



# MATERIAL SAFETY DATA SHEET

According to the UN GHS revision 9

Version: 1.0

Creation Date: July 15, 2019

Revision Date: July 15, 2019

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## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name Aluminium sulphate

### 1.2 Other means of identification

Product number -

Other names Aluminium sulfate; Aluminum Sulfate;

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.

Uses advised against no data available

### 1.4 Supplier's details

Company Shandong Yili-Spring Chemical Industry Co., Ltd.

Address 1016, Xinyue Fortune Center, Zouping County, Binzhou City, Shandong

Telephone 86-543-4865599

### 1.5 Emergency phone number

Emergency phone number +86 15505433527

Service hours Monday to Friday, 8am-5pm (Standard time zone: UTC/GMT +8 hours).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Corrosive to metals, Category 1

Serious eye damage, Category 1

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)****Signal word**

Danger

**Hazard statement(s)**

H290 May be corrosive to metals

H318 Causes serious eye damage

**Precautionary statement(s)****Prevention**

P234 Keep only in original packaging.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

**Response**

P390 Absorb spillage to prevent material damage.

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

**Storage**

P406 Store in a corrosion resistant/...container with a resistant inner liner.

**Disposal**

none

**2.3 Other hazards which do not result in classification**

no data available

**SECTION 3: Composition/information on ingredients****3.1 Substances**

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Aluminium sulphate	Aluminium sulphate	10043-01-3	233-135-0	100%

**SECTION 4: First-aid measures****4.1 Description of necessary first-aid measures****If inhaled**

Fresh air, rest. Refer for medical attention.

**Following skin contact**

Rinse skin with plenty of water or shower.

**Following eye contact**

Rinse with plenty of water for several minutes (remove contact lenses if easily possible). Refer immediately for medical attention.



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### Following ingestion

Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

### 4.2 Most important symptoms/effects, acute and delayed

Inhalation of dust irritates nose and mouth. Ingestion of large doses causes gastric irritation, nausea, vomiting, and purging. Dust irritates eyes and skin. (USCG, 1999)

Vapor irritates eyes, nose and respiratory tract due to formation of sulfuric acid. Ingestion of large doses causes gastric irritation, nausea, vomiting, and purging. Liquid irritates eyes and skin. (USCG, 1999)

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

Exposure to aluminum sulfate/: Call for medical aid. Dust: Irritating to eyes, nose and throat. If inhaled will cause difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. Solid: Irritating to skin and eyes. If swallowed with cause nausea or vomiting. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. If in eyes, hold eyelids open and flush with plenty of water. If swallowed and victim is conscious, have victim drink water or milk. If swallowed and victim is unconscious or having convulsions, do nothing except keep victim warm.

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.)

### 5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Produces sulfuric acid upon decomposition. (USCG, 1999)

### 5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered plastic containers. If appropriate, moisten first to prevent dusting. Store and dispose of according to local regulations.

### 6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Sweep spilled substance into covered plastic containers. If appropriate, moisten first to prevent dusting. Store and dispose of according to local regulations.



### 6.3 Methods and materials for containment and cleaning up

Environmental considerations: Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. /SRP: If time permits, pits, ponds, lagoons, soak holes, or holding areas should be sealed with an impermeable flexible membrane liner./ Cover solids with a plastic sheet to prevent dissolving in rain or fire fighting water.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### 7.2 Conditions for safe storage, including any incompatibilities

Separated from bases and strong oxidants. Dry. Store in an area without drain or sewer access. Provision to contain effluent from fire extinguishing. Ambient Octadecohydrate

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

<b>Component</b>	Aluminium sulphate			
<b>CAS No.</b>	10043-01-3			
	<b>Limit value - Eight hours</b>		<b>Limit value - Short term</b>	
	<b>ppm</b>	<b>mg/m<sup>3</sup></b>	<b>ppm</b>	<b>mg/m<sup>3</sup></b>
<b>Finland</b>		1 (1)		
	<b>Remarks</b>			
<b>Finland</b>	(1) calculated as Al			

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear safety goggles.



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**Skin protection**

Protective gloves.

**Respiratory protection**

Avoid inhalation of dust. Use local exhaust or breathing protection.

**Thermal hazards**

no data available

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**SECTION 9: Physical and chemical properties and safety characteristics**

<b>Physical state</b>	Solid. Crystalline.
<b>Colour</b>	White, lustrous crystals, pieces, granules, or powder.
<b>Odour</b>	ODORLESS
<b>Melting point/freezing point</b>	> 770 °C. Atm. press.:Ca. 101 325 Pa.
<b>Boiling point or initial boiling point and boiling range</b>	330°C at 760 mmHg
<b>Flammability</b>	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	no data available
<b>Auto-ignition temperature</b>	no data available
<b>Decomposition temperature</b>	770°C
<b>pH</b>	> 1 - <= 2.9. Remarks:1 g/1 ml water) not less than 2.9.
<b>Kinematic viscosity</b>	dynamic viscosity (in mPa s) = 17. Temperature:20°C. Remarks:Water solution of aluminium sulphate 1 g/1 ml water.
<b>Solubility</b>	Freely soluble in water, insoluble in ethanol
<b>Partition coefficient n-octanol/water</b>	no data available
<b>Vapour pressure</b>	Essentially zero.
<b>Density and/or relative density</b>	2 710 kg/m <sup>3</sup> . Temperature:20 °C.
<b>Relative vapour density</b>	no data available
<b>Particle characteristics</b>	no data available

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**SECTION 10: Stability and reactivity****10.1 Reactivity**

Decomposes on heating and on burning. This produces toxic and corrosive fumes including sulfur oxides.

Reacts with bases. Reacts violently with strong oxidants. This produces heat. This produces toxic and corrosive



fumes including sulfur oxides. The solution in water is a medium strong acid. Attacks many metals in the presence of water.

### **10.2 Chemical stability**

Stable in air.

### **10.3 Possibility of hazardous reactions**

May burn, but will not ignite. Aqueous solutions of ALUMINUM SULFATE are acidic. The solid may corrode metals in presence of moisture.

### **10.4 Conditions to avoid**

no data available

### **10.5 Incompatible materials**

May corrode metals in presence of moisture. Aluminum sulfate octadecahydrate

### **10.6 Hazardous decomposition products**

When heated to decomposition it emits toxic fumes of /sulfur oxides/.

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LD50 Rat oral 1930 mg/kg
- Inhalation: no data available
- Dermal: no data available

### **Skin corrosion/irritation**

no data available

### **Serious eye damage/irritation**

no data available

### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

A4: Not classifiable as a human carcinogen. Aluminum metal and insoluble compounds

### **Reproductive toxicity**



no data available

#### **STOT-single exposure**

The substance is severely irritating to the eyes, respiratory tract and gastrointestinal tract. The substance is mildly irritating to the skin.

#### **STOT-repeated exposure**

The substance may have effects on the central nervous system. This may result in impaired functions.

#### **Aspiration hazard**

A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

- Toxicity to fish: NOEC - Danio rerio (previous name: Brachydanio rerio) - > 1 000 mg/L - 96 h. Remarks:Low toxicity.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 100 mg/L - 48 h. Remarks:And immobilization.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - > 100 mg/L - 72 h.
- Toxicity to microorganisms: EC50 - Euglena sp. - 3 010.832 mg/L - 5 d. Remarks:Population.

### **12.2 Persistence and degradability**

no data available

### **12.3 Bioaccumulative potential**

no data available

### **12.4 Mobility in soil**

no data available

### **12.5 Other adverse effects**

no data available

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## **SECTION 13: Disposal considerations**

### **13.1 Disposal methods**

#### **Product**



The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### 14.1UN Number

ADR/RID: Not dangerous goods. (For IMDG: Not dangerous goods. (For IATA: Not dangerous goods. (For reference only, please check.) reference only, please check.) reference only, please check.)

### 14.2UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For IMDG: Not dangerous goods. (For IATA: Not dangerous goods. (For reference only, please check.) reference only, please check.) reference only, please check.)

### 14.3Transport hazard class(es)

ADR/RID: Not dangerous goods. (For IMDG: Not dangerous goods. (For IATA: Not dangerous goods. (For reference only, please check.) reference only, please check.) reference only, please check.)

### 14.4Packing group, if applicable

ADR/RID: Not dangerous goods. (For IMDG: Not dangerous goods. (For IATA: Not dangerous goods. (For reference only, please check.) reference only, please check.) reference only, please check.)

### 14.5Environmental hazards

ADR/RID: No IMDG: No IATA: No

### 14.6Special precautions for user

no data available

### 14.7Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
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Aluminium sulphate	Aluminium sulphate	10043-01-3	233-135-0
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Not Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.

## SECTION 16: Other information

### Information on revision

**Creation Date** July 15, 2019

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### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>



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- Germany GESTIS-database on hazard substance, website:  
<http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
  - ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Other Information

Occurs in nature as the mineral alunogenite. Other CAS numbers: 16828-12-9 (14-hydrate); 16828-11-8 (16-hydrate); 7784-31-8 (18-hydrate); 17927-65-0 (x-hydrate). Aluminium sulfate hydrolyzes in water forming sulfuric acid and heat. Literature values for solubility of the substance are very different due to hydrolyzation process.

*Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.*