



# Safety Data Sheet

Material Name: ALUMINUM SULFATE SOLUTION, 7% ACID

SDS ID: 00226341

## \*\*\* Section 1 - PRODUCT AND COMPANY IDENTIFICATION \*\*\*

**Material Name:** ALUMINUM SULFATE SOLUTION, 7% ACID

### Manufacturer Information

USALCO, LLC  
1120 Middle River Rd.  
Baltimore, MD 21220

Emergency # 1-800-424-9300 (CHEMTREC)

### Product Use

water treatment, phosphorus removal, alumina source for catalyst, pigments and coatings

## \*\*\* Section 2 - HAZARDS IDENTIFICATION \*\*\*

### EMERGENCY OVERVIEW

**Physical Form:** solution

**Health Hazards:** potentially fatal if inhaled, respiratory tract burns, skin burns, eye burns, mucous membrane burns, cancer hazard (in humans)

### POTENTIAL HEALTH EFFECTS

#### Inhalation

**Short Term:** potentially fatal if inhaled, burns

**Long Term:** burns, cancer

#### Skin

**Short Term:** burns

**Long Term:** burns

#### Eye

**Short Term:** burns

**Long Term:** burns

#### Ingestion

**Short Term:** burns

**Long Term:** burns

## \*\*\* Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS \*\*\*

CAS	Component	Percent	Symbol(s)	Risk Phrase(s)
7732-18-5	WATER 231-791-2	50 - 55	---	---
10043-01-3	ALUMINUM SULFATE 233-135-0	41 - 45	Xi	R:36-37-38
7664-93-9	SULFURIC ACID 231-639-5	7	C	R:35

### Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Aluminium compounds.

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## \*\*\* Section 4 - FIRST AID MEASURES \*\*\*

### Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

### Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

### Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion

If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

### Note to Physicians

For inhalation, consider oxygen.  
Avoid gastric lavage or emesis.

## \*\*\* Section 5 - FIRE FIGHTING MEASURES \*\*\*

See Section 9 for Flammability Properties

**NFPA Ratings: Health: 3 Fire: 0 Reactivity: 0**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

### Flammable Properties

Negligible fire hazard.

### Extinguishing Media

carbon dioxide, regular dry chemical, regular foam, water

### Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

### Thermal Decomposition Products

**Combustion:** oxides of sulfur

### Sensitivity to Mechanical Impact

Not sensitive

### Sensitivity to Static Discharge

Not sensitive

## \*\*\* Section 6 - ACCIDENTAL RELEASE MEASURES \*\*\*

### Soil Release

Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

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### Water Release

Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). Collect spilled material using mechanical equipment.

### Occupational spill/release

Do not touch spilled material. Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Small dry spills: Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

## \* \* \* Section 7 - HANDLING AND STORAGE \* \* \*

### Handling Procedures

Handle as a corrosive liquid. When mixing, slowly add to water to minimize heat generation and spattering. Keep emergency spill kit near storage and use areas.

### Storage Procedures

Store and handle in accordance with all current regulations and standards. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355 Part B). Store with acids. See original container for storage recommendations. Keep separated from incompatible substances.

## \* \* \* Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION \* \* \*

### Component Exposure Limits

#### SULFURIC ACID (7664-93-9)

ACGIH: 0.2 mg/m<sup>3</sup> TWA (thoracic fraction)

### Ventilation

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

### PERSONAL PROTECTIVE EQUIPMENT

#### Eyes/Face

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

#### Protective Clothing

Wear appropriate chemical resistant clothing.

#### Glove Recommendations

Wear appropriate chemical resistant gloves.

#### Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any air-purifying full-facepiece respirator equipped with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

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Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.  
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

### For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

## \*\*\* Section 9 - PHYSICAL AND CHEMICAL PROPERTIES \*\*\*

<b>Physical State:</b>	Liquid	<b>Appearance:</b>	Not available
<b>Physical Form:</b>	solution	<b>Odor:</b>	Not Available
<b>Odor Threshold:</b>	Not available	<b>pH:</b>	1.6 - 2.2 (approximate)
<b>pH (solution):</b>	50 %	<b>Melting Point:</b>	Not available
<b>Boiling Point:</b>	Not available	<b>Flash Point:</b>	aqueous solution
<b>Evaporation Rate:</b>	Not available	<b>Vapor Pressure:</b>	Not available
<b>Vapor Density (air = 1):</b>	Not available	<b>Density:</b>	Not available
<b>Specific Gravity (water = 1):</b>	Not available	<b>Water Solubility:</b>	soluble
<b>Coeff. Water/Oil Dist:</b>	Not available	<b>Viscosity:</b>	Not available
<b>Volatility:</b>	Not available		

## \*\*\* Section 10 - STABILITY AND REACTIVITY \*\*\*

### Chemical Stability

Stable at normal temperatures and pressure.

### Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. May ignite or explode on contact with combustible materials.

### Materials to Avoid

bases, metals, combustible materials, halo carbons, oxidizing materials, amines, halogens, metal carbide, acids, metal salts, peroxides, reducing agents

SULFURIC ACID:

ACETALDEHYDE: Violently polymerized by concentrated acid.

ACETIC ANHYDRIDE: Temperature and pressure increase in closed container.

ACETONE + NITRIC ACID: Violent decomposition.

ACETONE + POTASSIUM DICHROMATE: Ignition.

ACETONE CYANHYDRIN: Pressure increase with possible explosive rupture of vessel.

ACETONITRILE: Violent exotherm on heating; sulfur trioxide reduces initiation temperature.

ACROLEIN: Temperature and pressure increase in closed container.

ACRYLONITRILE: Vigorous exothermic polymerization.

ALCOHOL: Exothermic reaction and contraction of volume.

ALCOHOLS AND HYDROGEN PEROXIDE: Possible explosion.

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ALLYL ALCOHOL: Temperature and pressure increase in closed container.  
ALLYL CHLORIDE: Violent polymerization.  
ALKYL NITRATES: May cause violent reaction.  
2-AMINOETHANOL: Temperature and pressure increase in closed container.  
AMMONIUM HYDROXIDE: Temperature and pressure increase in closed container.  
AMMONIUM IRON(III) SULFATE DODECAHYDRATE: Violent, exothermic reaction on heating.  
AMMONIUM TRIPERCHROMATE: Fire or explosion hazard.  
ANILINE: Temperature and pressure increase in closed container.  
BASES: Violent reaction.  
BENZYL ALCOHOL: May decomposes explosively at about 180 C.  
BROMATES + METALS: Possible ignition.  
BROMINE PENTAFLUORIDE: Violent reaction with possible ignition.  
TERT-BUTYL-M-XYLENE: Violent exothermic reaction without agitation.  
N-BUTYRALDEHYDE: Temperature and pressure increase in closed container.  
CARBIDES: Hazardous mixture.  
CESIUM ACETYLIDE: Ignition on contact.  
1-CHLORO-2,3-EPOXYPROPANE: Violent interaction.  
4-CHLORONITROBENZENE AND SULFUR TRIOXIDE: Possible explosive reaction.  
CHLORATES: All chlorates, when brought in contact with sulfuric acid may give off explosive chlorine dioxide gas. A violent explosion is usual.  
CHLORATES + METALS: Possible ignition.  
CHLORINE TRIFLUORIDE: Violent reaction.  
CHLOROSULFONIC ACID: Temperature and pressure increase in closed container.  
CHROMATES: Fire and explosion hazard.  
COATINGS: Attacked.  
COMBUSTIBLE MATERIALS (FINELY DIVIDED): May ignite.  
COPPER: Evolution of sulfur dioxide.  
CUPROUS NITRIDE: Violent reaction.  
2-CYANO-4-NITROBENZENEDIAZONIUM HYDROGEN SULFATE: Exothermic reaction.  
2-CYANO-2-PROPANOL: Violent reaction with increase in pressure.  
CYCLOPENTADIENE: Violent or explosive reaction.  
CYCLOPENTANONE OXIME: Violent reaction.  
1,3-DIAZIDOBENZENE: Ignition followed by explosive reaction.  
DIETHYLAMINE: Exothermic reaction.  
DIISOBUTYLENE: Temperature and pressure increase in closed container.  
DIMETHYLBENZYL CARBINOL + HYDROGEN PEROXIDE: Explodes.  
DIMETHOXYANTHRAQUINONE: Exothermic reaction above 150 C.  
4-DIMETHYLAMINO BENZALDEHYDE: Exothermic reaction.  
2,5-DINITRO-3-METHYLBENZOIC ACID + SODIUM AZIDE: Explosive reaction.  
1,5-DINITRONAPHTHALENE + SULFUR: Exothermic reaction.  
EPICHLOROHYDRIN: Violent reaction.  
ETHOXYLATED NONYLPHENOL: Possible ignition.  
ETHANOL + HYDROGEN PEROXIDE: Possible explosion.  
ETHYLENE CYANOHYDRIN: Violent reaction.

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ETHYLENE DIAMINE: Temperature and pressure increase in closed container.  
ETHYLENE GLYCOL: Temperature and pressure increase in closed container.  
ETHYLENIMINE: Temperature and pressure increase in closed container.  
FULMINATES: Extremely hazardous mixture.  
HEXALITHIUM DISILICIDE: Incandescent reaction.  
HYDROCHLORIC ACID: Temperature and pressure increase in closed container.  
HYDROGEN PEROXIDE (>50%): Explosive reaction after evaporation.  
HYDROFLUORIC ACID: Temperature and pressure increase in closed container.  
INDANE + NITRIC ACID: Possible explosion.  
IODINE HEPTAFLUORIDE: The acid becomes effervescent.  
IRON: Possible explosion due to hydrogen gas from the acid-metal reaction.  
ISOPRENE: Temperature and pressure increase in closed container.  
LITHIUM SILICIDE: Incandescent reaction.  
MERCURY NITRIDE: Explosion on contact.  
MESITYL OXIDE: Temperature and pressure increase in closed container.  
METALS: May liberate flammable hydrogen gas.  
METALS (POWDERED): Extremely hazardous mixture.  
METAL ACETYLIDES: Ignition reaction.  
METAL CHLORATES: Violent explosion unless properly cooled.  
METAL PERCHLORATES: Formation of explosive perchloric acid.  
4-METHYLPYRIDINE: Exothermic reaction.  
NITRAMIDE: May decompose explosively on contact.  
NITRATES: Incompatible.  
NITRIC ACID + GLYCERIDES: Explosion.  
NITRIC ACID + ORGANIC MATERIAL: May cause violent reaction.  
NITRIC ACID + TOLUENE: Possible violent reaction or explosion.  
NITROARYL BASES AND DERIVATIVES: May cause violent reaction or explosion.  
NITROBENZENE: Exothermic reaction at elevated temperatures.  
3-NITROBENZENESULFONIC ACID: Exothermic reaction.  
NITROMETHANE: Formation of explosive mixture.  
N-NITROMETHYLAMINE: Explosive decomposition.  
4-NITROTOLUENE: Explosive at 80 C.  
ORGANICS: Violent exothermic reaction.  
PENTASILVER TRIHYDROXYDIAMIDOPHOSPHATE: Explosion on contact.  
PERCHLORATES: Possible explosion.  
PERCHLORIC ACID: Formation of dangerous anhydrous perchloric acid.  
PERMANGANATES: Formation of permanganic acid.  
PERMANGANATES + BENZENE: Possible explosion.  
1-PHENYL-2-METHYL-PROPYL ALCOHOL + HYDROGEN PEROXIDE: Possible explosion.  
PHOSPHORUS (WHITE OR YELLOW): Ignition in contact with boiling acid.  
PHOSPHORUS ISOCYANATE: Violent reaction.  
PHOSPHORUS TRIOXIDE: Violent oxidation with possible ignition.  
PICRATES: Extremely hazardous mixture.  
PLASTICS: Attacked.  
POLYSILYLENE: Explosion on contact.

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POTASSIUM: Explosive interaction.  
POTASSIUM TERT-BUTOXIDE: Ignition.  
POTASSIUM CHLORATE: Possible fire and explosion.  
POTASSIUM PERMANGANATE: Possible explosion in the presence of moisture.  
POTASSIUM PERMANGANATE + POTASSIUM CHLORIDE: Violent explosion.  
PROPIOLACTONE (BETA): Temperature and pressure increase in closed container.  
PROPYLENE OXIDE: Temperature and pressure increase in closed container.  
3-PROPYNOL: Possible explosion unless adequately cooled.  
PYRIDINE: Temperature and pressure increase in closed container.  
REDUCING AGENTS: Reacts.  
RUBBER: Attacked.  
RUBIDIUM ACETYLIDE: Ignition on contact.  
SILVER PERMANGANATE (MOIST): Explosive reaction.  
SILVER PEROXOCHROMATE: Explosive reaction.  
SODIUM: Explosive reaction with aqueous acid.  
SODIUM CARBONATE: Violent reaction.  
SODIUM CHLORATE: Possible fire or explosion.  
SODIUM HYDROXIDE: Temperature and pressure increase in closed container.  
SODIUM TETRAHYDROBORATE: Violent, exothermic reaction.  
SODIUM THIOCYANATE: Violent exothermic with evolution of carbonyl sulfide.  
STEEL: Possible explosion due to hydrogen gas from the acid-metal reaction.  
STYRENE MONOMER: Temperature and pressure increase in closed container.  
SUCROSE: Formation of carbon monoxide.  
TETRAMETHYLBENZENES: Violent reaction in closed containers.  
1,2,4,5-TETRAZINE: Violent decomposition on contact.  
THALLIUM(I) AZIDIDITHIOCARBONATE: May explode on contact.  
1,3,5-TRINITROSOHEXAHYDRO-1,3,5-TRIAZINE: Explosive decomposition on contact.  
VINYL ACETATE: Temperature and pressure increase in closed container.  
ZINC CHLORATE: Likely to cause fires and explosions.  
ZINC IODIDE: Violent interaction.  
ALUMINUM SULFATE:  
BASES: Violent reaction.  
METALS: May be corrosive in the presence of moisture.

### Thermal Decomposition Products

**Combustion:** oxides of sulfur

### Possibility of Hazardous Reactions

Will not polymerize.

## \*\*\* Section 11 - TOXICOLOGICAL INFORMATION \*\*\*

### Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

**WATER (7732-18-5)**

Oral LD50 Rat: >90 mL/kg

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### ALUMINUM SULFATE (10043-01-3)

Oral LD50 Rat: 1930 mg/kg

### SULFURIC ACID (7664-93-9)

Inhalation LC50 Mouse: 320 mg/m<sup>3</sup>/2H; Inhalation LC50 Rat: 510 mg/m<sup>3</sup>/2H; Inhalation LC50 Rat: 347 ppm/1H;

Oral LD50 Rat: 2140 mg/kg

### RTECS Acute Toxicity (selected)

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### WATER (7732-18-5)

Oral: >90 ml/kg oral rat LD50

#### ALUMINUM SULFATE (10043-01-3)

Oral: 6207 mg/kg oral mouse LD50

#### SULFURIC ACID (7664-93-9)

Inhalation: 510 mg/m<sup>3</sup> inhalation rat LC50; 510 mg/m<sup>3</sup>/2 hour(s) inhalation rat LC50

Oral: 2140 mg/kg oral rat LD50

### Acute Toxicity Level

#### ALUMINUM SULFATE (10043-01-3)

Slightly Toxic: ingestion.

#### SULFURIC ACID (7664-93-9)

Highly Toxic: inhalation.

Toxic: ingestion.

### Component Carcinogenicity

#### SULFURIC ACID (7664-93-9)

ACGIH: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)

IARC: Monograph 54 [1992] (Group 1 (carcinogenic to humans))

DFG: Category 4 (no significant contribution to human cancer)

### RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### ALUMINUM SULFATE (10043-01-3)

10 mg/24 hour(s) eyes rabbit severe

#### SULFURIC ACID (7664-93-9)

5 mg/30 second(s) rinsed eyes rabbit severe; 250 ug eyes rabbit severe

### Local Effects

#### ALUMINUM SULFATE (10043-01-3)

Irritant: inhalation, skin, eye.

#### SULFURIC ACID (7664-93-9)

Corrosive: inhalation, skin, eye, ingestion.

Exposure to strong inorganic acid mists containing sulfuric acid has been shown to produce an excess risk of laryngeal and lung cancer in male workers of various operations, primarily pickling operations in the steel industry and in a U.S. Petrochemical plant.

### Medical Conditions Aggravated by Exposure

respiratory disorders, skin disorders

### RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes the following endpoints:

#### ALUMINUM SULFATE (10043-01-3)

m micronucleus test human lymphocyte 20 mg/L; sister chromatid exchange human lymphocyte 20 mg/L; other

mutation test systems human lymphocyte 20 mg/L; cytogenetic analysis human lymphocyte 20 mg/L; cytogenetic

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analysis rat oral 762 mg/kg/7 day(s) continuous; other mutation test systems rat oral 762 mg/kg/7 day(s) continuous

### **SULFURIC ACID (7664-93-9)**

cytogenetic analysis hamster ovary 4 mmol/L

## **RTECS Reproductive Effects**

The components of this material have been reviewed, and RTECS publishes the following endpoints:

### **ALUMINUM SULFATE (10043-01-3)**

800 mg/kg intraperitoneal mouse TDLo (pregnant female 10-13 day(s), continuous); 27371 ug/kg subcutaneous mouse TDLo (male 30 day(s)); 27371 ug/kg intratesticular rat TDLo (male 1 day(s))

### **SULFURIC ACID (7664-93-9)**

20 mg/m<sup>3</sup> inhalation rabbit TCLo (7 hour(s), pregnant female 6-18 day(s), continuous)

## **HEALTH EFFECTS**

### **Inhalation - Acute Exposure**

**SULFURIC ACID:** Inhalation of mists may cause mucous membrane irritation principally affecting the respiratory tract epithelium. Low concentrations, 0.35-5 mg/m<sup>3</sup>, may cause increased pulmonary air flow resistance and subsequent shallower and more rapid breathing. Hot concentrated mists may cause rapid loss of consciousness with possible damage to lung tissue. Vapors may cause nasal secretions, sneezing, a burning or tickling sensation in the nose and throat and retrosternal region, followed by cough, respiratory distress, tracheobronchitis, chemical pneumonitis and possible spasm of the vocal cords. High concentrations may produce bloody nasal secretions and sputum, hematemesis gastritis, and pulmonary edema. A single overexposure may lead to laryngeal, tracheobronchial and pulmonary edema. One individual sprayed in the face with sulfuric acid liquid experienced delayed symptoms of pulmonary fibrosis, residual bronchitis, and pulmonary emphysema. Vapors from dilute solutions may irritate mucous membranes. **ALUMINUM SULFATE:** Inhalation may cause irritation of mucous membranes with sore throat and cough due to sulfuric acid which is formed by the hydrolysis of the salt upon contact with moisture.

### **Inhalation - Chronic Exposure**

**SULFURIC ACID:** Repeated exposure to the mist may cause inflammation of the upper respiratory tract, chronic bronchitis and etching of the dental enamel. The central and lateral incisors are primarily affected. Repeated excessive exposure over long periods of time have resulted in bronchitic symptoms, rhinorrhea, frequent respiratory tract infections, emphysema, stomatitis and digestive disturbances. Chronic inhalation may cause alkaline depletion of the body producing an acidosis which affects the nervous system and produces agitation, hesitant gait and generalized weakness. An epidemiological study of workers at a refinery and chemical plant suggests an increased risk of laryngeal cancer from exposure to high concentrations of sulfuric acid.

Reproductive effects have been reported in animals. **ALUMINUM SULFATE:** Repeated or prolonged exposure may cause bronchial irritation, leading to nocturnal wheezing, and breathlessness. Prolonged inhalation of dusts containing high concentrations of aluminum have produced emphysema, non-nodular pulmonary fibrosis and fatalities.

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### Skin Contact - Acute Exposure

SULFURIC ACID: Contact with concentrated sulfuric acid may cause severe second and third degree skin burns with necrosis due to its affinity for water and subsequent severe dehydrating action, and its exothermic reaction with moisture. Possible charring may occur leading to shock and collapse depending on the amount of tissue involved. The resulting wounds may be long in healing and may cause extensive scarring that may result in functional inhibition. Contact with dilute solutions may cause skin irritation. ALUMINUM SULFATE: Aluminum sulfate hydrolyzes readily with moisture to form some sulfuric acid which may produce irritation, dermatoses and eczema. Excessive formation of sulfuric acid may produce possible burns. Aluminum sulfate may rarely cause skin sensitization.

### Skin Contact - Chronic Exposure

SULFURIC ACID: Repeated contact with low concentrations may cause skin desiccation and ulceration of the hands, and paronychia or chronic purulent inflammation around the nails. Repeated contact with dilute solutions may cause dermatitis. ALUMINUM SULFATE: Repeated or prolonged contact with some soluble salts of aluminum results in acid irritation from hydrolysis. A congestive, anesthetic condition of the fingers (acroanesthesia) may occur from prolonged contact. Repeated exposure may result in sensitization.

### Eye Contact - Acute Exposure

SULFURIC ACID: Exposure to the vapors may cause a burning or stinging sensation in the eyes with lacrimation, blurred vision and conjunctival congestion. Splashes of acid in the eyes may produce deep corneal ulceration, kerato-conjunctivitis and palpebral lesions with severe sequelae. Irreparable corneal damage and blindness as well as scarring of the eyelids may occur. Severe sulfuric acid eye burns have included glaucoma and cataract as complications in the most severe cases. Contact with diluted acid may produce more transient effects from which recovery may be complete. ALUMINUM SULFATE: May cause irritation, redness, and corneal burns due to the reaction of the compound with moisture to form sulfuric acid.

### Eye Contact - Chronic Exposure

SULFURIC ACID: Repeated exposure may result in lacrimation and chronic conjunctivitis. ALUMINUM SULFATE: Repeated or prolonged contact with irritants may cause conjunctivitis or effects similar to those for acute exposure.

### Ingestion - Acute Exposure

SULFURIC ACID: Ingestion may cause burning pain in the mouth, throat, esophagus and abdomen, a sour taste and nausea followed by vomiting and diarrhea of charred black stomach contents. Dehydration and carbonization of tissue may occur with eschars on the lips and mouth. Brownish or yellowish stains may be found around the mouth, intense thirst, difficult swallowing, acidemia, stomatitis, rapid and weak pulse, shallow breathing, shock and possible convulsions and death may occur. Albumin, blood and casts in urine, anuria, esophageal and delayed gastric stenosis has been reported. Possible perforation of the gastrointestinal tract may result in peritonitis. ALUMINUM SULFATE: Ingestion of a large dose was lethal in mice. Aluminum salts, particularly concentrated solutions (20%), may produce gingival necrosis and fatal hemorrhagic gastroenteritis, incoordination, clonic contractions, evidence of nephritis and death.

### Ingestion - Chronic Exposure

SULFURIC ACID: No data available. ALUMINUM SULFATE: No data available.

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## \*\*\* Section 12 - ECOLOGICAL INFORMATION \*\*\*

### Component Analysis - Aquatic Toxicity

#### ALUMINUM SULFATE (10043-01-3)

Fish: 96 Hr LC50 Carassius auratus: 100 mg/L; 96 Hr LC50 Gambusia affinis: 37 mg/L [static]

Invertebrate: 15 Min EC50 Daphnia magna: 136 mg/L

#### SULFURIC ACID (7664-93-9)

Fish: 96 Hr LC50 Brachydanio rerio: >500 mg/L [static]

Invertebrate: 24 Hr EC50 Daphnia magna: 29 mg/L

## \*\*\* Section 13 - DISPOSAL CONSIDERATIONS \*\*\*

### Disposal Methods

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.

### Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

## \*\*\* Section 14 - TRANSPORT INFORMATION \*\*\*

### US DOT Information

**Shipping Name:** RQ Environmentally hazardous substances, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN/NA #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

**Required Label(s):** 9

### TDG Information

**Shipping Name:** Environmentally hazardous substance, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

**Required Label(s):** 9

### ADR Information

**Shipping Name:** Environmentally hazardous substance, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

**Required Label(s):** 9

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### ADR Tunnel Code Restrictions

This list contains tunnel restriction codes for those substances and/or chemically related entries which are found in chapter 3.2 of the ADR regulations.

**SULFURIC ACID (7664-93-9)**

### RID Information

**Shipping Name:** Environmentally hazardous substance, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

**Required Label(s):** 9

### IATA Information

**Shipping Name:** Environmentally hazardous substance, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

**Required Label(s):** 9

### ICAO Information

**Shipping Name:** Environmentally hazardous substance, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

**Required Label(s):** 9

### IMDG Information

**Shipping Name:** Environmentally hazardous substance, liquid, n.o.s., solution (Contains: ALUMINUM SULFATE, SOLUTION)

**UN #:** UN3082 **Hazard Class:** 9 **Packing Group:** III

<b>* * * Section 15 - REGULATORY INFORMATION * * *</b>
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### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

**ALUMINUM SULFATE (10043-01-3)**

**CERCLA:** 5000 lb final RQ; 2270 kg final RQ

**SULFURIC ACID (7664-93-9)**

**SARA 302:** 1000 lb TPQ

**SARA 313:** 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

**CERCLA:** 1000 lb final RQ; 454 kg final RQ

**SARA Section 311/312 (40 CFR 370 Subparts B and C)**

**Acute Health:** Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactive:** No

# Safety Data Sheet

Material Name: ALUMINUM SULFATE SOLUTION, 7% ACID

SDS ID: 00226341

## U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
ALUMINUM SULFATE	10043-01-3	Yes	Yes	No	Yes	Yes	No
SULFURIC ACID	7664-93-9	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

## Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

**SULFURIC ACID (7664-93-9)**

1 %

## Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which fall under WHMIS criteria specified in the Controlled Products Regulations and present above the threshold limits listed on the IDL.

**SULFURIC ACID (7664-93-9)**

WHMIS IDL: 1 %

## Germany Water Classification

**ALUMINUM SULFATE (10043-01-3)**

Number 486, hazard class 1 - low hazard to waters (footnote 8)

**SULFURIC ACID (7664-93-9)**

Number 182, hazard class 1 - low hazard to waters (footnote 8)

## EU Marking and Labelling

### Symbols

Xi Irritant

### Risk Phrases

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

## Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
WATER	7732-18-5	Yes	DSL	EIN	Yes	Yes	No	Yes	Yes	Yes
ALUMINUM SULFATE	10043-01-3	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes
SULFURIC ACID	7664-93-9	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

## Safety Data Sheet

Material Name: ALUMINUM SULFATE SOLUTION, 7% ACID

SDS ID: 00226341

### \*\*\* Section 16 - OTHER INFORMATION \*\*\*

#### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

#### Full text of R phrases in Section 3

**R35** Causes severe burns.

**R36** Irritating to eyes.

**R37** Irritating to respiratory system.

**R38** Irritating to skin.

#### Other Information

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## Safety Data Sheet

Material Name: ALUMINUM SULFATE SOLUTION, 7% ACID

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End of Sheet 00226341