Dry Alum
Safety Data Sheet

Safety Data Sheet #: CHE-5002S

Revision Date: August 19, 2024 Version: 7.0

Section 1. Identification

Product identifier

Product Identity Dry Alum

Other means of identification

Aluminum Sulfate, Dry
Aluminum Sulfate, Dry, Ground FCC Grade
Aluminum Sulfate, Dry, Ground Food Grade Aluminum Sulfate, Dry, Powdered FCC Grade Aluminum Sulfate, Iron Free, Granular
Aluminum Sulfate, Iron Free, Ground
Aluminum Sulfate, Iron Free, Powdered
Aluminum Sulfate, Low Iron, Granular
Aluminum Sulfate, Standard, Ground
Aluminum Sulfate, Standard, Powdered Solid

Relevant identified uses of the substance or mixture and uses advised against

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

Restrictions on use:
For use in water treatment, refer to NSF dosage information.

Details of the supplier of the safety data sheet

Company Name

Chemtrade Logistics Inc. (Canada)
155 Gordon Baker Road Suite 300
Toronto, Ontario M2H 3N5
(416) 496-5856

Chemtrade Logistics Inc. (US)
90 East Halsey Road, Suite 200
Parsippany, NJ 07054
(800) 228- 8558

Emergency

24 hour Emergency Telephone No.

Chemtrade Emergency Contact: (866) 416-4404 (US and Canada)
CHEMTREC +1-800-424-9300
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

Customer Service:

For SDS Info: (416) 496-5856
www.chemtradelogistics.com

Section 2. Hazard(s) identification

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

Classification of the substance or mixture

Serious eye damage / eye irritation, category 2;H319	Causes serious eye irritation.
Specific target organ toxicity, Specific exposure category 3;H335	May cause respiratory irritation.
Aquatic toxicity (chronic), category 3;H412	Harmful to aquatic life with long lasting effects.

Label elements

Warning

H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

[Prevention]:

P233 Keep container tightly closed.
P261 Avoid breathing dust, fume, gas, mist, vapours, spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves, eye protection, and face protection.

[Response]:

P304+340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338 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 or physician if you feel unwell.
P337+313 If eye irritation persists: Get medical advice or attention.

[Storage]:

P403+233 Store in a well ventilated place. Keep container tightly closed.
P405 Store locked up.

[Disposal]:

P501 Dispose of contents or container in accordance with local and national regulations.

Other hazards

This product contains no PBT/vPvB chemicals.
This product contains no endocrine disrupting chemicals.

Section 3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the Hazardous Products Regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
ALUMINIUM SULFATE TETRADECAHYDRATE **CAS Number: 16828-12-9** **Synonyms: ALUMINIUM SULFATE TETRADECAHYDRATE** ***Anhydrous form as (10043-01-3)**	**80 - 100**	**Serious eye damage / eye irritation, category 2;H319** **Specific target organ toxicity, Specific exposure category 3;H335** **Aquatic toxicity (chronic), category 3;H412**	**No data available**

The actual concentration or concentration range is withheld as a trade secret.
*PBT/vPvB - PBT-substance or vPvB-substance.
The full texts of the phrases are shown in Section 16.
The specific chemical identity and/or exact percentage of composition are withheld as a trade secret within the meaning of the OSHA Hazard Communication Standard [29 CFR 1910.1200].

Section 4. First aid measures

Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation When symptoms occur: Remove person to fresh air and keep comfortable for breathing.

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

Skin Rinse immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and wash before reuse. Obtain medical attention if irritation develops or persists.

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

Most important symptoms and effects, both acute and delayed

Overview Contact with eyes causes serious eye irritation. May cause respiratory irritation.
Acute Health Effects : the substance causes serious eye irritation. May cause respiratory irritation.
EYE: Contact causes severe irritation with redness and swelling of the conjunctiva. (IMMEDIATE)
SKIN: May cause skin irritation.
INHALATION: May cause respiratory irritation.
INGESTION: Ingestion may cause adverse effects. (IMMEDIATE)
Indication of Any Immediate Medical Attention and Special Treatment Needed: If exposed or concerned, get medical advice and attention.
See section 2 for further details.

Inhalation May cause respiratory irritation.

Eyes Causes serious eye irritation.

Chronic effects Not available, none known.

Section 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.
Unsuitable extinguishing media: Do not use water jet, or heavy water stream. Use of heavy stream of water may spread fire.

Special hazards arising from the substance or mixture

Hazardous decomposition: 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.

Keep container tightly closed.

Avoid breathing dust, fume, gas, mist, vapours, spray.

Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full-face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean up immediately after fire. No smoking.

Fire Hazard: Not considered flammable but may burn at high temperatures.
Explosion Hazard: Product is not explosive.
Firefighting Instructions: Do not enter fire area without proper protective equipment, including respiratory protection. Use water spray or fog for cooling exposed containers. **Exercise caution when fighting any chemical fire.**
Hazardous reactions will not occur under normal conditions.
Other Information: Do not allow run-off from firefighting to enter drains or water courses.
ERG Guide No. ----

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

General Measures: Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid contact with eyes, skin and clothing. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. See Section 8.

Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, and vapours.
Do not get in eyes, on skin, or on clothing. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details).
Use good personal hygiene practices. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Promptly remove soiled clothing and wash thoroughly before reuse.

Environmental precautions

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

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

Methods and material for containment and cleaning up

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.

Methods for Clean 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.

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. Ventilate area.

Equip cleanup crew with proper protection.

Section 7. Handling and storage

Precautions for safe handling

Handle containers carefully to prevent damage and spillage.
Store locked up.
Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, and vapours.
Do not get in eyes, on skin, or on clothing. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details).
Use good personal hygiene practices. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

Conditions for safe storage, including any incompatibilities

Store in a dry, cool and well-ventilated place. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Comply with applicable regulations.

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

See section 2 for further details. - [Storage]:

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.

Restrictions on use:

For use in water treatment, refer to NSF dosage information.

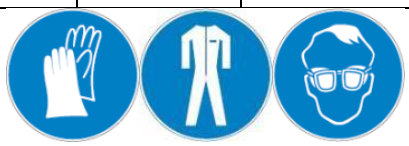
Section 8. Exposure controls / personal protection

Control parameters

Exposure

CAS No.	Ingredient	Source	Value
16828-12-9		ACGIH	No Established Limit

	ALUMINIUM SULFATE TETRADECAHYDRATE *Anhydrous form as (10043-01-3)	OSHA	No Established Limit
		NIOSH	No Established Limit
		Alberta	No Established Limit
		British Columbia	No Established Limit
		Manitoba	No Established Limit
		New Brunswick	No Established Limit
		Newfoundland and Labrador	No Established Limit
		Nova Scotia	No Established Limit
		Northwest Territories	No Established Limit
		Nunavut	No Established Limit
		Ontario	No Established Limit
		Prince Edward Island	No Established Limit
		Quebec	No Established Limit
		Saskatchewan	No Established Limit
		Yukon	No Established Limit



The exposure limits for nuisance dust are: OSHA PEL: 15 mg/m^3 (50 mppcf*) TWA, ACGIH 10 mg/m^3.

Exposure controls

Respiratory 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.

Eyes Chemical safety goggles

Skin Avoid skin contact. Avoid skin contact. Wear protective gloves. Wear suitable protective clothing. **Materials for Protective Clothing:** Chemically resistant materials and fabrics.

Engineering Controls **Exposure Controls Appropriate Engineering Controls:** Emergency eyewash 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.

Other Work Practices Put on appropriate personal protective equipment. Chemically compatible gloves, protective clothing, and chemical resistant safety goggles. Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, and vapours.
Do not get in eyes, on skin, or on clothing. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details).
Use good personal hygiene practices. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

Section 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical State Solid

Color	Clear, Colorless, Syrupy
Odor	Odourless
Melting point	86 °C (186.8°F)
Initial boiling point	117 °C (242.6°F)
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** No available information **Upper Explosive Limit:** No available information
Flash Point	℉ ℃, Test method: (Open/Close cup)
Auto-ignition temperature	No available information
Decomposition temperature	No available information
pH	3.5 (1% Solution)
Viscosity (cSt)	No available information
Solubility in Water	Completely Soluble in water.
Partition coefficient n-octanol/water (Log Kow)	No available information
Vapour pressure (Pa)	No available information
Relative Density	No available information
Vapour Density	No available information
Particle Characteristics	---
Evaporation rate (Ether = 1)	No available information
Bulk Density	63-71 lbs/cu.ft. (ground) 38-45 lbs/cu.ft. (powdered)

Other information

No other relevant information.

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

Direct sunlight, 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

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.

Section 11. Toxicological information

Acute toxicity

Ingestion of large amounts of aluminum salts over a prolonged period may cause phosphate deficiency, based on animal and human information (Krueger, G.L., et al. The health effects of aluminum compounds in mammals. CRC Critical reviews in Toxicology. Vol. 13, vo1 (1984). Prolonged ingestion in high doses (several grams per day) may result in osteomalacia (softening and bending of the bones) (Elinder, C.-G., et al. Aluminum. In: Handbook on the toxicology of metals. 2nd ed. Vol.II:Specific Metals (1986). There are no reports of these effects from occupational exposures to aluminum salts.

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Product Acute Toxicity Estimates	NA	NA	NA	NA	NA

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
ALUMINIUM SULFATE TETRADECAHYDRATE - (16828-12-9)	No data available.	No data available.	No data available.	No data available.	No data available.

Carcinogen Data

CAS No.	Ingredient	Source	Value
16828-12-9	ALUMINIUM SULFATE TETRADECAHYDRATE	IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
		ACGIH	No Established Limit

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	3	May cause respiratory irritation.
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry:

Symptoms and effects, both acute and delayed:

Contact with eyes causes serious eye irritation. May cause respiratory irritation.

Acute Health Effects : the substance causes serious eye irritation. May cause respiratory irritation.

EYE: Contact causes severe irritation with redness and swelling of the conjunctiva. (IMMEDIATE)

SKIN: May cause skin irritation.

INHALATION: May cause respiratory irritation.

INGESTION: Ingestion may cause adverse effects. (IMMEDIATE)

Indication of Any Immediate Medical Attention and Special Treatment Needed: If exposed or concerned, get medical advice and attention.

Most likely route(s) of exposure Skin, Eyes

Inhalation	May cause respiratory irritation.
Eyes	Causes serious eye irritation.
Chronic effects	Not available, none known.

Section 12. Ecological information

Toxicity

Harmful to aquatic life with long lasting effects.

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
ALUMINIUM SULFATE TETRADECAHYDRATE - (16828-12-9)	No data available.	No data available.	No data available.

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

No available information

Mobility in soil

No available information

Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

Other adverse effects

No available information

Section 13. Disposal considerations

Waste treatment methods

Dispose of waste material in accordance with all local, regional, federal, provincial, state, territorial and international regulations.

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

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

Section 14. Transport information

Classification Method: Classified as per Part 2, Sections 2.1-2.8 of the Transportation of Dangerous Goods Regulations.

	DOT / TDG (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
UN number	Not Regulated	Not Regulated	Not Regulated
UN proper shipping name	Not Regulated	Not Regulated	Not Regulated
Transport hazard class(es)	**TDG Hazard Class:** Not Applicable **Sub Class:** Not Applicable	**IMDG:** Not Applicable **Sub Class:** Not Applicable	**Air Class:** Not Applicable **Sub Class:** Not Applicable
Packing group	Not Applicable	Not Applicable	Not Applicable

Environmental hazards

Marine Pollutant: No;

Special precautions for user

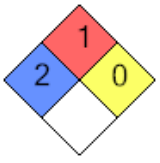
No available information

Section 15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

NFPA Ranking

Health (blue) :2
Fire (red) :1
Reactivity (yellow) :0
Special (white) :--



This product has been classified in accordance with the hazard criteria Hazardous Products Regulations (SOR/2015-17 amended 2022-12-15) and the SDS contains all of the information required by those regulations.

Toxic Substance Control Act (TSCA)

EPCRA 311/312 Chemicals and RQs:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Canadian Domestic Substance List (DSL):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Canadian Non-Domestic Substance List (NDSL):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%) :

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Pennsylvania RTK Substances (>1%) :

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Chemical Name (CAS Number)	US TSCA	Australia AICS	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EN NLP	Mexico INSQ
ALUMINIUM SULFATE TETRADECAHYDRATE (16828-12-9) *Anhydrous form as (10043-01-3)	Yes*	Yes*	Yes*	Yes*	No	No	No	Yes*

Chemical Name (CAS Number)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR 1	Japan PRTR 2	Philippines PICCS	New Zealand NZIOC
ALUMINIUM SULFATE TETRADECAHYDRATE (16828-12-9) *Anhydrous form as (10043-01-3)	Yes*	Yes*	No	No	No	No	Yes	Yes

Section 16. Other information

Revision Date 08/19/2024

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H412 Harmful to aquatic life with long lasting effects.

Disclaimer: The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

Section :	**Modification**
2	Updated skin corrosion classification based on Corrositex testing
4	Updated information to reflect skin corrosion classification
11	Updated information to reflect skin corrosion classification
16	Added CAS number for hydrated version to the Chemical lists

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™.

Responsible Care® Our commitment to sustainability. Gestion responsable™ Notre engagement envers le développement durable.