SAFETY DATA SHEET

Usalco

Certified to NSF/ANSI/CAN 60

MUL = 250 mg/L

Issuing Date 15-May-2024 **Revision date** 02-Jul-2025 **Revision Number** 6.02

1. Identification

Product identifier

Product Name Aluminum chloride solution (Intermediate grade)

Other means of identification

Product Code(s) 3207B

UN number or ID number UN2581

Synonyms Aluminum chloride, solution; Aluminum trichloride solution, $AlCl_3*6H_2O$ solution

Recommended use of the chemical and restrictions on use

Recommended use Water and Wastewater Treatment Coagulant/Flocculant. Chemical intermediate

Restrictions on use None known.

Details of the supplier of the safety data sheet

Supplier Address
USALCO, LLC
2601 Cannery Ave.
Baltimore, MD 21226
+1-800-453-2586 Hours: Monday - Friday
9:00 - 5:00 CST (Central Standard Time)

Manufacturer Address
USALCO, LLC
2601 Cannery Ave.
Baltimore, MD 21226

Contact Point sds@usalco.com

Emergency Telephone CHEMTREC: (800) 424-9300
Outside USA - +1 (703) 527-3887 collect calls accepted

2. Hazard(s) identification

Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Corrosive to metals.	Category 1

Hazards not otherwise classified (HNOC)
Not applicable.

Label elements

DANGER

Hazard statements

Harmful if swallowed.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May be corrosive to metals.

Appearance Clear **Physical state** Liquid **Odor** No appreciable odor

Precautionary Statements - Prevention

Keep only in original packaging.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash hands, face and any exposed skin thoroughly after handling. Do not touch eyes.
Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
Specific treatment (See Section 4. First aid measures – Skin contact).
Get emergency medical help immediately.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
Get emergency medical help immediately.
Wash contaminated clothing before reuse.
Absorb spillage to prevent material damage.
Absorb spillage to prevent material damage.

Precautionary Statements - Storage

Store locked up.
Store in corrosive resistant container with a resistant inner liner.

Precautionary Statements - Disposal

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

Unknown acute toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Other information

Toxic to aquatic life with long lasting effects.

3. Composition/information on ingredients

Substance

Not applicable.

Mixture

Synonyms Aluminum chloride, solution; Aluminum trichloride solution,. $AlCl_3*6H_2O$ solution.

Chemical name	CAS No	Weight-%	Trade secret
Aluminum Chloride	7446-70-0	< 30%	*

*The exact percentage (concentration) of composition has been withheld as a trade secret. While some components are claimed as trade secret in accordance with the provision of OSHA 29 CFR 1910.1200(i), all known hazards are clearly communicated within this document.

4. First-aid measures

Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Call physician immediately.

Eye contact Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.

Ingestion Get immediate medical advice/attention. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting.

Self-protection of the first aider Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. Fire-fighting measures

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Large Fire CAUTION: Use of water spray when fighting fire may be inefficient.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous combustion products Thermal decomposition (as may be experienced in a fire) may release toxic and/or hazardous gases such as HCl and Cl_2.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. Handling and storage

Precautions for safe handling

Advice on safe handling In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Take off contaminated clothing and wash before reuse. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Protect from moisture. Store away from other materials. Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Packaging materials Store in corrosion resistant container with a resistant inner liner.

8. Exposure controls/personal protection

Control parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Aluminum Chloride	-	(vacated) TWA: 2 mg/m³ Al	TWA: 2 mg/m³ Al

7446-70-0		Aluminum	

Biological occupational exposure limits
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls Showers.
Eyewash stations.
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield. Tight sealing safety goggles.

Hand protection Impervious gloves. Wear suitable gloves.

Skin and body protection Long sleeved clothing. Chemical resistant apron. Wear suitable protective clothing.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Environmental exposure controls Do not allow liquid to enter streams or waterways.

General hygiene considerations Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	Colorless to yellow
Odor	No appreciable odor
Odor threshold	Not applicable.

Property	**Values**	**Remarks • Method**
pH	< 1	As is
Melting point / freezing point	-35 °C / (-31 °F	
Boiling point / boiling range	104 °C / (220 °F)	
Flash point	Not applicable. No data available °C / °F	
Evaporation rate	Not determined.	
Flammability (solid, gas)	Not applicable.	
Flammability Limit in Air		None known.
Upper flammability or explosive limits	Not applicable.	
Lower flammability or explosive limits	Not applicable.	
Vapor pressure	Not determined.	
Relative vapor density	Not determined.	
Relative density	1.27 - 1.29	
Water solubility	Soluble below pH 4	
Solubility(ies)		None known.
Partition coefficient	Not determined.	None known.
Autoignition temperature	Not applicable.	None known.

Decomposition temperature	Not determined.	None known.
Kinematic viscosity	Not determined.	
Dynamic viscosity	50 cps	Brookfield @ 25 °C

Other information

Explosive properties	Not an explosive.
Oxidizing properties	Not expected to be oxidizing based on the chemical structure.
VOC Content (%)	No information available
Liquid Density	10.58 - 10.75 lbs./gal.

10. Stability and reactivity

Reactivity May react with metals to release flammable hydrogen gas.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization No.

Conditions to avoid Contact with other chemicals. Avoid temperature extremes. Avoid contact with metals such as iron, brass, copper, aluminum and mild steel.

Incompatible materials Bases. Caustic. Alkalis. Oxidizing agents.

Hazardous decomposition products Thermal decomposition (as may be experienced in a fire) may release toxic and/or hazardous gases such as HCl and Cl_2.

11. Toxicological information

Information on likely routes of exposure

Product Information .

Inhalation Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. Specific test data for the substance or mixture is not available.

Eye contact (based on components). Corrosive to the eyes and may cause severe damage including blindness. Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact Corrosive. (based on components). May cause burns. Specific test data for the substance or mixture is not available.

Ingestion May cause burns. Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Specific test data for the substance or mixture is not available. (based on components).

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Coughing and/ or wheezing. Redness. Burning. May cause blindness.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 1,357.10 mg/kg

Unknown acute toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Oral LD50 3700 mg/kg (rat) - Environmental Quality and Safety, Supplemental. (Academic Press, 111 5th., Ave., New York, NY 10003) V.1 - 1975

3805 mg/kg (mouse) - British Journal of Industrial Medicine. (British Medical Journal, 1172 Commonwealth Ave., Boston, MA 02134) V.1 - 1944

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum Chloride 7446-70-0	= 380 mg/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. May cause burns.

Serious eye damage/eye irritation Classification based on data available for ingredients. May cause burns. Risk of serious damage to eyes.

Respiratory or skin sensitization No data available.

Germ cell mutagenicity No data available.

Carcinogenicity This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Reproductive toxicity No data available.

Developmental toxicity No data available.

STOT - single exposure No data available.

STOT - repeated exposure No data available.

Target organ effects Eyes, Gastrointestinal tract (GI), Respiratory system, Skin.

Aspiration hazard No data available.

Other adverse effects None known.

Interactive effects None known.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Aluminum Chloride 7446-70-0	--	LC50 (96 h) 6.2 - 11.9 mg/L (Oncorhynchus mykiss)	-	EC50: =3.9mg/L (48h, Daphnia magna)

		LC50 (96 h flow-through) 5.31 - 7.2 mg/L (Oncorhynchus mykiss) LC50 (96 h) = 27.1 mg/L (Gambusia affinis)		

Persistence and degradability Not determined.

Bioaccumulation No information available.

Mobility Not determined.

Other adverse effects No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number D002 (Corrosivity).

14. Transport information

DOT Regulated
- **UN number or ID number** UN2581
- **Proper shipping name** Aluminum chloride solution
- **Transport hazard class(es)** 8
- **Packing group** III
- **Emergency Response Guide Number** 154

TDG Regulated
- **UN number or ID number** UN2581
- **UN proper shipping name** Aluminum chloride solution
- **Transport hazard class(es)** 8
- **Packing group** III
- **Technical Name**

IATA Regulated
- **UN number or ID number** UN2581
- **UN proper shipping name** Aluminum chloride solution
- **Transport hazard class(es)** 8
- **Packing group** III
- **ERG Code** 8L

IMDG Regulated
- **UN number or ID number** UN2581
- **UN proper shipping name** Aluminum chloride solution
- **Transport hazard class(es)** 8
- **Packing group** III
- **EmS-No** F-A; S-B

15. Regulatory information

International Inventories

TSCA All ingredients are on the inventory or exempt from listing.

Chemical name	CAS No	US TSCA Inventory listing	US TSCA inactive/active designation
Water	7732-18-5	Present	Active
Aluminum Chloride	7446-70-0	Present	Active
Hydrochloric Acid	7647-01-0	Present	Active

DSL/NDSL All ingredients are on the DSL inventory or exempt from listing. None of the ingredients are on the NDSL inventory.
EINECS/ELINCS All ingredients are on the EINECS inventory or are exempt from listing. None of the ingredients are on the ELINCS inventory.
ENCS All ingredients are on the inventory or exempt from listing.
IECSC All ingredients are on the inventory or exempt from listing.
KECL All ingredients are on the inventory or exempt from listing.
PICCS All ingredients are on the inventory or exempt from listing.
AICS All ingredients are on the inventory or exempt from listing.

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Aluminum Chloride 7446-70-0	X	X	X
Hydrochloric Acid 7647-01-0	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable.

16. Other information

NFPA	**Health hazards** 3	**Flammability** 0	**Instability** 0	**Special hazards** COR
HMIS	**Health hazards** 3	**Flammability** 0	**Physical hazards** 0	**Personal protection** B

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet