SAFETY DATA SHEET

POLY ALUMINIUM CHLORIDE — VIKRAM BRAND LIQUID GRADES

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) – VIKRAM BRAND LIQUID GRADES
Polyaluminium Chloride Solution; Basic Aluminium Chloride Polymer

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 plants, industrial process water and wastewater/effluent clarification, and 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).

Eye Irrit. 2	Eye irritation, Category 2, H319
Skin Irrit. 2	Skin irritation, Category 2, H315

GHS label elements, including precautionary statements

GHS: Warning

Hazard statements

Eye Irrit. 2: H319 – Causes serious eye irritation.
Skin Irrit. 2: H315 – Causes skin irritation.

Precautionary statements

P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/eye 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.
P337+P313: If eye irritation persists: 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 some metals on prolonged contact (see section 9.2). Not a PBT/vPvB substance.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substances

Chemical description: Poly Aluminium Chloride, aqueous solution

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 – Eye Irrit. 2: H319; Skin Irrit. 2: H315	Al2O3 content typically 10–18% w/w (liquid grade dependent – available on request for the specific grade supplied)
CAS: 7732-18-5	Water – Not classified	Balance

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

Mixtures

Non-applicable (single-substance aqueous solution)

4. FIRST AID MEASURES

Description of necessary first-aid measures

Request medical assistance immediately, showing the SDS of this product, if symptoms occur or persist.

By inhalation

Remove the person affected to fresh air and keep at rest.

By skin contact

Remove contaminated clothing. Wash skin thoroughly with plenty of water and soap. Seek medical attention if irritation persists.

By eye contact

Rinse eyes thoroughly with lukewarm 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 the person is conscious. Do not induce vomiting. Seek medical advice.

Most important symptoms/effects, acute and delayed

Eye and skin irritation. See sections 2 and 11.

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

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Suitable: Water spray, foam, dry chemical powder, carbon dioxide – product is a non-flammable aqueous solution; choose media appropriate to surrounding fire.
Unsuitable: None known

Specific hazards arising from the chemical

Not flammable, not explosive. Contact with certain metals (see section 10.5) may slowly generate hydrogen gas.

Special protective actions for fire-fighters

Wear self-contained breathing apparatus and full protective clothing in case of surrounding fire. Cool fire-exposed containers with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Use appropriate PPE (see Section 8). Avoid contact with skin and eyes.

For emergency responders

Wear protective equipment. Ventilate the area.

Environmental precautions

Prevent entry into drains, watercourses and soil. Neutralize before discharge if necessary.

Methods and materials for containment and cleaning up

Contain spill with sand/inert absorbent (avoid reactive metal-lined absorbents), collect into a labelled container for disposal/reuse. Do not flush concentrated product to drain.

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 eyes and skin. Keep containers closed when not in use. Avoid contact with reactive metals (aluminium, zinc, mild steel) – slow hydrogen evolution may occur.

B. Technical recommendations for the prevention of fires and explosions

Non-flammable aqueous product; ensure adequate ventilation of tank/dosing areas as a precaution against hydrogen accumulation if stored long-term in reactive-metal tanks.

C. Technical recommendations on general occupational hygiene

Do not eat, drink or smoke while handling. Wash hands after handling.

D. Technical recommendations to prevent environmental risks

Provide bunding for bulk storage tanks. Prevent product from entering drains or watercourses.

Conditions for safe storage, including any incompatibilities

A. Specific storage requirements

Minimum Temp.	5°C (avoid freezing)
Maximum Temp.	35°C
Maximum time (unopened, original packaging)	6 Months

B. General conditions for storage

Store in acid-resistant, non-metallic tanks (HDPE/FRP/rubber-lined) in a cool, well-ventilated area, protected from freezing. Do not store in unlined mild steel, galvanized or aluminium containers.

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 is established for PAC under the Factories Act, 1948. Aluminium compounds (soluble salts, as Al) commonly referenced OEL: 2 mg/m³ TWA (respirable fraction, per ACGIH-type guidance).

Appropriate engineering controls

General ventilation is normally sufficient for handling the liquid. Consult manufacturer's leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection

Not normally required under normal conditions of use.

C. Specific protection for the hands

Chemical-resistant gloves (nitrile, PVC or rubber).

D. Eye and face protection

Chemical splash goggles.

E. Bodily protection

Chemical-resistant apron/coveralls; acid-resistant footwear.

F. Additional emergency measures

Eyewash station and safety shower should be available.

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	Viscous liquid
Color	Pale yellow to yellowish-brown
Odor	Odorless / slight
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	≈100°C (water-based)
Vapour pressure at 20°C / 50°C	≈ that of water
Evaporation rate at 20°C	≈ that of water
Product Description	
Density / Relative density at 20°C	Approx. 1.19–1.22 g/cm³
Dynamic / Kinematic viscosity	Approx. 10–50 mPa·s at 20°C (grade dependent)
Concentration	Al2O3: 10–18% w/w (grade dependent)
pH (as supplied, 1% solution)	Approx. 3.5–5.0
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not relevant (inorganic salt)
Solubility in water at 20°C	Fully miscible
Decomposition temperature	Not established for this grade
Melting point/freezing point	≈0°C to -5°C (avoid freezing)
Flammability	
Flash Point	Non-applicable (aqueous solution)
Flammability (solid, gas)	Non-applicable
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Non-applicable (liquid)

** Not relevant due to the nature of the product, not providing information on the properties of its hazards.*

Other information

Explosive properties	Not explosive
Oxidising properties	Not an oxidizer
Corrosive to metals	May be mildly corrosive to unprotected mild steel, galvanized steel and aluminium on prolonged contact due to acidity
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

10. STABILITY AND REACTIVITY

Reactivity Reacts with strong alkalis (forms aluminium hydroxide precipitate). May slowly react with reactive metals (aluminium, zinc, mild steel) to release hydrogen gas.

Chemical stability Chemically stable under the indicated conditions of storage, handling and use. Avoid freezing, which can cause irreversible precipitation/phase separation.

Possibility of hazardous reactions Slow hydrogen gas generation is possible in prolonged contact with reactive metals in poorly ventilated confined storage (see section 7.2.B).

Conditions to avoid

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid prolonged high heat	Not applicable	Not applicable (aqueous)

Incompatible materials

Strong Alkalis	Reactive Metals (Al, Zn, unprotected MS)	Strong Oxidizers
Avoid contact (precipitation reaction)	Avoid contact (hydrogen evolution)	Avoid contact

Hazardous decomposition products Thermal decomposition may release hydrogen chloride gas.

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)
Low acute oral toxicity. May cause gastrointestinal discomfort if swallowed in quantity.

B. Inhalation (acute effect)
Mist may cause irritation of the respiratory tract.

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

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
Classification criteria for respiratory or skin sensitisation are not met 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	Genus
Poly Aluminium Chloride CAS: 1327-41-9	LD50 oral: >2000 mg/kg	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

12. ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under standard GHS acute/chronic criteria for basic aluminium chloride salts at normal use dilutions, though elevated aluminium concentrations can be toxic to aquatic life, particularly at low pH.

Toxicity

Acute Toxicity	Species	Genus
LC50: >100 mg/L (96h) (class data)	Non-applicable	Fish
EC50: >100 mg/L (48h) (class data)	Non-applicable	Crustacean

Persistence and degradability
Inorganic salt; biodegradability testing not applicable. Hydrolyses in water to form aluminium hydroxide.

Bioaccumulative potential
Not expected to bioaccumulate.

Mobility in soil

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Low mobility	Low mobility (precipitates as hydroxide)

Results of PBT and vPvB assessment
Non-applicable (inorganic substance)

Other adverse effects
Not described

13. DISPOSAL CONSIDERATIONS

Disposal methods

Neutralize with lime/soda ash if necessary before disposal, or dispose of as per local industrial waste/effluent regulations. Do not discharge undiluted product to drains.

Refer to national and local regulations on waste management.

14. TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023)

14.1 UN number	Not regulated as dangerous goods
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

Transport of dangerous goods by sea (IMDG 41-22)

14.1 UN number	Not regulated as dangerous goods
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	Non-applicable
14.5 Marine pollutant	No
14.6 Special precautions for user	Not regulated
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024)

14.1 UN number	Not regulated as dangerous goods
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	Not regulated
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 (India)
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Indian Standard IS 14001 (Poly Aluminium Chloride for water treatment)
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.
H319: Causes serious eye irritation.

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 physicochemical reference data for poly aluminium chloride (CAS 1327-41-9).

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 | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | PAC: Poly Aluminium Chloride

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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