

PRODUCT IDENTIFICATION

**Product Name:** Sulfuric Acid 96% ACS Grade**CAS Number:** 7664-93-9**Molecular Formula:** $\text{H}_2\text{O}_4\text{S}$ **Molecular Weight:** 98.08 g/mol**Grade:** ACS Grade**Purity / Concentration:** 96%**Synonyms:** Oil of Vitriol, Sulfuric Acid Solution

PRODUCT OVERVIEW

Alliance Chemical offers high-purity Sulfuric Acid 96% ACS Grade, a dense and clear liquid characterized by its rigorous 98.5% assay and minimal impurity profile. This premium-grade reagent is essential for sensitive chemical synthesis, precise analytical procedures, and industrial applications requiring strict quality control.

Grade Significance: ACS Grade signifies that this product meets the strict purity standards established by the American Chemical Society, ensuring it is suitable for use in demanding laboratory and analytical environments.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	98.5	96	99.5	Titration with standardized NaOH
Color (APHA)	APHA	5	—	10	APHA/Hazen visual comparison
Specific Gravity (20°C)	g/mL	1.86	1.84	1.88	Hydrometer or pycnometer at 20°C
Residue After Ignition	%	0.02	—	0.05	Gravimetric residue after evaporation and ignition
Aluminum (Al)	ppm	0.05	—	0.2	ICP-OES
Arsenic (As)	ppm	0.0050	—	0.01	ICP-MS
Calcium (Ca)	ppm	2	—	10	ICP-OES
Chromium (Cr)	ppm	0.05	—	0.2	ICP-OES
Cobalt (Co)	ppm	0.01	—	0.05	ICP-OES
Copper (Cu)	ppm	0.02	—	0.1	ICP-OES
Heavy Metals (as Pb)	ppm	0.05	—	0.2	ICP-MS
Iron (Fe)	ppm	0.05	—	0.2	ICP-OES
Lead (Pb)	ppm	0.1	—	0.5	ICP-OES
Magnesium (Mg)	ppm	2	—	10	ICP-OES
Manganese (Mn)	ppm	0.02	—	0.1	ICP-OES
Nickel (Ni)	ppm	0.02	—	0.1	ICP-OES
Potassium (K)	ppm	20	—	100.0	ICP-OES
Sodium (Na)	ppm	20	—	100.0	ICP-OES
Zinc (Zn)	ppm	0.1	—	0.5	ICP-OES
Ammonium (NH ₄ ⁺)	ppm	0.1	—	0.5	Ion Chromatography (IC)
Chloride (Cl ⁻)	ppm	0.2	—	0.5	ICP-OES
Nitrate (NO ₃ ⁻)	ppm	0.5	—	2	ICP-OES
Phosphate (PO ₄ ³⁻)	ppm	1	—	5	Ion Chromatography (IC)
Sulfate (SO ₄ ²⁻)	ppm	10	—	50	Ion Chromatography (IC) or ICP-OES
Substances Reducing KMnO ₄	—	Passes test	—	—	Potassium permanganate time test
Sulfurous Acid (H ₂ SO ₃)	ppm	5	—	10	Colorimetric or iodometric titration

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Dense, clear liquid	Odor	Odorless
Form	Liquid	Boiling Point	554 °F at 760 mmHg (EPA, 1998)
Melting / Freezing Point	50.65 °F (EPA, 1998)	Specific Gravity	1.84
Solubility	Highly water soluble, reacts with most solvents	Molecular Formula	H ₂ O ₄ S
Molecular Weight	98.08 g/mol	Vapor Pressure (20°C)	0.3 mmHg
Viscosity (25°C)	1.12 cP (at 25°C)	Refractive Index (20°C)	1.406
Density (25°C)	1.84 g/mL	Decomposition Temp.	Decomposes at high temperatures with release of water vapor

APPLICATIONS

1. **Energy Storage** — Functions as a high-performance electrolyte in lead-acid batteries to facilitate reliable energy storage and power delivery.
2. **Water Treatment** — Used effectively for pH adjustment to neutralize alkaline water supplies and maintain optimal chemical balance.
3. **Chemical Manufacturing** — Serves as a critical reagent in large-scale synthesis, particularly in the production of agricultural fertilizers.
4. **Analytical Chemistry** — Acts as a potent dehydrating agent in laboratory settings to support complex organic synthesis and analytical testing.

STORAGE & HANDLING

Due to its corrosive nature and classification as a severe skin and eye irritant, this acid must be stored in a cool, well-ventilated area away from incompatible materials. Proper containment prevents hazardous reactions with metals and ensures the integrity of the chemical remains stable for sensitive applications.

- 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 strong bases and organic materials to prevent violent reactions.
- Ensure proper personal protective equipment (PPE) is worn, including gloves and goggles.
- Keep containers tightly closed when not in use to prevent moisture absorption.

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

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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