



TECHNICAL DATA SHEET (TDS)

Poly Aluminum Chloride (PAC)

Product: Poly Aluminum Chloride

Supplier: Basekim

Website: www.basekim.com

Available Grades: Industrial PAC 28% and PAC 30% Powder

Document Status: Typical commercial specifications — subject to grade and batch verification

1. Product Identification

Parameter	Description
Chemical Name	Poly Aluminum Chloride
Common Name	PAC
Synonyms	Polyaluminium Chloride, Polyaluminum Chloride
CAS Number	1327-41-9
EC Number	215-477-2
General Formula	$Al_n(OH)_mCl_{(3n-m)}$
Product Category	Inorganic Polymer Coagulant
Product Form	Powder
Commercial Grades	28% and 30% Al_2O_3
Primary Application	Water and Wastewater Treatment



2. Technical Specifications

The following table represents typical industrial powder grades available in the commercial PAC market.

Parameter	PAC 28% Powder	PAC 30% Powder
Appearance	Yellow Powder	Light Yellow to Yellow Powder
Al ₂ O ₃ Content	≥28.0%	≥30.0%
Basicity	50–90%	40–90%
pH (1% Aqueous Solution)	3.5–5.0	3.5–5.0
Water Insoluble Matter	≤1.5%	≤0.5–1.5%, grade-dependent
Iron Content (Fe)	Grade-dependent	Grade-dependent
Arsenic (As)	Confirm by COA	Confirm by COA
Lead (Pb)	Confirm by COA	Confirm by COA
Cadmium (Cd)	Confirm by COA	Confirm by COA
Mercury (Hg)	Confirm by COA	Confirm by COA
Chromium (VI)	Confirm by COA	Confirm by COA
Solubility	Readily Soluble in Water	Readily Soluble in Water
Odor	Normally Odorless	Normally Odorless
Physical Form	Solid Powder	Solid Powder

Specification note: These ranges describe common market products and do not represent guaranteed Basekim release limits. The final approved product specification and batch Certificate of Analysis determine contractual acceptance criteria.

3. Product Description

Poly Aluminum Chloride is an inorganic coagulant that supports suspended-particle destabilization, floc formation, and solid-liquid separation.

The chemical contains polymerized aluminum species that interact with suspended colloids and other impurities.

PAC offers treatment plants a practical option for controlling turbidity, supporting clarification, and reducing particulate loading on downstream filtration systems.



Different grades provide different aluminum oxide concentrations, basicity levels, and impurity profiles.

Consequently, operators should evaluate the required formulation according to their water chemistry and process conditions.

4. Main Industrial Applications

Industry	Application
Municipal Water Treatment	Turbidity and suspended solids removal
Industrial Wastewater	Coagulation and clarification
Textile Industry	Effluent color and particle reduction
Paper and Pulp	Wet-end chemistry and retention applications
Mining Industry	Mineral suspension clarification
Food Processing	Industrial wastewater treatment
Chemical Manufacturing	Effluent clarification
Municipal Sewage	Chemical phosphorus removal
Water Recycling	Pretreatment and filtration support

PAC can serve both industrial and municipal applications. However, potable-water treatment requires an appropriately certified and compliant grade.

5. Key Performance Characteristics

Coagulation Efficiency

PAC destabilizes suspended particles and promotes floc formation. Appropriate formulations can improve separation performance and lower treated-water turbidity.

Aluminum Concentration

Powder PAC typically contains a higher concentration of aluminum oxide equivalent than many liquid formulations, which can simplify long-distance transportation.

Basicity Control

Basicity influences coagulation chemistry, pH behavior, and alkalinity consumption.

Higher basicity does not automatically guarantee better performance in every water treatment application.



Compatibility With Existing Treatment Systems

Treatment facilities can evaluate PAC for use in conventional coagulation, sedimentation, dissolved air flotation, and filtration processes.

Engineers must confirm suitable dosage, chemical compatibility, and process performance.

6. Recommended Application and Dosage

PAC dosage depends on the characteristics of the water being treated.

Relevant factors include:

- Initial turbidity and suspended solids
- Water pH and alkalinity
- Organic matter concentration
- Phosphorus content
- Operating temperature
- Selected PAC basicity and concentration
- Target treated-water quality

Recommended procedure: Determine the optimum dosage through laboratory jar testing and confirm the result under actual plant operating conditions.

No universal PAC dosage applies to every water treatment system.

Preparation of PAC Solution

Operators can prepare powder PAC solutions for controlled chemical dosing.

A general preparation procedure includes:

1. Fill a suitable mixing tank with an appropriate quantity of clean water.
2. Start mechanical agitation.
3. Add the required powder gradually to reduce clumping and dust generation.
4. Continue mixing until the soluble fraction has dissolved adequately.
5. Inspect the solution for undissolved matter.
6. Adjust the solution concentration according to the dosing equipment and process requirements.



A **10% w/w PAC powder solution** contains 10 kg of commercial powder in 100 kg of final prepared solution.

This concentration does not equal 10% Al_2O_3 . For example, a 10% solution prepared from 30% Al_2O_3 powder contains approximately 3% Al_2O_3 equivalent by mass.

Use compatible pumps, storage tanks, and dosing lines.

7. Quality Control and Testing Methods

Test Parameter	Common Analytical Approach
Al_2O_3 Content	Complexometric titration or validated equivalent
Basicity	Acid-base titration
pH	Calibrated pH meter
Water Insoluble Matter	Gravimetric determination
Iron Content	Suitable spectrometric or validated chemical method
Heavy Metals	ICP-MS, ICP-OES, AAS, or applicable validated methods
Appearance	Visual inspection
Dissolution Behavior	Controlled laboratory dissolution assessment

Laboratories should use the analytical procedures required by the purchase specification, applicable standard, or agreed quality-control program.

8. Packaging Information

Packaging	Description
25 kg Bags	Typical industrial powder packaging
Palletized Bags	Suitable for container shipments
Jumbo Bags	Available subject to grade and supplier confirmation
Container Loading	Determined by packaging, equipment, and transport limits

Packaging should protect the powder from moisture and contamination.

9. Storage Conditions

Store Poly Aluminum Chloride in dry, well-ventilated facilities.

Keep packaging sealed and protect the product from rainfall, excessive humidity, and direct sunlight.



Avoid direct contact with incompatible chemicals.

Use suitable warehouse handling practices to prevent packaging damage and product contamination.

Shelf Life: Common commercial grades may specify approximately 12–24 months under appropriate storage conditions. Confirm the shelf life and expiry date for the actual supplied grade and batch.

10. Safety and Handling

Personnel should follow the approved Safety Data Sheet when handling PAC powder.

Recommended precautions include:

- Wear chemical-resistant gloves and protective eyewear.
- Avoid direct contact with eyes and skin.
- Minimize dust exposure.
- Provide suitable ventilation in chemical preparation areas.
- Keep eyewash facilities readily accessible.
- Use compatible chemical transfer and dosing equipment.

PAC solutions may damage incompatible construction materials.

11. Environmental Considerations

Water treatment facilities use PAC to improve clarification and separate suspended matter from water.

However, concentrated chemical releases can alter environmental pH and affect aquatic organisms.

Operators should control chemical dosing, residual aluminum, sludge generation, and waste disposal according to their treatment requirements.



12. Commercial Supply Information

Parameter	Details
Product	Poly Aluminum Chloride
Grade	Industrial PAC 28% / PAC 30%
Supply Type	Industrial and Bulk Supply
Packaging	25 kg Bags / Other Options on Request
Order Quantity	Subject to Quotation
Delivery Terms	Subject to Commercial Agreement
Documentation	SDS, TDS, and COA as applicable
Supplier	Basekim
Website	www.basekim.com

13. Product Selection Recommendations

Industrial customers should consider the following points before selecting a grade:

PAC 28%: Suitable for general industrial wastewater clarification where the specified concentration and impurity profile meet treatment requirements.

PAC 30%: Suitable for buyers who require a higher aluminum oxide equivalent concentration and compatible performance characteristics.

Low-impurity PAC: Buyers serving regulated applications should request a formulation with the appropriate impurity specifications and supporting certification.

The final grade selection should follow jar testing, document review, and commercial evaluation.

14. Disclaimer

The information in this Technical Data Sheet summarizes typical properties of commercial Poly Aluminum Chloride powder grades.

Actual product specifications may vary by manufacturer, manufacturing process, and production batch.

The supplier must confirm all guaranteed values through the approved grade specification and Certificate of Analysis before commercial release.