

## SAFETY DATA SHEET

Preparation Date: 9/16/2015

Revision Date: 9/16/2015

Revision Number: G1

### 1. IDENTIFICATION

**Product identifier**

**Product code:** A1115  
**Product Name:** ALUMINUM SULFATE, HYDRATED, CRYSTAL, REAGENT, ACS

**Other means of identification**

**Synonyms:** Aluminum sulfate octadecahydrate;  
 Cake alum octadecahydrate;  
 Dialuminum sulfate octadecahydrate;  
 Patent alum;  
 Dialuminum trisulfate octadecahydrate;  
 Aluminum sulfate (2:3) octadecahydrate;  
 Aluminum trisulfate octadecahydrate;  
 Dialuminum sulfate octadecahydrate  
 Sulfuric acid, aluminum salt (3:2), octadecahydrate

**CAS #:** 7784-31-8  
 10043-01-3 (anhydrous CAS no.)

**RTECS #** Not available  
**CI#:** Not available

**Recommended use of the chemical and restrictions on use**

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>

**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3

## Label elements

### Warning

#### Hazard statements

Harmful if swallowed  
Causes skin irritation  
Causes serious eye irritation  
May cause respiratory irritation



### Hazards not otherwise classified (HNOC)

Not Applicable

### Other hazards

Not available

### Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Wear protective gloves  
Wear eye/face protection

### Precautionary Statements - Response

*Specific treatment (see .? on this label)*

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

### Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed  
Store locked up

### Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Aluminum Sulfate, Hydrated 7784-31-8	7784-31-8	100	*

## 4. FIRST AID MEASURES

### First aid measures

#### **General Advice:**

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126).

#### **Skin Contact:**

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

#### **Eye Contact:**

Flush eye with water for 15 minutes. Get medical attention.

#### **Inhalation:**

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### **Ingestion:**

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

### Most important symptoms and effects, both acute and delayed

#### **Symptoms**

Irritating to eyes and skin. Irritating to respiratory system. May cause digestive (gastrointestinal) tract irritation. May cause nausea and vomiting. May cause diarrhea. May cause stomach cramping. Dryness of mouth. Dry throat. May cause central nervous system effects.

### Indication of any immediate medical attention and special treatment needed

#### **Notes to Physician:**

Treat symptomatically

### Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

## 5. FIRE-FIGHTING MEASURES

### Extinguishing Media

#### **Suitable Extinguishing Media:**

The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

#### **Unsuitable Extinguishing Media:**

No information available.

### Specific hazards arising from the chemical

#### **Hazardous Combustion Products:**

If involved in a fire, it emits toxic fumes of sulfur oxides

#### **Specific hazards:**

No information available.

### Special Protective Actions for Firefighters

#### **Specific Methods:**

No information available.

#### **Special Protective Equipment for Firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Use personal protective equipment.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up** Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

#### **Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

#### **Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Protect from moisture.

#### **Incompatible Materials:**

Oxidizing agents. Strong bases. Metals. Water.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **National occupational exposure limits**

##### **United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Aluminum Sulfate, Hydrated 7784-31-8	2 mg/m <sup>3</sup> TWA (as Al)	2 mg/m <sup>3</sup> TWA (as Al)	2 mg/m <sup>3</sup> TWA (as Al)	None

##### **Canada**

Components	Alberta	British Columbia	Ontario	Quebec
Aluminum Sulfate, Hydrated 7784-31-8	None	None	None	2 mg/m <sup>3</sup> TWAEV (as Al)

##### **Australia and Mexico**

Components	Australia	Mexico
Aluminum Sulfate, Hydrated 7784-31-8	2 mg/m <sup>3</sup> TWA (as Al)	2 mg/m <sup>3</sup> TWA (as Al)

## Appropriate engineering controls

### Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

## Individual protection measures, such as personal protective equipment

### Personal Protective Equipment

- Eye protection:** Goggles or Safety glasses with side-shields
- Skin and body protection:** Long sleeved clothing. Chemical resistant apron. Gloves.
- Respiratory protection:** Effective dust mask. or. Wear respirator with dust filter. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent. .
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b> Solid.	<b>Appearance:</b> Crystals. Granular.	<b>Color:</b> White.
<b>Odor:</b> Odorless.	<b>Taste</b> Sweet. Mildly astringent.	<b>Molecular/Formula weight:</b> 342.14 g/mole +(14-18) H <sub>2</sub> O
<b>Formula:</b> AL <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(14-18)H <sub>2</sub> O	<b>Flammability:</b> No information available	<b>Flash point (°C):</b> No data available
<b>Flashpoint (°C/°F):</b> No information available.	<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> No information available
<b>Lower Explosion Limit (%):</b> No information available	<b>Upper Explosion Limit (%):</b> No information available	<b>pH:</b> No information available
<b>Melting point/range(°C/°F):</b> No information available	<b>Boiling point/range(°C/°F):</b> No information available	<b>Bulk density:</b> No information available
<b>Decomposition temperature(°C/°F):</b> 85°C/185°F	<b>Density (g/cm<sup>3</sup>):</b> No information available	<b>Specific gravity:</b> 1.69 @ 17 deg. C.
<b>Vapor pressure @ 20°C (kPa):</b> No information available	<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available
<b>VOC content (g/L):</b> No information available	<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> No information available
<b>Viscosity:</b> No information available	<b>Miscibility:</b> No information available	<b>Solubility:</b> Easily soluble in hot water Soluble in cold water Solubility in Water: 86.9 g/100 ml @ 0°C; 1104 g/100 ml @ 100°C Insoluble in Alcohol It will hydrolyze in water for form sulfuric acid

## 10. STABILITY AND REACTIVITY

### Reactivity

No information available

### Chemical stability

#### Stability:

Stable under recommended storage conditions

#### Possibility of Hazardous Reactions:

Hazardous polymerization does not occur

#### Conditions to avoid:

Exposure to moisture. Exposure to water. Incompatible materials.

#### Incompatible Materials:

Oxidizing agents. Strong bases. Metals. Water.

#### Hazardous decomposition products:

When heated to decomposition it emits toxic fumes. Sulfur oxides.

### Other Information

#### Corrosivity:

It may corrode metals in the presence of moisture

**Special Remarks on Corrosivity:** No information available

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## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### Principal Routes of Exposure:

Ingestion. Inhalation.

### Acute Toxicity

#### Component Information

*Aluminum Sulfate, Hydrated - 7784-31-8*

**LD50/oral/rat** = 370 mg/kg (RTECS)

**LD50/oral/mouse** = 980 mg/kg (RTECS)

**LD50/dermal/rat** = No information available

**LD50/dermal/rabbit** = No information available

**LC50/inhalation/rat** = No information available

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = No information available

#### Product Information

**LD50/oral/rat** =

VALUE- Acute Tox Oral = 370mg/kg

**LD50/oral/mouse** =

Value - Acute Tox Oral = 980mg/kg

**LD50/dermal/rabbit**

VALUE-Acute Tox Dermal = No information available

**LD50/dermal/rat**

VALUE -Acute Tox Dermal = No information available

**LC50/inhalation/rat**

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

**LC50/Inhalation/mouse**

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

### Symptoms

#### Skin Contact:

Causes skin irritation. Causes skin irritation, particularly if moisture is present. Symptoms include redness, itching, and pain.

#### Eye Contact:

Causes eye irritation. Redness and pain.

#### Inhalation

Irritating to respiratory system. Symptoms may include coughing, shortness of breath. It may cause airway constriction in rare instances. Symptoms are usually transient.

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**Ingestion**

Harmful if swallowed. May cause irritation to the gastrointestinal tract. Symptoms may include cramping, nausea, vomiting, diarrhea. Ingestion also produces a feeling of dryness and puckering of the mucous membranes of the mouth and throat. It may affect behavior/central nervous system and cause ataxia and seizures. High blood concentrations of aluminum may cause aluminum-induced encephalopathy with confusion, lethargy, respiratory depression, cognitive impairment, dysarthria, asterixis, seizure, coma. It may also affect the liver. Individuals with renal failure may more readily accumulate toxic levels of aluminum which can result in encephalopathy and seizures.

**Aspiration hazard**

No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Chronic Toxicity**

Repeated or prolonged skin contact may cause irritation, especially if moisture is present.

Ingestion: Repeated or prolonged ingestion may affect metabolism, urinary system, blood (changes in serum composition - e.g. TP, bilirubin, cholesterol), skeletal system, and brain (degenerative changes). High blood concentrations of aluminum may cause aluminum to be deposited in the bones. Accumulation of aluminum in the bone appears to reduce the positive effects of vitamin D and may prevent calcium deposition into the bones. The prevention of calcium deposition leads to the return of the calcium to the blood. This may cause bone/skeletal abnormalities, osteomalacia, painful joints. The elevated serum calcium levels in turn inhibit the release of parathyroid hormone by the parathyroid glands..

**Sensitization:**

No information available

**Mutagenic Effects:**

No information available

**Carcinogenic effects:**

Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Aluminum Sulfate, Hydrated	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

**Reproductive toxicity**

No data is available

**Reproductive Effects:**

No information available

**Developmental Effects:**

No information available

**Teratogenic Effects:**

No information available

**Specific Target Organ Toxicity****STOT - single exposure**

STOT - single exposure. Respiratory system.

**STOT - repeated exposure**

No information available

**Target Organs:**

No information available

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

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## 12. ECOLOGICAL INFORMATION

**Ecotoxicity effects:** Aquatic environment.

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available

**Mobility:** No information available

## 13. DISPOSAL CONSIDERATIONS

### Disposal Methods

**Waste from residues / unused products:**

Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Aluminum Sulfate, Hydrated	None	None	None	None

## 14. TRANSPORT INFORMATION

### DOT

**UN-No:** UN3077  
**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.(aluminum sulfate)  
**Hazard Class:** 9  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**ERG No:** 171  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** 5000 lbs./2270 kg  
**Symbol(s):** G

### TDG (Canada)

**UN-No:** UN3077  
**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.  
**Hazard Class:** 9  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Description:** No information available

### ADR

**UN-No:** UN3077  
**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.  
**Hazard Class:** 9  
**Packing Group:** III  
**Subsidiary Risk:** No information available  
**Classification Code:** No information available

**Product code:** A1115

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## 14. TRANSPORT INFORMATION

**Description:** No information available

**CEFIC Tremcard No:** No information available

### IMO / IMDG

**UN-No:** UN3077

**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.

**Hazard Class:** 9

**Subsidiary Risk:** No information available

**Packing Group:** III

**Description:** No information available

**IMDG Page:** No information available

**Marine Pollutant:** No information available

**EMS:** F-A

**MFAG:** No information available

**Maximum Quantity:** No information available

### RID

**UN-No:** UN3077

**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.

**Hazard Class:** 9

**Subsidiary Risk:** No information available

**Packing Group:** III

**Classification Code:** No information available

**Description:** No information available

### ICAO

**UN-No:** UN3077

**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.

**Hazard Class:** 9

**Subsidiary Risk:** No information available

**Packing Group:** III

**Description:** No information available

### IATA

**UN-No:** UN3077

**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.

**Hazard Class:** 9

**Subsidiary Risk:** No information available

**Packing Group:** III

**ERG Code:** 9L

**Description:** No information available

## 15. REGULATORY INFORMATION

### International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Aluminum Sulfate, Hydrated</i>	Not Listed	Not present	Not present	Not present	Present	Present	Not present

### U.S. Regulations

*Aluminum Sulfate, Hydrated*

**Pennsylvania RTK - Environmental Hazard List** Present (listed as Aluminum water-soluble salts)

**Pennsylvania RTK - Special Hazardous Substances** Present (listed as Aluminum water-soluble salts)

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Aluminum Sulfate, Hydrated

Minnesota - Hazardous Substance List: Present (listed as Aluminum water-soluble salts)

California Directors List of Hazardous Substances: Present (listed as Aluminum water-soluble salts)

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Aluminum Sulfate, Hydrated	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
Aluminum Sulfate, Hydrated	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Aluminum Sulfate, Hydrated	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

D2B Toxic materials

Aluminum Sulfate, Hydrated

D2B

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
Aluminum Sulfate, Hydrated	Not Listed	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Aluminum Sulfate, Hydrated	Not listed	Not listed

EU Classification

R-phrases)

R22 - Harmful if swallowed.

R36/37/38 - Irritating to eyes, respiratory system and skin.

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**S -phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37 - Wear suitable gloves.

S46 - If swallowed, seek medical advice immediately and show this container or label.

Components	Classification	Concentration Limits:	Safety Phrases
Aluminum Sulfate, Hydrated		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

Xn - Harmful.

Xi - Irritant.

**16. OTHER INFORMATION**

## 16. OTHER INFORMATION

**Preparation Date:** 9/16/2015  
**Revision Date:** 9/16/2015  
**Prepared by:** Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**