SAFETY DATA SHEET

ALUMINIUM CHLOROHYDRATE (ACH)

CAS No.: 12042-91-0

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

ALUMINIUM CHLOROHYDRATE (ACH)
Aluminum Chlorohydrate; Aluminium Hydroxychloride; Aln(OH)2n-1Cln (basic aluminium chloride)
CAS: 12042-91-0

Other means of identification

Not relevant

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.

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

Emergency phone number

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

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

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.

Other hazards which do not result in classification

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

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: 12042-91-0	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.

Mixtures

Non-applicable

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. 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.

Most important symptoms/effects, acute and delayed

Eye irritation. Dust may irritate respiratory tract. See section 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 itself is non-combustible; choose media appropriate to surrounding fire. **Unsuitable:** None known
Specific hazards arising from the chemical	Not flammable, not explosive. The product itself will not burn.
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** Avoid raising dust. Use appropriate PPE (see Section 8). **For emergency responders** Wear protective equipment. Ventilate the area.
Environmental precautions	Prevent entry into drains, watercourses and soil. Product will lower pH and flocculate/cloud water bodies if released in quantity.
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.
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. 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.

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.

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 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).

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

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.*

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 *

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use. Reacts with strong alkalis (forms aluminium hydroxide precipitate) and strong acids.

Chemical stability

Chemically stable under the indicated conditions of storage, handling and use. Powder is hygroscopic.

Possibility of hazardous reactions

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

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)

Incompatible materials

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

Hazardous decomposition products

Thermal decomposition may release hydrogen chloride gas and water vapour.

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)
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: 12042-91-0	LD50 oral: >5000 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 aluminium salts of this class 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 for basic aluminium chloride salts)	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, which is naturally present in the environment.

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 299 (Aluminium Sulphate/Chlorohydrate for water treatment, as applicable)
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

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 12042-91-0).

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

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.

(This document is computer generated and therefore does not require any signature.)