TECHNICAL DATA SHEET

Sulfuric Acid 50% - Electrolyte Grade

Revised: 08/10/2026

PRODUCT IDENTIFICATION

Product Name: Sulfuric Acid 50% - Electrolyte Grade
CAS Number: 7664-93-9
Molecular Formula: H_2O_4S
Molecular Weight: 98.08 g/mol
Grade: Electrolyte Grade
Purity / Concentration: 50%
Synonyms: Sulfuric Acid Dilute, Electrolyte Sulfuric Acid

PRODUCT OVERVIEW

Alliance Chemical offers high-purity Sulfuric Acid 50% in Electrolyte Grade, specifically formulated for sensitive industrial applications. With an exceptionally low impurity profile, including iron levels at 0.03 ppm and a clear APHA color rating of 5, this solution ensures reliable performance in demanding chemical processes.

Grade Significance: The Electrolyte Grade designation guarantees that the acid meets stringent purity standards, ensuring that trace contaminants like heavy metals do not interfere with sensitive electrochemical reactions.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (Titration)	%	50	49	51	Titration
Color (APHA/Hazen)	APHA	5	0	10	Spectrophotometry
Specific Gravity (20°C)	g/mL	1.395	1.393	1.397	Hydrometer @ 20°C
Non-Volatile Residue	%	0.0030	—	0.01	Residue on Ignition
Arsenic Antimony As As	ppm	0.0016	—	0.0052	ICP-MS
Heavy Metals As Pb	ppm	0.156	0	0.52	ICP-MS (as Pb)
Iron (Fe)	ppm	0.03	0	0.1	ICP-MS
Chloride Cl	ppm	0.03	0	0.1	ICP
Nitrate No3	ppm	0.078	0	0.26	ICP
Mercury Hg	ppm	0.78	—	2.6	ICP-MS
Sulfite So3	ppm	3	0	5.2	ICP
Turbidity	NTU	0.3	0	1	EPA 180.1

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear, viscous liquid	**Form**	Liquid solution
Boiling Point	Not characterized for the 50% solution	**Melting / Freezing Point**	Not characterized for the 50% solution
Specific Gravity	1.4	**Solubility**	Complete water miscibility, organic solvent
Molecular Formula	H_2O_4S	**Molecular Weight**	98.08 g/mol

APPLICATIONS

1. **Battery Manufacturing** — Used as a high-purity electrolyte in lead-acid battery production to ensure optimal charge transfer and longevity.
2. **Electroplating** — Serves as a critical component in metal finishing baths, providing the necessary conductivity for uniform plating results.
3. **Analytical Laboratories** — Utilized as a high-purity reagent for precise laboratory testing where trace metal contamination must be strictly controlled.
4. **Water Treatment** — Applied for pH adjustment in water processing systems where the low heavy metal content prevents secondary contamination.

STORAGE & HANDLING

Proper storage is essential to prevent degradation and protect personnel from the corrosive nature of this acid. It must be stored in a cool, dry, and well-ventilated area using compatible materials to avoid the severe skin burns and metal corrosion hazards indicated by the H314 and H290 classifications.

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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