

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% in 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 laboratory procedures, chemical manufacturing, and industrial applications requiring precise, consistent performance.

Grade Significance: ACS Grade signifies that this product meets the strict purity standards set by the American Chemical Society, ensuring the low impurity levels necessary for reproducible and reliable laboratory results.

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** — Serves as a critical electrolyte in lead-acid batteries to facilitate efficient energy storage and power delivery.
2. **Water Treatment** — Used for precise pH adjustment in municipal and industrial water treatment processes to neutralize alkaline conditions.
3. **Chemical Manufacturing** — Functions as a key reagent in large-scale synthesis processes, particularly in the production of high-quality fertilizers.
4. **Analytical Chemistry** — Utilized as a potent dehydrating agent and catalyst in complex organic synthesis and laboratory analytical workflows.

STORAGE & HANDLING

Due to its corrosive nature, Sulfuric Acid must be stored in a cool, well-ventilated area away from incompatible substances like bases and metals to prevent dangerous chemical reactions. Maintaining proper containment is critical to mitigating severe skin burn and eye damage hazards as outlined in the H314 safety classification.

- 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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