



## MATERIAL SAFETY DATA SHEET (MSDS)

### Poly Aluminum Chloride (PAC)

**Product:** Poly Aluminum Chloride (PAC)

**Supplier:** Basekim

**Product Form:** Industrial-grade powder (28–30%  $\text{Al}_2\text{O}_3$ )

**Document Status:** Technical draft — pending supplier verification

#### SECTION 1: Identification of the Substance and Supplier

| Parameter           | Information                                                            |
|---------------------|------------------------------------------------------------------------|
| Product Name        | Poly Aluminum Chloride                                                 |
| Abbreviation        | PAC                                                                    |
| Synonyms            | Polyaluminium Chloride, Polyaluminum Chloride, Basic Aluminum Chloride |
| CAS Number          | 1327-41-9 (common representative identifier)                           |
| EC Number           | 215-477-2                                                              |
| General Formula     | $\text{Al}_n(\text{OH})_m\text{Cl}_{(3n-m)}$                           |
| Product Type        | Inorganic polymer coagulant                                            |
| Physical Form       | Powder                                                                 |
| Recommended Use     | Water and wastewater treatment                                         |
| Supplier            | Basekim                                                                |
| Emergency Telephone | To be supplied for the destination market                              |

**Identified applications:** Municipal water clarification, industrial wastewater treatment, textile effluent processing, paper manufacturing, and sludge treatment.

**Restrictions:** Do not use this industrial grade in drinking-water systems unless the specific product meets applicable regulatory and certification requirements.



## SECTION 2: Hazard Identification

### Representative GHS Classification

Relevant PAC SDS references identify the following hazards:

| Hazard Class        | Category   | Hazard Statement                 |
|---------------------|------------|----------------------------------|
| Serious Eye Damage  | Category 1 | H318: Causes serious eye damage  |
| Corrosive to Metals | Category 1 | H290: May be corrosive to metals |

**Signal Word:** Danger

**GHS Pictogram:** GHS05 — Corrosion

The issuing supplier must confirm whether both classifications apply to the specific powder formulation.

### Precautionary Statements

- P234: Keep only in original packaging.
- P280: Wear protective gloves, protective clothing, eye protection, and face protection.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310: Immediately call a POISON CENTER or doctor.
- P390: Absorb spillage to prevent material damage.
- P406: Store in a corrosion-resistant container with a resistant inner liner.
- P501: Dispose of contents and containers according to applicable regulations.

**Potential exposure effects:** Dust may irritate the respiratory tract. Contact with moist product or solutions may irritate skin. Direct eye exposure may cause severe injury.

## SECTION 3: Composition and Information on Ingredients

| Component                                        | CAS Number      | Description                                      |
|--------------------------------------------------|-----------------|--------------------------------------------------|
| Basic Aluminum Chloride / Polyaluminium Chloride | 1327-41-9       | Principal inorganic polymeric aluminum coagulant |
| Water / Hydration Content                        | 7732-18-5       | Varies with formulation                          |
| Other Constituents                               | Grade-dependent | Chloride, residual salts, and trace impurities   |



**Commercial concentration:** Approximately 28–30%  $\text{Al}_2\text{O}_3$  equivalent by mass.

The stated  $\text{Al}_2\text{O}_3$  percentage represents an analytical expression of aluminum content. It does not indicate that the product contains 28–30% free aluminum oxide.

Confirm full compositional and impurity information with the manufacturer.

## SECTION 4: First Aid Measures

### Eye Contact

Immediately flush the eyes with clean running water for at least 15 minutes. Remove contact lenses when possible. Continue rinsing and seek immediate medical attention.

### Skin Contact

Remove contaminated clothing. Wash exposed skin thoroughly with water. Seek medical advice if irritation persists or symptoms develop.

### Inhalation

Move the affected person into fresh air. Keep the person comfortable and monitor breathing. Obtain medical attention if coughing, breathing difficulty, or irritation persists.

### Ingestion

Rinse the mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical advice promptly.

**Most important symptoms:** Eye damage, irritation, coughing, and gastrointestinal discomfort.

**Treatment:** Provide supportive treatment according to symptoms and the attending physician's assessment.

## SECTION 5: Firefighting Measures

**Flammability:** PAC powder normally does not support combustion.

**Suitable extinguishing media:** Select water spray, foam, dry chemical powder, or carbon dioxide according to the surrounding fire.



**Unsuitable extinguishing media:** No product-specific exclusion established; avoid firefighting methods that spread contaminated material.

**Hazardous decomposition:** Intense heating may release hydrogen chloride and other irritating decomposition products.

**Firefighter protection:** Wear appropriate protective clothing and self-contained breathing apparatus where fire or decomposition gases create exposure risks.

Prevent contaminated firefighting runoff from entering drains and natural water bodies.

## SECTION 6: Accidental Release Measures

### Personal Precautions

Restrict access to the affected area. Wear suitable protective gloves, goggles, and respiratory protection where dust exposure warrants it.

### Environmental Precautions

Prevent concentrated material from entering storm drains, groundwater, rivers, and soil.

### Cleanup Methods

1. Minimize airborne dust.
2. Collect spilled powder using suitable mechanical equipment or vacuum methods.
3. Transfer recovered material into labeled, compatible containers.
4. Avoid uncontrolled discharge of wash water.
5. Dispose of contaminated material according to local regulations.

Large spills require appropriate environmental and site-safety procedures.

## SECTION 7: Handling and Storage

### Safe Handling

Avoid direct eye and skin contact. Minimize dust generation during bag opening, mixing, and chemical transfer.

Use suitable mechanical handling equipment and maintain effective ventilation.

Wash exposed skin after handling. Keep food and beverages away from chemical handling areas.



## Storage Conditions

- Store in a cool, dry, ventilated warehouse.
- Keep bags tightly sealed.
- Protect the material from moisture, rain, and direct sunlight.
- Separate the product from incompatible chemicals.
- Use chemically compatible storage surfaces and containers.
- Prevent damage to pallets and packaging.

Avoid prolonged exposure to humid conditions because moisture can cause caking and affect handling performance.

## SECTION 8: Exposure Controls and Personal Protection

### Engineering Controls

Provide ventilation and appropriate dust-control equipment in areas where workers open bags, prepare solutions, or transfer powder.

Provide accessible eyewash equipment and emergency washing facilities.

### Personal Protective Equipment

| Protection Type        | Recommendation                                                                                     |
|------------------------|----------------------------------------------------------------------------------------------------|
| Eye Protection         | Chemical safety goggles; face shield where splashing is possible                                   |
| Hand Protection        | Suitable chemical-resistant gloves                                                                 |
| Skin Protection        | Protective workwear and suitable footwear                                                          |
| Respiratory Protection | Appropriate particulate respiratory protection when dust controls cannot adequately limit exposure |
| Hygiene                | Wash hands and contaminated skin after handling                                                    |

**Occupational exposure limits:** Confirm applicable local limits for inhalable or respirable nuisance dust and any formulation-specific constituents.



## SECTION 9: Physical and Chemical Properties

| Property                  | Typical Information                                           |
|---------------------------|---------------------------------------------------------------|
| Appearance                | White, cream, or yellow powder                                |
| Odor                      | Usually odorless                                              |
| Physical State            | Solid                                                         |
| pH (1% Aqueous Solution)  | Approximately 3.5–5.0                                         |
| Solubility                | Readily soluble in water; insoluble residue varies            |
| Flammability              | Generally non-combustible                                     |
| Flash Point               | Not applicable to the inorganic solid                         |
| Explosive Properties      | Not expected to be explosive                                  |
| Oxidizing Properties      | Not classified as an oxidizer in typical formulations         |
| Melting Point             | No single defined value for commercial PAC                    |
| Boiling Point             | Not applicable to the commercial powder as a single substance |
| Bulk Density              | Grade and particle-size dependent                             |
| Decomposition Temperature | Product-specific data required                                |
| Vapor Pressure            | Not relevant under normal solid-handling conditions           |

The issuing supplier must verify physical-property values for the marketed grade.

## SECTION 10: Stability and Reactivity

**Reactivity:** PAC solutions have acidic characteristics and may react with incompatible materials.

**Chemical Stability:** Normally stable under recommended storage conditions.

**Hazardous Reactions:** Contact with incompatible alkaline substances can cause precipitation, heat generation, or changes in solution chemistry.

**Conditions to Avoid:** Excessive heat, moisture exposure, damaged packaging, and uncontrolled contact with incompatible chemicals.

**Incompatible Materials:** Strong alkalis and materials that react adversely with acidic aluminum salt solutions. Verify compatibility with metals and storage equipment.

**Hazardous Decomposition Products:** Heating to decomposition may release hydrogen chloride and irritating fumes.



## SECTION 11: Toxicological Information

**Likely Exposure Routes:** Eye contact, skin contact, inhalation of dust, and accidental ingestion.

**Acute Toxicity:** Product-specific quantitative toxicity information requires verification.

**Eye Damage:** Certain PAC formulations carry serious-eye-damage classification.

**Skin Effects:** Prolonged exposure to powder or solution may cause irritation.

**Inhalation Effects:** Airborne dust may irritate the nose, throat, and respiratory system.

**Sensitization:** No formulation-specific conclusion available.

**Mutagenicity:** Insufficient formulation-specific information to determine classification.

**Carcinogenicity:** No formulation-specific classification established in this draft.

**Reproductive Toxicity:** Verify through the manufacturer's toxicological assessment.

**Repeated Exposure:** Avoid repeated uncontrolled dust exposure.

Absence of data must not be interpreted as evidence of no hazard.

## SECTION 12: Ecological Information

**Aquatic Effects:** Large releases can change water chemistry, reduce pH, and increase aluminum exposure.

**Persistence and Degradability:** Conventional biodegradation criteria do not directly apply to inorganic aluminum salts.

**Bioaccumulation:** The behavior of aluminum depends strongly on environmental pH and chemical form.

**Mobility:** Dissolved aluminum species can transform or precipitate after environmental release.

**Environmental Precautions:** Prevent uncontrolled discharge into rivers, lakes, soil, and drainage systems.



The use of PAC in controlled wastewater treatment does not authorize direct environmental disposal of concentrated product.

### SECTION 13: Disposal Considerations

Dispose of waste according to applicable local and national regulations.

Collect unused product and contaminated absorbents in compatible, properly labeled containers.

Use authorized waste-management contractors when necessary.

Do not discharge concentrated PAC into drains or natural waterways.

Recycle empty packaging only after an appropriate assessment and decontamination procedure.

### SECTION 14: Transport Information

Transport classification depends on the actual product formulation and applicable regulations.

Some published SDS references list certain PAC formulations as non-dangerous goods under ADR/RID, IMDG, and IATA.

| Transport Parameter     | Status                               |
|-------------------------|--------------------------------------|
| UN Number               | Requires grade-specific confirmation |
| Proper Shipping Name    | Requires grade-specific confirmation |
| Transport Hazard Class  | Requires grade-specific confirmation |
| Packing Group           | Requires grade-specific confirmation |
| Marine Pollutant Status | Requires grade-specific confirmation |
| ADR / RID               | Verify current product SDS           |
| IMDG                    | Verify current product SDS           |
| IATA                    | Verify current product SDS           |

**Special Precautions:** Protect packaging against moisture, tearing, and leakage. Secure the product appropriately during transportation.

The responsible shipper must confirm the final classification before dispatch.



## SECTION 15: Regulatory Information

**CAS Number:** 1327-41-9 (commonly used identifier)

**EC Number:** 215-477-2

**GHS / CLP Classification:** Confirm against the exact marketed grade.

**EU REACH:** Check applicable registration and supply-chain requirements.

**Drinking-Water Requirements:** Confirm conformity with relevant national regulations and applicable standards when supplying treatment chemicals for potable water.

**Chemical Inventory Status:** Verify the destination country's chemical inventory and import requirements before shipment.

The supplier must assess country-specific labeling, classification, notification, and documentation obligations.

## SECTION 16: Other Information

**Document Title:** Material Safety Data Sheet — Poly Aluminum Chloride (PAC)

**Supplier:** Basekim

**Prepared:** October 2026

**Version:** Draft 1.0

**Document Status:** Pending formulation-specific review and approval

### Hazard Statement Reference

- H290: May be corrosive to metals.
- H318: Causes serious eye damage.