

PRODUCT IDENTIFICATION



Product Name: Aluminum Sulfate 50%

CAS Number: 10043-01-3

Molecular Formula: $\text{Al}_2\text{O}_{12}\text{S}_3$

Molecular Weight: 342.2 g/mol

Grade: Technical Grade

Purity / Concentration: 50%

Synonyms: Alum, Potassium Aluminum Sulfate

PRODUCT OVERVIEW

Alliance Chemical offers high-quality Technical Grade Aluminum Sulfate 50%, a reliable coagulant essential for industrial water treatment. This product maintains a precise 50% assay concentration with strictly controlled impurity levels, such as iron at 0.35% and insoluble matter at 0.1%.

Grade Significance: Technical Grade indicates that this product is manufactured for industrial and commercial applications where performance and cost-effectiveness are prioritized over USP or food-grade certification.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay	%	50	49.5	50.5	Titration/Gravimetric
pH	—	2.28	1.5	2.5	pH Meter
Specific Gravity (20°C)	g/mL	1.3268	1.323	1.3352	Hydrometer @ 20°C
Arsenic As	ppm	0.27	0	7	ICP-MS
Chromium Cr	ppm	1.1	0	20	ICP-OES
Heavy Metals As Pb	ppm	3	0	10	ICP-MS (as Pb)
Iron	%	0.35	0	0.35	ICP
Lead Pb	ppm	1.1	0	20	ICP-MS
Nickel Ni	ppm	0.6	0	10	ICP-OES
Sulfate So ₄	ppm	25	0	25	ICP
Cadmium Cd	ppm	0.15	0	2	ICP-MS
Insoluble	%	0.01	0	0.25	Per specification
Insolubles	%	0.1	0	0.15	Filtration
Loss On Drying	%	3.8	0	12.5	Loss on Drying
Mercury Hg	ppm	0.05	0	2	ICP-MS
Selenium Se	ppm	0.8	0	10	ICP-MS
Tin Sn	ppm	0.02	0	10	ICP-MS

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	White crystalline powder	Odor	Odorless
Form	Solid	Boiling Point	Not characterized for the 50% solution
Melting / Freezing Point	Not characterized for the 50% solution	Specific Gravity	1.33
Solubility	Highly water soluble	Molecular Formula	$\text{Al}_2\text{O}_{12}\text{S}_3$
Molecular Weight	342.2 g/mol	Vapor Pressure (20°C)	0.001 mmHg (approx.)
Viscosity (25°C)	1.5 cP (typical)	Refractive Index (20°C)	1.335 (typical)
Density (25°C)	1.20 g/mL		

APPLICATIONS

- 1. Water Treatment** — Acts as a powerful coagulant to effectively remove impurities and suspended solids from drinking water and wastewater systems.
- 2. Paper Manufacturing** — Functions as a critical sizing agent that enhances the structural integrity and surface quality of paper products.
- 3. Textile Industry** — Utilized in dyeing processes to improve color fastness and ensure uniform fabric quality during production.
- 4. Food Processing** — Serves as a specialized additive for the clarification of various food products to ensure clarity and consistency.

STORAGE & HANDLING

Proper storage is critical because Aluminum Sulfate is corrosive to metals, meaning it must be stored in compatible, non-reactive containers to prevent containment failure. Additionally, adhering to strict storage protocols ensures the safety of personnel, as the material causes severe skin burns and eye damage upon contact.

- Store in a cool, dry place away from direct sunlight.
- Use materials compatible with aluminum sulfate, such as HDPE or glass containers.
- Avoid contact with strong acids and bases to prevent hazardous reactions.
- Ensure proper ventilation when handling to avoid inhalation of vapors.

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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