SAFETY DATA SHEET

POLY ALUMINIUM CHLORIDE (PAC)

CAS No.: 1327-41-9

This Safety Data Sheet is issued by Suraj Chemicals as the distributor/supplier of record, based on manufacturer and published GHS / regulatory reference data for this substance. Users should also consult the specific manufacturer's SDS where available.

1. IDENTIFICATION

GHS Product identifier

POLY ALUMINIUM CHLORIDE (PAC)
PAC; Aluminium chlorohydrate (polymeric); Basic aluminium chloride – liquid grade
CAS: 1327-41-9

Other means of identification

Not relevant

Recommended use of the chemical and restrictions on use

Relevant uses: Primary coagulant for potable water treatment, industrial and municipal wastewater treatment, paper sizing. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

Supplier's details

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Skin Irrit. 2	Skin irritation, Category 2, H315
Eye Dam. 1	Serious eye damage, Category 1, H318

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

Skin Irrit. 2: H315 – Causes skin irritation.
Eye Dam. 1: H318 – Causes serious eye damage.

Precautionary statements

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye protection/face protection.
P302+P352: IF ON SKIN: Wash with plenty of water.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313: If skin irritation occurs, get medical advice/attention.
P501: Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification

Mildly acidic liquid; may be corrosive to certain metals over prolonged contact.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Poly aluminium chloride (basic aluminium chloride polymer), aqueous liquid

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 1327-41-9	Poly aluminium chloride — Skin Irrit. 2: H315; Eye Dam. 1: H318 – Warning	approx. 10% Al_2O_3 (liquid grade; exact assay available on request)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

Mixtures

Non-applicable

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product.

By inhalation
Remove person to fresh air. Seek medical attention if symptoms occur or persist.

By skin contact
Remove contaminated clothing. Wash affected skin with plenty of water. Seek medical attention if irritation persists.

By eye contact
Rinse eyes immediately with plenty of water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek immediate medical attention.

By ingestion/aspiration
Rinse mouth with water. Give water to drink if conscious. Seek medical attention if discomfort occurs or persists.

Most important symptoms/effects, acute and delayed

Acute and delayed effects are indicated in sections 2 and 11.

Indication of immediate medical attention and special treatment needed, if necessary

Not relevant

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray, carbon dioxide (CO2), dry chemical powder, foam – use extinguishing media suitable for surrounding fire. Product itself is non-combustible.
Unsuitable: None known specifically.

Specific hazards arising from the chemical

Non-combustible aqueous liquid. Not expected to contribute significantly to a fire.

Special protective actions for fire-fighters

Wear standard fire-fighting protective equipment and, if in an enclosed space, self-contained breathing apparatus (SCBA).

Additional provisions
If safe to do so, remove exposed containers or cool with water spray from a safe distance. Prevent fire-fighting water from entering drains or watercourses; contain and collect for disposal.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Evacuate area if large spill. Avoid slipping hazard. Ensure adequate ventilation. Use appropriate PPE (see section 8).

For emergency responders
Wear standard chemical-resistant protective equipment for large spills.

Environmental precautions

Prevent entry into drains, sewers and watercourses; may affect pH and cause aluminium hydroxide precipitation in receiving water.

Methods and materials for containment and cleaning up

Contain spill with inert absorbent (sand, earth) or bunding. Collect for disposal or, where permitted, recover for reuse. Wash residual area with water.

Reference to other sections

See sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling

A. General precautions for safe use
Avoid contact with skin and eyes. Avoid contact with incompatible materials (see section 10.5).

B. Technical recommendations for the prevention of fires and explosions
Non-combustible; standard precautions apply.

C. Technical recommendations on general occupational hygiene
Wash hands and exposed skin after handling.

D. Technical recommendations to prevent environmental risks
Prevent uncontrolled discharge to drains and watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Storage temperature	5–35°C (avoid freezing, which may cause irreversible gelling/precipitation)
Maximum time	6–12 months in original sealed packaging

B. General conditions for storage
Store in a cool, dry, well-ventilated place in corrosion-resistant containers/tanks (HDPE, FRP, or rubber-lined). Avoid contact with carbon steel and other reactive metals. Keep container tightly closed.

Specific end use(s)

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

No specific occupational exposure limit has been established for this product/grade. Available on request.

Appropriate engineering controls

General ventilation is normally adequate for routine handling of this liquid product.

B. Respiratory protection
Not normally required under normal conditions of use with adequate ventilation.

C. Specific protection for the hands
Chemical-resistant gloves (e.g., nitrile or PVC) recommended for prolonged or repeated contact.

D. Eye and face protection
Chemical safety goggles recommended; face shield for operations with splash risk.

E. Bodily protection
Protective apron for operations with splash risk.

F. Additional emergency measures
Emergency eyewash station and safety shower should be available in the work area.

Environmental exposure controls
Avoid environmental spillage of both the product and its container. See subsection 7.1.D.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	
Physical state at 20°C	Liquid
Appearance	Clear to slightly turbid liquid
Color	Pale yellow to amber/brown
Odor	Slight/odorless
Odour threshold	Not relevant
Volatility	
Boiling point	>100°C (aqueous solution)
Vapour pressure at 20°C	Similar to water
Evaporation rate	Similar to water
Product Description	
Density / Relative density at 20°C	approx. 1.18–1.22 g/cm³
pH (as supplied)	approx. 3.0–5.0
Solubility in water	Miscible in all proportions
Basicity	approx. 40–90% (grade dependent) – specific product datasheet available on request
Freezing point	approx. 0 to -5°C (grade dependent)
Flammability	
Flash Point	Non-applicable (aqueous solution)
Flammability	Not flammable

** Not relevant / not applicable due to the physical nature of the product.*

Other information

Explosive properties	Not explosive
Oxidising properties	Not oxidising
Corrosive to metals	Mildly corrosive to carbon steel over prolonged exposure
Al_2O_3 content	Available on request (grade dependent, typically 10–18%)

10. STABILITY AND REACTIVITY

Reactivity

Reacts with strong bases (precipitates aluminium hydroxide) and may react with strong oxidizers/reducing agents. Corrosive to certain metals.

Chemical stability

Chemically stable under recommended storage conditions; avoid freezing, which can cause irreversible polymer degradation/precipitation.

Possibility of hazardous reactions

Under normal conditions of storage, handling and use, hazardous reactions are not expected.

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Stable	No special sensitivity within recommended range	No special sensitivity	Not applicable – aqueous liquid

Incompatible materials

Strong Bases	Strong Oxidizers
Carbon Steel (prolonged contact)	Strong Reducing Agents

Hazardous decomposition products

Not expected under normal conditions of use and storage.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect)
May cause mild gastrointestinal discomfort if swallowed in quantity; not expected to be acutely toxic.

B. Inhalation (acute effect)
Not expected to be harmful by inhalation under normal conditions of use (low volatility liquid); mist may cause mild irritation.

C. Contact with skin and eyes (acute effect)
Causes skin irritation. Causes serious eye damage.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity)
Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data.

E. Sensitizing effects
Not classified as a skin or respiratory sensitizer based on available data.

F. Specific target organ toxicity (STOT) – single exposure
Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure
Classification criteria are not met based on available data.

H. Aspiration hazard
Classification criteria are not met based on available data.

Product-specific toxicological information

Identification	Acute Toxicity	Species
Poly aluminium chloride CAS: 1327-41-9	LD50 oral (rat): >5000 mg/kg (practically non-toxic)	Rat

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment based on available data; elevated concentrations may affect pH and aluminium levels in receiving water.

Toxicity

Acute Toxicity	Species	Genus
LC50 (fish): >100 mg/L (96h), practically non-toxic	Not specified	Fish
EC50 (Daphnia): >100 mg/L (48h)	Daphnia magna	Crustacean

Persistence and degradability

Not applicable – inorganic polymer; hydrolyzes to aluminium hydroxide, a naturally occurring, low-solubility species.

Bioaccumulative potential

Not applicable – inorganic, does not bioaccumulate.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Low	Not relevant	No	Precipitates as aluminium hydroxide in neutral/moist soil

Results of PBT and vPvB assessment

Non-applicable – not assessed as a PBT/vPvB substance (inorganic polymer).

Other adverse effects

Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralize if necessary and dispose of via a licensed effluent/hazardous waste contractor, or recover for reuse where feasible, in accordance with local regulations. Do not discharge directly to drains or watercourses without treatment as permitted by local Pollution Control Board norms.

Refer to national and local regulations on waste management (Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, as amended).

14. TRANSPORT INFORMATION

This product is not classified as a dangerous good for transport under ADR/RID, IMDG, or IATA/ICAO regulations in its supplied form/concentration.

14.1 UN number	Not applicable – not regulated
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996
Public Liability Insurance Act, 1991

16. OTHER INFORMATION

Legislation related to safety data sheets

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3

H315: Causes skin irritation.
H318: Causes serious eye damage.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification and labelling data for the substance/CAS number referenced in Section 1.

Abbreviations and acronyms

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | COD: Chemical Oxygen Demand | BOD5: 5-day biochemical oxygen demand | BCF: Bioconcentration factor | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Log-POW: Octanol-water partition coefficient | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

Disclaimer: The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

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