

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

Sulfuric Acid 96% ACS Grade is a high-purity, dense, clear liquid essential for demanding laboratory and industrial processes. With a verified assay of 98.5% and exceptionally low impurity levels, such as 0.0050 ppm for Arsenic, this reagent provides the consistency required for precision chemical synthesis and analytical testing.

Grade Significance: ACS Grade signifies that the product meets the strict purity standards set by the American Chemical Society, ensuring the consistency and reliability required for sensitive analytical and laboratory applications.

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 efficient energy transfer and storage.
2. **Water Treatment** — Utilized for precise pH adjustment to neutralize alkaline water streams, ensuring compliance with environmental standards.
3. **Agriculture** — Serves as a critical reagent in the synthesis of various fertilizers, supporting large-scale crop nutrient production.
4. **Organic Synthesis** — Acts as a powerful dehydrating agent in complex chemical reactions, enabling the formation of various organic compounds.
5. **Analytical Chemistry** — Provides a high-purity medium for rigorous laboratory testing and standardized analytical procedures where impurity interference must be minimized.

STORAGE & HANDLING

Proper storage is critical because Sulfuric Acid is highly corrosive and causes severe skin burns and eye damage. It must be stored in a cool, well-ventilated area in chemically compatible containers to prevent dangerous reactions and ensure the integrity of the high-purity ACS grade.

- 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:

- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]

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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