural fertilizers and specialized explosives.
- 3. Water Treatment** — Utilized as an effective agent for adjusting pH levels in industrial and municipal wastewater treatment processes.
- 4. Laboratory Research** — Acts as a potent dehydrating agent and catalyst in various organic synthesis and analytical laboratory procedures.

STORAGE & HANDLING

Proper storage is critical because 93% sulfuric acid is highly corrosive to metals and poses severe risks of skin burns and eye damage. It must be stored in specialized, acid-resistant containment to prevent accidental releases and ensure the integrity of the chemical, as per H290 and H314 hazard classifications.

- 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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