

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Form: Substance

Product Name: Aluminum chloride

CAS No: 7446-70-0

Product Code: VOLO10048

Standard InChI: InChI=1S/Al.3ClH/h;3*1H/q+3;;;/p-3

1.2. Intended Use of the Product

Use of the substance/mixture: For laboratory research purposes.

1.3. Name, Address, and Telephone of the Responsible Party

Manufacturer

Volochem, Inc.

2600 Hilltop Dr.

Bldg B #C211

Richmond, CA 94806

T 510.748.0159

www.volochem.com

1.4. Emergency Telephone Number

Emergency Number : 510-748-0159 (9a.m.-5p.m. PST)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Corrosive to metals, (Category 1)

Acute toxicity, Dermal (Category 5)

Acute toxicity, Oral (Category 5)

Skin corrosion (Category 1A)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 1)

2.2. Label Elements

GHS-US Labeling

Pictogram(s): GHS05, GHS09



Signal word

Danger

Hazard statement(s)

H290 May be corrosive to metals.

H303+H313 May be harmful if swallowed or in contact with skin.

H314 Causes severe skin burns and eye damage.

H400 Very toxic to aquatic life.

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Precautionary statement(s)

P234	Keep only in original packaging.
P260	Do not breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water.
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable breathing.
P310	Immediately call a POISON CENTER/doctor.
P305 +P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER/doctor if you feel unwell.
P390	Absorb spillage to prevent material-damage.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name	Synonym(s)	Product Identifier
Aluminum chloride	None	VOLO10048 CAS No. 7446-70-0

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

General Advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

Symptoms/Injuries After Inhalation: Burning sensation. Cough. Labored breathing. Shortness of breath. Sore throat..

Symptoms/Injuries After Skin Contact: Skin burns.

Symptoms/Injuries After Eye Contact: Severe deep burns.

Symptoms/Injuries After Ingestion: Abdominal pain. Burning sensation. Shock or collapse.

Chronic Symptoms: May damage lungs.

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4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Spasm, inflammation and edema of the larynx, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Prolonged or repeated exposure can cause damage to the lungs.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: NO water, foam, hydrous agents

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Reacts with water to form hydrogen chloride gas

Hazardous Combustion Products: Hydrogen chloride and aluminum oxides.

5.3. Advice for Firefighters

Firefighting Instructions: Exercise caution when fighting any chemical fire.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

5.4. NFPA Rating

Health hazard: 3

Fire: 0

Reactivity Hazard: 2

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

Methods for Cleaning Up: Collect spillage. Avoid generation of dust during clean-up of spills. Clear up spills immediately and dispose of waste safely.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire prevention.

7.2. Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Store under inert gas. Vent periodically. Handle and open container with care.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

No Occupational Exposure Limits (OELs) have been established for this product or its chemical components.

8.2. Exposure Controls

Appropriate Engineering Controls

: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Avoid high dust concentration. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

: Gloves. Protective goggles. Insufficient ventilation: wear respiratory protection.



Hand Protection

: Wear chemically resistant protective gloves.

Eye Protection

: Chemical goggles or safety glasses.

Respiratory Protection

: Use NIOSH-approved dust mask if dust is expected to be airborne.

Other Information

: When using, do not eat, drink or smoke.

This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Light yellow
Odor	: No data available
Odor Threshold	: No data available
pH	: 2.4 at 100 g/L at 20°C (68 °F)
Relative Evaporation Rate (butylacetate=1)	: no data available
Melting Point/Freezing Point	: Melting point/range: 190 °C (374 °F) - lit.
Boiling Point	: 187.7 °C (369.9 °F) at 1,003 hPa (752 mmHg)
Flash Point	: Not applicable
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: 1.33 hPa (1.00 mmHg) at 100 °C (212 °F) < 1.33 hPa (< 1.00 mmHg) at 20 °C (68 °F)
Relative Vapor Density at 20 °C	: No data available
Relative Density	: 2.4400 g/cm ³
Specific Gravity	: Not available
Solubility	: soluble
Log Pow	: No data available
Log Kow	: No data available
Viscosity, Kinematic	: No data available
Viscosity, Dynamic	: No data available
Explosive Properties	: No data available
Oxidizing Properties	: No data available

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Explosive Limits : Not applicable

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity Hazardous reactions will not occur under normal conditions.

10.2. Chemical Stability Product is stable.

10.3. Possibility of Hazardous Reactions No data available

10.4. Conditions to Avoid No data available

10.5. Incompatible Materials Strong oxidizing agents, alcohols, mixtures of nitrobenzene and aluminum chloride are thermally unstable and may lead to explosive decomposition due to a multi-step decomposition reaction occurring above 90 °C, which self-accelerates with high exothermicity producing azo- and azoxypolymers.

10.6. Hazardous Decomposition Products Hazardous decomposition products formed under fire conditions: aluminum oxide, hydrogen chloride gas. Reacts with water to form hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity : LD50 Oral - rat - 3,450 mg/kg
LD50 Oral – mouse – 1,130 mg/kg
LD50 Skin – rabbit - >2 g/kg

Skin Corrosion/Irritation: Skin - Human - Severe skin irritation

Serious Eye Damage/Irritation: Eyes - Human - Severe eye irritation

Respiratory or Skin Sensitization: No data available

Germ Cell Mutagenicity: No data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive Toxicity: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific Target Organ Toxicity (Single Exposure): No data available

Specific Target Organ Toxicity (Repeated Exposure): No data available

Aspiration Hazard: No data available

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SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 0.15 mg/l - 7 d
	LC50 - Oncorhynchus mykiss (rainbow trout) - 7 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 3.9 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 0.57 mg/l - 96 h

12.2. Persistence and Degradability

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Persistence and Degradability	No data available

12.3. Bioaccumulative Potential

Aluminum chloride	
Bioaccumulative Potential	No data available

12.4. Mobility in Soil No data available

12.5. Other Adverse Effect

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Contact a licensed professional waste disposal service to dispose of this material. Dispose of waste material in accordance with all local, regional, national, and international regulations.

SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/IMDG/DOT

14.1. UN Number	1726
14.2. UN Proper Shipping Name	Aluminum chloride, anhydrous
14.3. Transport hazard class(es)	8
14.4. Packing group	II
14.5.1. Marine Pollutant	Yes
14.5.2. Reportable Quantity	No
14.6.1. Toxic Inhalation Hazard	No
14.6.2. Mode specific comments	See below
14.6.3. Ground transportation - DOT (US)	No comments
14.6.4. Marine transportation - IMDG	EMS-NO. F-A, S-B
14.6.5. Air transportation - IATA/ICAO	No comments

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SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

EPA TSCA Inventory

Listed

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

15.2. US State Regulations

California Proposition 65 List 2014

Not listed

Maine Chemicals of High Concern List 2012

Not listed

Massachusetts Right to Know Hazardous Substance List 2014

Listed

New Jersey Right to Know Hazardous Substance List 2010

Listed

Pennsylvania Right to Know Hazardous Substance List 2010

Listed

SECTION 16: OTHER INFORMATION

16.1. Other Classifications

HMIS

Health hazard: 3

Chronic Health Hazard: *

Flammability: 0

Physical hazards: 2

16.2. References

International Chemical Safety Card 1125 (Validated April 4, 2005)

Revision date : 1/3/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Volochem chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household goods, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.