

# Dry 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: 04/16/2018

Date of Issue: 05/01/2015

Version: 3.0

## SECTION 1: IDENTIFICATION

### Product Identifier

**Product Form:** Substance

**Product Name:** Dry Alum

**CAS No:** 16828-12-9

**Formula:**  $Al_2(SO_4)_3 \bullet 14 H_2O$

### 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](http://www.chemtradelogistics.com)

### Emergency Telephone Number

**Emergency Number :**

Canada: CANUTEC +1-613-996-6666 / 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

Skin Irrit. 2 H315

Eye Irrit. 2A H319

STOT SE 3 H335

Aquatic Acute 3 H402

Aquatic Chronic 3 H412

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

### Label Elements

#### GHS Labeling

**Hazard Pictograms :**



**Signal Word :**

Warning

**Hazard Statements :**

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

H335 - May cause respiratory irritation.

H402 - Harmful to aquatic life.

H412 - Harmful to aquatic life with long lasting effects.

**Precautionary Statements :**

P261 - Avoid breathing dust.

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

P271 - Use only outdoors or in a well-ventilated area.

P273 - Avoid release to the environment.

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

P302+P352 - IF ON SKIN: Wash with plenty of water.

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

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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.

P312 - Call a POISON CENTER or doctor if you feel unwell.

P321 - Specific treatment (see section 4 on this SDS).

P332+P313 - If skin irritation occurs: Get medical advice/attention.

P337+P313 - If eye irritation persists: Get medical advice/attention.

P362+P364 - Take off contaminated clothing and wash it before reuse.

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

P405 - Store locked up.

P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, 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**

### **Substance**

Name	Product Identifier	%*	GHS Ingredient Classification
Aluminum sulfate	(CAS No) 16828-12-9	100	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Acute 3, H402 Aquatic Chronic 3, H412

Full text of H-phrases: see section 16

\*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%).

## **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:** When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

**Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

**Eye Contact:** Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

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

### **Most Important Symptoms and Effects Both Acute and Delayed**

**General:** Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation.

**Inhalation:** Irritation of the respiratory tract and the other mucous membranes.

**Skin Contact:** Redness, pain, swelling, itching, burning, dryness, and dermatitis.

**Eye Contact:** Contact causes severe irritation with redness and swelling of the conjunctiva.

**Ingestion:** Ingestion may cause adverse effects.

**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.

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**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.

**Explosion Hazard:** Product is not explosive.

**Reactivity:** Hazardous reactions will not occur under normal conditions.

### **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:** Forms aluminum oxide, sulfur dioxide and/or sulfur trioxide at temperatures above 760°C (1400°F) or when dry alum is encompassed in a fire involving other burning materials. The decomposition products are corrosive and hazardous to health.

**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:** Avoid breathing dust. Avoid all contact with skin, eyes, or clothing.

#### **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 solid spills with appropriate barriers and prevent migration and entry into sewers or streams.

**Methods for Cleaning Up:** Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming, shoveling or sweeping. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

### **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**

**Precautions for Safe Handling:** Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid breathing dust. Avoid contact with skin, eyes and clothing. Avoid contact with eyes, skin and clothing.

**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.

**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.

## **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.

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### 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 or safety glasses.



**Materials for Protective Clothing:** Chemically resistant materials and fabrics.

**Hand Protection:** Wear protective gloves.

**Eye Protection:** Chemical safety goggles or safety glasses.

**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	: Solid
Appearance	: White to off-white powder, granules
Odor	: Not available
Odor Threshold	: Not available
pH	: >2.9 @ 5%
Evaporation Rate	: Not available
Melting Point	: 86 °C (186.8°F)
Freezing Point	: Not applicable
Boiling Point	: 117 °C (242.6°F)
Flash Point	: Not applicable
Auto-ignition Temperature	: Not applicable
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not flammable
Lower Flammable Limit	: Not applicable
Upper Flammable Limit	: Not applicable
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Water: Complete
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** Hazardous reactions will not occur under normal conditions.

**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.

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## 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:** Causes skin irritation.

**pH:** >2.9 @ 5%

**Eye Damage/Irritation:** Causes serious eye irritation.

**pH:** >2.9 @ 5%

**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):** May cause respiratory irritation.

**Aspiration Hazard:** Not classified

**Symptoms/Effects After Inhalation:** Irritation of the respiratory tract and the other mucous membranes.

**Symptoms/Effects After Skin Contact:** Redness, pain, swelling, itching, burning, dryness, and dermatitis.

**Symptoms/Effects After Eye Contact:** Contact causes severe irritation with redness and swelling of the conjunctiva.

**Symptoms/Effects After Ingestion:** Ingestion may cause adverse effects.

**Chronic Symptoms:** None expected under normal conditions of use.

### Information on Toxicological Effects - Ingredient(s)

**LD50 and LC50 Data:** Not available

## SECTION 12: ECOLOGICAL INFORMATION

### Toxicity

**Ecology - General:** Harmful to aquatic life with long lasting effects. Harmful to aquatic life.

### Persistence and Degradability

Dry Alum (16828-12-9)	
Persistence and Degradability	May cause long-term adverse effects in the environment.

### Bioaccumulative Potential

Dry Alum (16828-12-9)	
Bioaccumulative Potential	Not established.

**Mobility in Soil** Not available

### Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, 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.

Not regulated for transport according to: US DOT, IMDG, IATA, and Canada's TDG.

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### SECTION 15: REGULATORY INFORMATION

#### US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Aluminum sulfate (16828-12-9)	Not present	Not present	Not present	No

#### SARA 311/312

<b>Dry Alum (16828-12-9)</b>
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
Aluminum sulfate (16828-12-9)	No	No	No	No

#### State Right-To-Know Lists

<b>Aluminum sulfate (16828-12-9)</b>
U.S. - Massachusetts - Right To Know List - No
U.S. - New Jersey - Right to Know Hazardous Substance List - No
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - No
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No
U.S. - Pennsylvania - RTK (Right to Know) List - No

#### Canadian Regulations

<b>Aluminum sulfate (16828-12-9)</b>
Listed on the Canadian DSL (Domestic Substances List)*Anhydrous form is listed on the DSL as (10042-01-3)
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
Aluminum sulfate (16828-12-9)*Anhydrous form as (10043-01-3)	Yes	Yes	Yes	Yes	No	No	No	Yes
Chemical Name (CAS No.)	China IECS	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR	Philippines PICCS	New Zealand NZIOC	US TSCA
Aluminum sulfate (16828-12-9)*Anhydrous form as (10043-01-3)	Yes	Yes	No	No	No	Yes	Yes	Yes

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

<b>Revision Date</b>	: 04/16/2018
<b>Other Information</b>	: 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).

#### Revision Summary

Section	Change	Date Changes
15	International Inventories/List	04/16/2018

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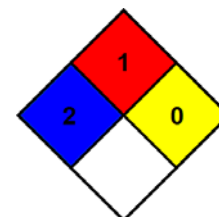
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### GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

### NFPA 704

- NFPA Health Hazard** : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
- NFPA Fire Hazard** : 1 - Materials that must be preheated before ignition can occur.
- NFPA Reactivity Hazard** : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



### HMIS Rating

- Health** : 2 Moderate Hazard - Temporary or minor injury may occur
- Flammability** : 0 Minimal Hazard
- Physical** : 0 Minimal Hazard
- PPE** See Section 8

### Abbreviations and Acronyms

AICS - Australian Inventory of Chemical Substances	ISHL - Japan Industrial Safety and Health Law
ACGIH - American Conference of Governmental Industrial Hygienists	LC50 - Median Lethal Concentration
AIHA - American Industrial Hygiene Association	LD50 - Median Lethal Dose
ATE - Acute Toxicity Estimate	LOAEL - Lowest Observed Adverse Effect Level
BCF - Bioconcentration factor	LOEC - Lowest-observed-effect Concentration
BEI - Biological Exposure Indices (BEI)	NFPA 704 - National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response
CAS No. - Chemical Abstracts Service number	NIOSH - National Institute for Occupational Safety and Health
CERCLA RQ - Comprehensive Environmental Response, Compensation, and 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
	TLM - Median Tolerance Limit
	TLV - Threshold Limit Value
	TPQ - Threshold Planning Quantity
	TSCA - United States Toxic Substances Control Act

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IMDG - International Maritime Dangerous Goods Code  
INSQ - Mexican National Inventory of Chemical Substances

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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