



Liquid Alum

Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Revision Date: 06/11/2019

Date of Issue: 05/01/2015

Version: 9.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Liquid Alum

Intended Use of the Product

Alum is used as a coagulating agent in municipal and industrial water and wastewater treatment and as an additive in papermaking.

Name, Address, and Telephone of the Responsible Party

Manufacturer

CHEMTRADE LOGISTICS INC.

155 Gordon Baker Road

Suite 300

Toronto, Ontario M2H 3N5

For SDS Info: (416) 496-5856

www.chemtradelogistics.com

Distributed By:

SAL Chemical

3036 Birch Drive

Weirton, WV 26062

304-748-8200

Emergency Telephone Number

Emergency Number :

Canada / US: CHEMTREC +1-800-424-9300

INTERNATIONAL: +1-703-741-5970

Chemtrade Emergency Contact: (866) 416-4404

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS Classification

Met. Corr. 1 H290

Eye Dam. 1 H318

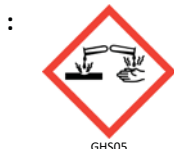
Aquatic Acute 3 H402

Full text of hazard classes and H-statements : see section 16

Label Elements

GHS Labeling

Hazard Pictograms



Signal Word

: Danger

Hazard Statements

: H290 - May be corrosive to metals.

H318 - Causes serious eye damage.

H402 - Harmful to aquatic life.

Precautionary Statements

: P234 - Keep only in original container.

P260 - Do not breathe vapors, mist, or spray.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing, and eye protection.

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water.

P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a POISON CENTER or doctor.

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P321 - Specific treatment (see section 4 on this SDS).
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material damage.
P405 - Store locked up.
P406 - Store in corrosive resistant container with a resistant inner liner.
P501 - Dispose of contents/container in accordance with local, regional, national, provincial, territorial and international regulations.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

Unknown acute toxicity

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	%*	GHS Ingredient Classification
Water	(CAS No) 7732-18-5	30 - 55	Not classified
Sulfuric acid, aluminum salt (3:2)**	(CAS No) 10043-01-3	45 - 70*	Met. Corr. 1, H290 Eye Dam. 1, H318 Aquatic Acute 3, H402

Full text of H-phrases: see section 16

**As $\text{Al}_2(\text{SO}_4)_3 \cdot 14\text{H}_2\text{O}$ (Dry Aluminum Sulfate).

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

*The actual concentration of the ingredient(s) is withheld as a trade secret in accordance with the Hazardous Products Regulations (HPR) SOR/2015-17 and 29 CFR 1910.1200.

SECTION 4: FIRST AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Remove contaminated clothing. Immediately flush skin with plenty of water for at least 30 minutes. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor.

Eye Contact: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: May cause skin irritation and eye damage.

Inhalation: May be corrosive to the respiratory tract.

Skin Contact: May cause irritation.

Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

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

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Explosion Hazard: Contact with metallic substances may release flammable hydrogen gas.

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

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

Hazardous Combustion Products: Can liberate toxic and corrosive fumes of SO₂ and SO₃ under extreme conditions when boiled to dryness or heated above 600 ° C (1112 °F).

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray.

For Non-Emergency Personnel

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

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Absorb spillage to prevent material damage. Cautiously neutralize spilled liquid.

Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: May be corrosive to metals. May release corrosive vapors.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle empty containers with care because they may still present a hazard. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, mist, and spray.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from extremely high or low temperatures and incompatible materials. Store in corrosive resistant container with a resistant inner liner. Store in original container or corrosive resistant and/or lined container.

Incompatible Materials: Non acid-proof metals (such as aluminum, copper and iron), bases, unalloyed steel, galvanized surfaces.

Specific End Use(s)

Alum is used as a coagulating agent in municipal and industrial water and wastewater treatment and as an additive in papermaking.

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Face shield. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemical resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye Protection: Chemical safety goggles and face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Clear
Odor	: Odorless
Odor Threshold	: Not available
pH	: 1.4 - 2.6
Evaporation Rate	: Not available
Melting Point	: Not applicable
Freezing Point	: -15.56 °C (3.99 °F)
Boiling Point	: 101 °C (213.8 °F)
Flash Point	: Not flammable
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not applicable
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: 1.30 – 1.35
Solubility	: Water: Completely miscible in water
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction.

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Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Extremely high or low temperatures and incompatible materials.

Incompatible Materials: Non acid-proof metals (such as aluminum, copper and iron), bases, unalloyed steel, galvanized surfaces.

Hazardous Decomposition Products: None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: May causes skin irritation and eye damage.

pH: 1.4 - 2.6

Eye Damage/Irritation: Causes serious eye damage.

pH: 1.4 - 2.6

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Effects After Inhalation: May be corrosive to the respiratory tract.

Symptoms/Effects After Skin Contact: May cause skin irritation.

Symptoms/Effects After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Effects After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Water (7732-18-5)	
LD50 Oral Rat	> 90000 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Harmful to aquatic life.

Sulfuric acid, aluminum salt (3:2) (10043-01-3)	
LC50 Fish 1	100 mg/l (Exposure time: 96h – Species: Carassius auratus [static])
EC50 Daphnia 1	12800 ug/l (Exposure time: 48h – Species: Crangonyx pseudogracilis)
LD50 Fish 2	33.9 mg/l (Exposure time: 96h – Species: Pimephales promelas [flow-through])

Persistence and Degradability

Liquid Alum	
Persistence and Degradability	Not established.

Bioaccumulative Potential

Liquid Alum	
Bioaccumulative Potential	Not established.

Mobility in Soil

Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

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SECTION 13: DISPOSAL CONSIDERATIONS





Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

TRANSPORTATION CLASSIFICATION	DOT	TDG	IMDG	IATA
Identification Number	UN3264	UN3264	UN3264	UN3264
Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (CONTAINS ALUMINUM SULFATE)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (CONTAINS ALUMINUM SULFATE)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (CONTAINS ALUMINUM SULFATE)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (CONTAINS ALUMINUM SULFATE)
Transport Hazard Class(es)	8	8	8	8
				
Packing Group	III	III	III	III
Environmental Hazards	Marine Pollutant : No	Marine Pollutant : No	Marine Pollutant : No	Marine Pollutant: N/A
Emergency Response	ERG Number : 154	ERAP Index: Not applicable	EMS: F-A, S-B	ERG code (IATA): 8L
Additional Information	Not applicable	Not applicable	Not applicable	Not applicable

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Sulfuric acid, aluminum salt (3:2) (10043-01-3)	5000 lb	Not present	Not present	No

SARA 311/312

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Immediate (acute) health hazard

US TSCA Flags

Not present

US State Regulations

California Proposition 65

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Sulfuric acid, aluminum salt (3:2) (10043-01-3)	No	No	No	No

State Right-To-Know Lists

Sulfuric acid, aluminum salt (3:2) (10043-01-3)
U.S. - Massachusetts - Right To Know List - Yes
U.S. - New Jersey - Right to Know Hazardous Substance List - Yes

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U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - Yes
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No
U.S. - Pennsylvania - RTK (Right to Know) List - Yes

Canadian Regulations

Sulfuric acid, aluminum salt (3:2) (10043-01-3)

Listed on the Canadian DSL (Domestic Substances List)
Not listed on the Canadian NDSL (Non-Domestic Substances List)

International Inventories/Lists

Chemical Name (CAS No.)	Australia AICS	Turkey CICR	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EU NLP	Mexico INSQ
Sulfuric acid, aluminium salt (3:2) (10043-01-3)	Yes	Yes	Yes	Yes	No	No	No	Yes

Chemical Name (CAS No.)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR	Philippines PICCS	New Zealand NZIOC	US TSCA
Sulfuric acid, aluminium salt (3:2) (10043-01-3)	Yes	Yes	No	No	No	Yes	Yes	Yes

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 06/11/2019

Revision Summary

Section	Change	Date Changed
1	Text update	06/11/2019
12	Text update	06/11/2019

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Met. Corr. 1	Corrosive to metals Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
H290	May be corrosive to metals
H318	Causes serious eye damage
H402	Harmful to aquatic life

NFPA 704

NFPA Health Hazard : 2

NFPA Fire Hazard : 0

NFPA Reactivity Hazard : 1

HMIS Rating

Health : 2

Flammability : 0

Physical : 1

PPE See Section 8

Abbreviations and Acronyms

AICS – Australian Inventory of Chemical Substances
ACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
ATE - Acute Toxicity Estimate
BCF - Bioconcentration factor
BEI - Biological Exposure Indices (BEI)
CAS No. - Chemical Abstracts Service number
CERCLA RQ - Comprehensive Environmental Response, Compensation, and

LC50 - Median Lethal Concentration
LD50 - Median Lethal Dose
LOAEL - Lowest Observed Adverse Effect Level
LOEC - Lowest-observed-effect Concentration
Log Pow - Octanol/water Partition Coefficient
NFPA 704 – National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response
NIOSH - National Institute for Occupational Safety and Health

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Liability Act - Reportable Quantity	NLP - Europe No Longer Polymers List
CICR - Turkish Inventory and Control of Chemicals	NOAEL - No-Observed Adverse Effect Level
DOT – 49 CFR – US Department of Transportation – Code of Federal Regulations Title 49 – Transportation.	NOEC - No-Observed Effect Concentration
EC50 - Median effective concentration	NZIOC - New Zealand Inventory of Chemicals
ECL - Korea Existing Chemicals List	OEL - Occupational Exposure Limits
EINECS - European Inventory of Existing Commercial Chemical Substances	OSHA – Occupational Safety and Health Administration
ELINCS - European List of Notified Chemical Substances	PEL - Permissible Exposure Limits
EmS - IMDG Emergency Schedule Fire & Spillage	PICCS - Philippine Inventory of Chemicals and Chemical Substances
ENCS - Japanese Existing and New Chemical Substances Inventory	PDSCL - Japan Poisonous and Deleterious Substances Control Law
EPA – Environmental Protection Agency	PPE – Personal Protective Equipment
EPCRA 304 RQ – EPCRA 304 Extremely Hazardous Substance Emergency Planning and Community Right-to-Know-Act – Reportable Quantity	PRTR - Japan Pollutant Release and Transfer Register
ERAP Index – Emergency Response Assistance Plan Quantity Limit	REL - Recommended Exposure Limit
ErC50 - EC50 in Terms of Reduction Growth Rate	SADT - Self Accelerating Decomposition Temperature
ERG code (IATA) - Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO)	SARA - Superfund Amendments and Reauthorization Act
ERG No. - Emergency Response Guide Number	SARA 302 - Section 302, 40 CFR Part 355
HCCL - Hazard Communication Carcinogen List	SARA 311/312 - Sections 311 and 312, 40 CFR Part 370 Hazard Categories
HMIS – Hazardous Materials Information System	SARA 313 - Section 313, 40 CFR Part 372
IARC - International Agency for Research on Cancer	SRCL - Specifically Regulated Carcinogen List
IATA - International Air Transport Association – Dangerous Goods Regulations	STEL - Short Term Exposure Limit
IDLH - Immediately Dangerous to Life or Health	SVHC – European Candidate List of Substance of Very High Concern
IECSC - Inventory of Existing Chemical Substances Produced or Imported in China	TDG – Transport Canada Transport of Dangerous Goods Regulations
IMDG - International Maritime Dangerous Goods Code	TLM - Median Tolerance Limit
INSQ - Mexican National Inventory of Chemical Substances	TLV - Threshold Limit Value
ISHL - Japan Industrial Safety and Health Law	TPQ - Threshold Planning Quantity
	TSCA – United States Toxic Substances Control Act
	TWA - Time Weighted Average
	WEEL - Workplace Environmental Exposure Levels

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.



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