

SECTION 1: Identification of the substance/mixture and of the company/undertaking
1.1 Product identifier

- Trade name ALUMINIUM SULFATE SOLUTION

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

- no data available

1.3 Details of the supplier of the safety data sheet
Company

Eco Services Operations
 2002 Timberloch Place
 Suite 300
 The Woodlands, TX 77380
 Phone number : (844) 812-1812

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 2: Hazards identification

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

2.1 Classification of the substance or mixture
HCS 2012 (29 CFR 1910.1200)

Corrosive to Metals, Category 1
 Serious eye damage, Category 1

H290: May be corrosive to metals.
 H318: Causes serious eye damage.

2.2 Label elements
HCS 2012 (29 CFR 1910.1200)
Pictogram

Signal Word

- Danger

Hazard Statements

- H290 May be corrosive to metals.
- H318 Causes serious eye damage.

Precautionary Statements
Prevention

- P234 Keep only in original container.
- P280 Wear eye protection/ face protection.

Response

- 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/ physician.

- P390 Absorb spillage to prevent material damage.
- Storage
- P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
- Disposal
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2.3 Other hazards which do not result in classification

None identified

SECTION 3: Composition/information on ingredients

3.1 Substance

- Not applicable, this product is a mixture.

3.2 Mixture

Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
Aluminium sulfate	10043-01-3	26.8

Non Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
Water	7732-18-5	73.2

SECTION 4: First aid measures

4.1 Description of first-aid measures

In case of inhalation

- If inhaled, remove to fresh air.
- If breathing is difficult, give oxygen.
- If victim has stopped breathing:
- administer CPR (cardio-pulmonary resuscitation)
- Immediate medical attention is required.

In case of skin contact

- In case of contact, immediately flush skin with plenty of water.
- Call a physician if irritation develops or persists.
- Remove contaminated clothing and shoes.
- Wash contaminated clothing before reuse.
- Thoroughly clean shoes before reuse.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- Immediate medical attention is required.

In case of ingestion

- Do NOT induce vomiting.
- If victim is conscious:
- Rinse mouth with water.
- Do not leave the victim unattended.
- Risk of product entering the lungs on vomiting after ingestion.
- Lay victim on side.
- Never give anything by mouth to an unconscious person.
- Immediate medical attention is required.

4.2 Most important symptoms and effects, both acute and delayed

Effects

- Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis
- Skin contact may aggravate existing skin disease

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5: Firefighting measures

Flash point

Not applicable

Autoignition temperature

Not applicable

Flammability / Explosive limit

Lower flammability/explosion limit : Not applicable
 Upper flammability/explosion limit : Not applicable

5.1 Extinguishing media

Suitable extinguishing media

- Not combustible.
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

- Not combustible.
- Harmful or toxic vapors are released.
- Corrosive or suffocating vapors are released.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

Specific fire fighting methods

- Cool containers/tanks with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Wear suitable protective equipment.

6.2 Environmental precautions

- Do not let product enter drains.
- If the spill area is porous, the contaminated material must be collected for subsequent treatment or disposal.
- Retain and dispose of contaminated wash water.
- Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.

6.3 Methods and materials for containment and cleaning up

Methods for containment

- Stop leak if safe to do so.
- Dam up with sand or inert earth (do not use combustible materials).

Decontamination / cleaning

- Scrape up.
- Pump or collect any free spillage into an appropriate closed container. (see Section 7: Handling and Storage)
- Wash off with plenty of water.
- Recover the cleaning water for subsequent disposal.

6.4 Reference to other sections

- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Do not breathe vapors/dust.
- Do not get in eyes.
- Avoid any direct contact with the product.
- Keep container closed when not in use.
- Avoid spillage on floor as the product can become very slippery when wet.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Store in an area:
- dry
- well-ventilated
- Keep container tightly closed.

Requirements for storage rooms and vessels

Recommended storage temperature: 5 - 120 °F (-15 - 49 °C)

7.3 Specific end use(s)

- no data available

SECTION 8: Exposure controls/personal protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

8.1 Control parameters

Components with workplace occupational exposure limits

Ingredients	Value type	Value	Basis
Aluminium sulfate	TWA	2 mg/m ³	National Institute for Occupational Safety and Health
	Expressed as :Aluminum		

8.2 Exposure controls

Control measures

Engineering measures

- Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures :
- Provide adequate ventilation.

Individual protection measures

Respiratory protection

- When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.
- Under normal conditions, in the absence of other airborne contaminants, the following devices should provide protection from this material up to the conditions specified by the appropriate local standard(s):
- In the case of respirable dust and/or fumes, use self-contained breathing apparatus.

Eye protection

- Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.
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- Eye contact should be prevented through the use of:
- Safety glasses with side-shields

Skin and body protection

- Wear suitable protective clothing, gloves and eye/face protection.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

Protective measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.

SECTION 9: Physical and chemical properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

9.1 Information on basic physical and chemical properties

<u>Appearance</u>	<u>Physical state:</u> liquid <u>Color:</u> colorless to Yellow-brown
<u>Odor</u>	odorless
<u>Odor Threshold</u>	no data available
<u>pH</u>	< 2.0 - 2.2 (7.8 % (m/v))
<u>Boiling point/boiling range</u>	214 °F (101 °C) (760 mmHg (1,013.25 hPa))
<u>Flash point</u>	Not applicable
<u>Evaporation rate (Butylacetate = 1)</u>	no data available
<u>Flammability (solid, gas)</u>	no data available
<u>Flammability (liquids)</u>	no data available
<u>Flammability / Explosive limit</u>	<u>Lower flammability/explosion limit:</u> Not applicable <u>Upper flammability/explosion limit:</u> Not applicable
<u>Autoignition temperature</u>	Not applicable
<u>Vapor pressure</u>	no data available
<u>Vapor density</u>	no data available
<u>Density</u>	<u>Relative density:</u> 1.3 (61 °F (16 °C))
<u>Solubility</u>	<u>Water solubility :</u> miscible
<u>Partition coefficient: n-octanol/water</u>	no data available
<u>Thermal decomposition</u>	1202 °F (650 °C)
<u>Viscosity</u>	no data available
<u>Explosive properties</u>	no data available
<u>Oxidizing properties</u>	no data available

9.2 Other information

<u>Corrosion of Metals</u>	Corrosive to metals
<u>Molecular weight</u>	342.14 g/mol

SECTION 10: Stability and reactivity
10.1 Reactivity

- no data available

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Hazardous polymerization does not occur.

10.4 Conditions to avoid

- No dangerous reaction known under conditions of normal use.

10.5 Incompatible materials

- Strong bases
- metals

10.6 Hazardous decomposition products

- Sulfur oxides

SECTION 11: Toxicological information
11.1 Information on toxicological effects**Acute toxicity****Acute oral toxicity**

Aluminium sulfate LD50 : > 2,000 - < 5,000 mg/kg - Rat

Acute inhalation toxicity

Aluminium sulfate

By analogy

LC50 - 4 h : > 5 mg/l - Rat

Acute dermal toxicity

Aluminium sulfate

LD50 : > 5,000 mg/kg - Rabbit

Acute toxicity (other routes of administration)

no data available

Skin corrosion/irritation

Aluminium sulfate

Rabbit

Not irritating to rabbits on cutaneous application.

Serious eye damage/eye irritation

Aluminium sulfate	Rabbit Irritating to rabbits on ocular application.
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Respiratory or skin sensitization

Aluminium sulfate	By analogy Guinea pig Did not cause sensitization on laboratory animals.
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Mutagenicity**Genotoxicity in vitro**

Aluminium sulfate	In vitro tests did not show mutagenic effects
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Genotoxicity in vivo

no data available

Carcinogenicity

no data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP
IARC
OSHA
ACGIH

Toxicity for reproduction and development**Toxicity to reproduction / fertility**

Aluminium sulfate	By analogy NOAEL F1: 1,000 mg/kg no teratogenic effects have been observed
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Developmental Toxicity/Teratogenicity

Aluminium sulfate	By analogy no teratogenic effects have been observed
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STOT**STOT-single exposure**

Aluminium sulfate	The substance or mixture is not classified as specific target organ toxicant, single exposure.
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STOT-repeated exposure

Aluminium sulfate	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
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Aluminium sulfate	By analogy Oral 28 d - Rat NOAEL: 90 mg/kg Oral 28 d - Rat , males
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NOAEL: 18 mg/kg

Aspiration toxicity

no data available

SECTION 12: Ecological information**12.1 Toxicity****Aquatic Compartment****Acute toxicity to fish**

Aluminium sulfate

By analogy

LC50 - 96 h : 104 mg/l - Danio rerio (zebra fish)

Acute toxicity to daphnia and other aquatic invertebrates.

Aluminium sulfate

NOEC - 48 h : 160 mg/l - Daphnia magna (Water flea)

12.2 Persistence and degradability**Abiotic degradation****Stability in water**

Aluminium sulfate

no data available,

Biodegradation**Biodegradability**

Aluminium sulfate

Not applicable, inorganic substance

12.3 Bioaccumulative potential**Bioconcentration factor (BCF)**

Aluminium sulfate

Not applicable

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

Aluminium sulfate

Non-classified PBT substance
Non-classified vPvB substance**12.6 Other adverse effects**

no data available

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

Product Disposal

- Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

Waste Code

- Environmental Protection Agency
- Hazardous Waste – YES
- RCRA Hazardous Waste (40 CFR 302)
- D002 - Corrosive waste – (C)

Advice on cleaning and disposal of packaging

- Rinse with an appropriate solvent.

SECTION 14: Transport information
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Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

DOT

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum sulfate)
14.3 Transport hazard class	8
Label(s)	8
14.4 Packing group	III
Packing group	154
ERG No	
14.5 Environmental hazards	NO
Marine pollutant	

14.6 Special precautions for user

Remarks : In the United States, it may be possible to reclassify this material as not regulated via surface transportation because its corrosivity is due solely to its effect on metals (either steel or aluminum) See 49 CFR.173.154(d).

This product contains one or more ingredients identified as a hazardous substance in Appendix A of 49 CFR 172.101. The product quantity, in one package, which triggers the RQ requirements under 49 CFR for each hazardous substance is shown.

Reportable quantities : RQ substance: Aluminum sulfate
RQ limit for substance: 5,000 lb
RQ limit for product: 18,657 lb

TDG

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum sulfate)
14.3 Transport hazard class	8
Label(s)	8
14.4 Packing group	
Packing group	III
ERG No	154
14.5 Environmental hazards	NO
Marine pollutant	

NOM

no data available

IMDG

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum sulfate)
14.3 Transport hazard class	8
Label(s)	8
14.4 Packing group	
Packing group	III
14.5 Environmental hazards	NO
Marine pollutant	
14.6 Special precautions for user	
EmS	F-A , S-B

For personal protection see section 8.

IATA

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum sulfate)
14.3 Transport hazard class	8
Label(s):	8
14.4 Packing group	
Packing group	III
Packing instruction (cargo aircraft)	856
Max net qty / pkg	60.00 L
Packing instruction (passenger aircraft)	852
Max net qty / pkg	5.00 L
14.5 Environmental hazards	NO
14.6 Special precautions for user	
For personal protection see section 8.	

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

SECTION 15: Regulatory information

15.1 Notification status

Inventory Information	Status
United States TSCA Inventory	- On TSCA Inventory
Canadian Domestic Substances List (DSL)	- All components of this product are on the Canadian DSL.
Australia Inventory of Chemical Substances (AICS)	- On the inventory, or in compliance with the inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	- On the inventory, or in compliance with the inventory
Korea. Korean Existing Chemicals Inventory (KECI)	- On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	- On the inventory, or in compliance with the inventory

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370)

Fire Hazard	no
Reactivity Hazard	no
Sudden Release of Pressure Hazard	no
Acute Health Hazard	yes
Chronic Health Hazard	no

Section 313 Toxic Chemicals (40 CFR 372.65)

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.

Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)

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

Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)

This material does not contain any components with a SARA 302 RQ.

Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)

This material does not contain any components with a section 304 EHS RQ.

US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)

Ingredients	CAS-No.	Reportable quantity
Aluminium sulfate	10043-01-3	5000 lb
Unlisted hazardous wastes - Characteristic of Corrosivity	Not Assigned	100 lb

15.3 State Regulations**US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

SECTION 16: Other information**NFPA (National Fire Protection Association) - Classification**

Health	2 moderate
Flammability	0 minimal
Instability or Reactivity	0 minimal

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health	2 moderate
Flammability	0 minimal
Reactivity	0 minimal
PPE	Determined by User; dependent on local conditions

Further information

- Product evaluated under the US GHS format.

Date Prepared: 06/04/2015

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

- TWA 8-hour time weighted average
- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

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. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.