

ALUMINIUM CHLOROHYDRATE (ACH)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

ALUMINIUM CHLOROHYDRATE (ACH)
Aluminum Chlorohydrate; Aluminium Hydroxychloride; Aln(OH)2n-1Cln (basic aluminium chloride)
CAS: 1327-41-9

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Primary coagulant for potable water treatment and industrial/effluent water clarification, paper sizing, and as a raw material for antiperspirant active manufacture. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 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
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2.2 GHS label elements, including precautionary statements:

GHS: Warning

Hazard statements:

Eye Irrit. 2: H319 – Causes serious eye irritation.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P280: Wear eye protection/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.
P337+P313: If eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/container in accordance with local regulations.

2.3 Other hazards which do not result in classification:

Fine powder may cause mechanical/nuisance dust irritation. Not a PBT/vPvB substance.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Aluminium Chlorohydrate (basic aluminium chloride, various basicity grades)
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 1327-41-9	Aluminium Chlorohydrate – Eye Irrit. 2: H319	≥95% (as Al2(OH)5Cl.2H2O basis); Al2O3 content typically 23–47% depending on grade

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

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 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. Seek medical attention if breathing difficulty occurs.

By skin contact:

Remove contaminated clothing. Wash skin thoroughly with plenty of water and soap.

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 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.

4.2 Most important symptoms/effects, acute and delayed:

Eye irritation. Dust may irritate respiratory tract. See section 11.

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

Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:
Suitable: Water spray, foam, dry chemical powder, carbon dioxide – product itself is non-combustible; choose media appropriate to surrounding fire.
Unsuitable: None known

5.2 Specific hazards arising from the chemical:
Not flammable, not explosive. The product itself will not burn.

5.3 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:
Avoid raising dust. Use appropriate PPE (see Section 8).
For emergency responders:
Wear protective equipment. Ventilate the area.

6.2 Environmental precautions:
Prevent entry into drains, watercourses and soil. Product will lower pH and flocculate/cloud water bodies if released in quantity.

6.3 Methods and materials for containment and cleaning up:
Sweep/vacuum up dry material and place in a labelled container. Contain liquid spills with sand/inert absorbent. Do not flush concentrated product to drain.

6.4 Reference to other sections:
See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:
A. General precautions for safe use:
Avoid contact with eyes. Avoid generating dust. Keep containers closed when not in use.
B. Technical recommendations for the prevention of fires and explosions:
Non-combustible – no special fire prevention measures required.
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:
Prevent product from entering drains or watercourses; provide bunding for bulk liquid storage.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	5°C (liquid grade – avoid freezing)
Maximum Temp.	35°C
Maximum time (unopened, original packaging)	12 Months (powder); 6 Months (liquid)

B. General conditions for storage:
Store in tightly closed original packaging, in a cool, dry (powder) or frost-free (liquid) well-ventilated place, away from incompatible materials.

7.3 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.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:
No specific occupational exposure limit is established for aluminium chlorohydrate under the Factories Act, 1948. General nuisance dust limits (particulates not otherwise classified) of 10 mg/m³ (total dust, 8-hr TWA) are recommended as good practice; aluminium compounds (soluble salts, as Al) commonly referenced OEL: 2 mg/m³ TWA (respirable fraction, per ACGIH-type guidance).

8.2 Appropriate engineering controls:
Use local exhaust ventilation where dust is generated. Consult manufacturer's leaflet for storage, use, cleaning and maintenance of PPE.

B. Respiratory protection:
Dust mask/filtering half-mask (FFP2) where dust generation is possible.

C. Specific protection for the hands:
Chemical-resistant gloves (nitrile or PVC).

D. Eye and face protection:
Chemical splash goggles / safety glasses with side shields.

E. Bodily protection:
Standard work clothing/coveralls.

F. Additional emergency measures:
Eyewash station should be available.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Solid (powder) or Liquid, grade dependent
Appearance	Free-flowing powder / clear to pale yellow liquid
Color	White to off-white (powder); colorless to pale yellow (liquid)
Odor	Odorless
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	Non-applicable (powder decomposes >100°C); ≈100°C (liquid, water-based)
Vapour pressure at 20°C / 50°C	Not relevant *
Evaporation rate at 20°C	Not relevant *

Product Description	
Density / Relative density at 20°C	Bulk density approx. 0.5–0.7 g/cm³ (powder); approx. 1.30–1.35 g/cm³ (liquid, 23% Al2O3 grade)
Dynamic / Kinematic viscosity	Not relevant (powder); low viscosity (liquid)
Concentration	Al2O3 content typically 23–47% w/w depending on grade – Available on request for specific grade
pH (1% aqueous 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	Readily soluble
Decomposition temperature	>200°C (powder, gradual dehydration/decomposition)
Melting point/freezing point	Non-applicable (powder decomposes); ≈0°C (liquid, avoid freezing)
Flammability	
Flash Point	Non-applicable
Flammability (solid, gas)	Non-combustible
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Available on request (grade dependent, powder form)

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

9.2 Other information:

Explosive properties	Not explosive
Oxidising properties	Not an oxidizer
Corrosive to metals	Mildly acidic solutions may be corrosive to mild steel/some metals on prolonged contact
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity:**
Not reactive under normal conditions of use. Reacts with strong alkalis (forms aluminium hydroxide precipitate) and strong acids.
- 10.2 Chemical stability:**
Chemically stable under the indicated conditions of storage, handling and use. Powder is hygroscopic.
- 10.3 Possibility of hazardous reactions:**
Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.
- 10.4 Conditions to avoid:**

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Avoid prolonged high heat	Not applicable	Avoid moisture ingress (caking, powder grade)

10.5 Incompatible materials:

Strong Alkalis	Strong Oxidizers	Reactive Metals (powder/dust, Al, Zn)
Avoid contact (precipitation reaction)	Avoid contact	Avoid contact

- 10.6 Hazardous decomposition products:**
Thermal decomposition may release hydrogen chloride gas and water vapour.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1 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):**
Dust may cause irritation of the respiratory tract.
- C. Contact with skin and eyes (acute effect):**
Causes serious eye irritation. Prolonged skin contact may cause mild 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
Aluminium Chlorohydrate CAS: 1327-41-9	LD50 oral: >5000 mg/kg	Rat
	LD50 dermal: >2000 mg/kg	Rabbit

SECTION 12: ECOLOGICAL INFORMATION

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

12.1 Toxicity:

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

12.2 Persistence and degradability:

Inorganic salt; biodegradability testing not applicable. Hydrolyses in water to form aluminium hydroxide, which is naturally present in the environment.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate.

12.4 Mobility in soil:

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

12.5 Results of PBT and vPvB assessment:

Non-applicable (inorganic substance)

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 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.

SECTION 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

SECTION 15: REGULATORY INFORMATION

15.1 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 299 (Aluminium Sulphate/Chlorohydrate for water treatment, as applicable)
Public Liability Insurance Act, 1991

SECTION 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:

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 aluminium chlorohydrate (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 | ACH: Aluminium Chlorohydrate

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.

END OF SAFETY DATA SHEET