NUMCHAI INDUSTRY CO., LTD

Safety Data Sheet

Ammonium alum

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Ammonium alum, Aluminium ammonium sulfate

Brand : NUMCHAI INDUSTRY CO., LTD

Formula : $Al_2(SO_4)$ $(NH_4)_2SO_4.24H_2O$

Molecular Weight : 906.64 g/mol

EC No. : 232-055-3

CAS-No. : 7784-25-0

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

Identified uses : Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Company : NUMCHAI INDUSTRY CO., LTD

84 Moo 1. Rama 2 Rd., Bangtorad Ampur Muang Samutsakorn

Samutsakorn 74000 Thailand

Telephone : 034-432518-20

Fax : 034-432519

1.4 Emergency telephone number

Emergency Phone # : 034-432518-20

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Skin Corrosion/Irritation (Category 2), H315

Serious eye damage (Category 2), H319

Specific target organ toxicity – single exposure (Category3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(S)

H315	Skin Corrosion/Irritation
H319	Serious eye damage

Precautionary statement(s)

P264	Wash skin thoroughly after handling
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF ON EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313	IF IN SKIN: Call a doctor/physician if you feel unwell.
P337+P313	IF IN EYES: Call a doctor/physician if you feel unwell.
P362	Wash contaminated clothing before reuse.

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Product name : Ammonium alum

Synonyms : Alum, Ammonium alum, aluminium ammonium sulfate

Formula : $Al_2(SO_4)$ $(NH_4)_2SO_4.24H_2O$

Molecular weight : 906.64 g/mol

CAS-No. : 7784-25-0

UN Number : 3077

EC-No. : 232-055-3

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Skin contact Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Eye contact If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.

Ingestion After swallowing: make victim drink water (two glasses at the most), avoid vomiting, risk of perforation. Immediately call-in physician. Do not attempt to neutralize.

4.2 Most important symptoms and effects. Both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and / or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

Not Available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

In adaption to materials stored in the immediate neighborhood.

5.2 Special hazards arising from the substance or mixture

Non-combustible. Ambient fire may liberate hazardous vapors. Hydrogen may form upon contact with metals

(danger of explosion). The following may develop in event of fire: Sulfur oxide.

5.3 Advice for firefighters

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

5.4 Further information

Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or ground water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and work its. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

6.4 Reference to other sections

For disposal see section 13.

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

Keep tightly closed in a dry, cool and well-ventilated place. Keep out of direct sunlight and away from heat, water and incompatible materials. Requirements for containers, no metal containers.

7.3 Specific and use (s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

7.4 Environmental precautions

Setting up the substance to the environment because this substance affects living things, resulting in changes in the pH of the water.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Source : Australia Exposure Standards

Material : aluminium ammonium sulfate (Aluminium, 2 soluble salts (as Al))

TWA : 2 mg/m³

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in ventilation hoods and fans.

Skin protection

Chemical resistant apron / corrosive protective clothing, heavy duty work shoes. Handle with gloves

- Full contact wears gloves from viton material.

- Splash contact wears gloves from butyl rubber material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter P2 (EN 141 or EN 14387).

Environmental exposure controls

Prevent liquid entering sewers, basements and work its.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state	: White to colorless, odorless crystalline
b) Color	: White
c) Odor	: Not Available

d) Melting point/freezing point Melting point	: 193 °C
e) Initial boiling point and boiling range	: 94.5 °C
f) Flammability (solid, gas)	: Not Available
g) Upper/lower flammability or explosive limits	: Not Available
h) Flash point	: Not Available
i) Autoignition temperature	: Not Available
j) Decomposition temperature	: 120 °C
k) pH	: 3.0 – 4.0 (0.05M Solution)
l) Viscosity	: 1.369 at 20 °C
m) Water solubility: Dissolves well	: Not Available
n) Partition coefficient: n-octanol/water	: Not Available
o) Vapor pressure	: Not Available
p) Density Relative density	: 1.643 kg/m3 at 25 °C
q) Relative vapor density	: Not Available
r) Particle characteristics	: Not Available
s) Explosive properties	: Not Available
t) Oxidizing properties	: Not Available

SECTION 10: Stability and reactivity

10.1 Reactivity

Not Available

10.2 Chemical

Not Available

10.3 Possibility of hazardous

Not Available

10.4 Conditions to avoid

Strong heating, humidity

10.5 Incompatible materials

Not Available

10.6 Hazardous decomposition products

Hazardous decomposition products: At 280 oC, Ammonia, Sulfur trioxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not Available

Acute oral toxicity

Acute toxic responses to aluminium are confined to the more soluble forms. Large doses of ammonia or injected ammonium salts may produce diarrhea and may be sufficiently absorbed to produce increased production of urine and systemic poisoning. Symptoms include weakening of facial muscle, tremor, anxiety, reduced muscle and limb control.

Acute inhalation toxicity

This substance can cause respiratory irritation in some people.

Skin corrosion/irritation

Skin contact is not considered to have any harmful health effects.

Serious eye damage/eye irritation

This material can cause eye irritation and damage in some persons.

Respiratory or skin sensitization

Not Available

Germ cell mutagenicity

Not Available

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia

NOEC - Danio rerio (previous name: Brachydanio rerio) - >= 0.105 mg/L - 96 h. Remarks:Al

12.2 Persistence and degradability

Not Available

12.3 Bio accumulative potential

If a large amount of alum is leaked into water sources, it could be harmful to aquatic animals.

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Harmful effect on aquatic organisms. Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form. Does not cause biological oxygen deficit. Endanger drinking water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants. Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment 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.

SECTION 14: Transport information

Land Transport (ADR/RID)

UN proper shipping name	: Ammonium alum
UN Number	: 3077
Transport hazard class	: 9
Packing group	: III
Environmental hazards	: No
Special precautions for user	: Yes

Sea transport (IMDG)

UN proper shipping name	: Ammonium alum
UN Number	: 3077
Transport hazard class	: 9
Packing group	: III
Marine pollutant	: No
Special precautions for user	: Yes

Air transport (IATA)

UN proper shipping name	: Ammonium alum
UN Number	: 3077
Transport hazard class	: 9
Packing group	: III
Environmental hazards	: No
Special precautions for user	: Yes

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety information is provided in accordance with the requirements of the Global Identification and Labeling of Identified Girlfriends (GHS).

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not Available

15.2 Chemical Safety Assessment

Chemical safety assessment not conducted

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H315	Skin Corrosion/Irritation
H319	Serious eye damage

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.

Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.

Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany,

Source: IFA for Databases on hazardous substances (GESTIS).

Recommended restrictions

Take notice of labels and safety data sheets for the working.

Further information : Contact to Numchai Industry Co.,Ltd.

NUMCHAI INDUSTRY CO., LTD

Safety Data Sheet

Aluminium sulfate

SECTION 1 : PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Aluminium sulfate

Brand : NUMCHAI INDUSTRY CO., LTD

Formula : $Al_2(SO_4)_3$

Molecular Weight : 342.15 g/mol

EC No. : 233-135-0

CAS-No. : 10043-01-3

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

Identified uses : Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Company : NUMCHAI INDUSTRY CO.,LTD

84 Moo 1. Rama 2 Rd., Bangtorad Ampur Muang Samutsakorn

Samutsakorn 74000 Thailand

Telephone : 034-432518-20

Fax : 034-432519

1.4 Emergency telephone number

Emergency Phone # : 034-432518-20

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Corrosive to Metals (Category 1), H290

Skin corrosion (Category 1A), H314

Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(S)

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary statement(s)

P264	Wash skin thoroughly after handling
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P361 + P354	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
P305+P351+P338	IF ON EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313	IF IN SKIN : Call a doctor/physician if you feel unwell.
P337+P313	IF IN EYES : Call a doctor/physician if you feel unwell.
P362	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material-damage.
2.3 Other hazards	None

SECTION 3: Composition/information on ingredients

3.1 Substances

Product name	: Aluminium sulfate
Synonyms	: ALUM, Aluminium alum, Aluminum trisulfate, Cake alum, Dialuminum sulphate, Dialuminum trisulfate , Sulfuric acid, aluminum salt (3:2)
Formula	: $Al_2(SO_4)_3$
Molecular weight	: 342.15 g/mol
CAS-No.	: 10043-01-3
UN number	: 3077
EC-No.	: 233-135-0

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.
Skin contact	Remove contaminated clothing and wash affected skin with soap and water. Dab with polyethylene glycol 400. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse. and plenty of water. Consult a doctor.
Eye contact	If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.
Ingestion	After swallowing: make victim drink water (two glasses at the

most), avoid vomiting, risk of perforation. Immediately call-in physician. Do not attempt to neutralize.

4.2 Most important symptoms and effects. Both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and / or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

Not Available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

In adaption to materials stored in the immediate neighborhood.

5.2 Special hazards arising from the substance or mixture

Non-combustible. Ambient fire may liberate hazardous vapors. Hydrogen may form upon contact with metals (danger of explosion). The following may develop in event of fire: Sulfur oxide.

5.3 Advice for firefighters

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

5.4 Further information

Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or ground water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and work its. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

6.4 Reference to other sections

For disposal see section 13.

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

Keep tightly closed in a dry, cool and well-ventilated place. Keep out of direct sunlight and away from heat, water and incompatible materials. Requirements for containers, no metal containers.

7.3 Specific and use (s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

7.4 Environmental precautions

Setting up the substance to the environment because this substance affects living things, resulting in changes in the pH of the water.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Source : Australia Exposure Standards

Material : aluminium ammonium sulfate (Aluminium, 2 soluble salts (as Al))

TWA : 2 mg/m³

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in ventilation hoods and fans.

Skin protection

Chemical resistant apron / corrosive protective clothing, heavy duty work shoes. Handle with gloves

- Full contact wears gloves from viton material.

- Splash contact wears gloves from butyl rubber material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter P2 (EN 141 or EN 14387).

Environmental exposure controls

Prevent liquid entering sewers, basements and work its.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state	: Solid
b) Color	: White
c) Odor	: Not Available
d) Melting point/freezing point Melting point	: 770 °C
e) Initial boiling point and boiling range	: 116 °C
f) Flammability (solid, gas)	: Not Available
g) Upper/lower flammability or explosive limits	: Not Available
h) Flash point	: Not Available
i) Autoignition temperature	: Not Available
j) Decomposition temperature	: Not Available
k) pH	: Not Available

l) Viscosity	: Not Available
m) Water solubility: Dissolves well	: Not Available
n) Partition coefficient: n-octanol/water	: Not Available
o) Vapor pressure	: Not Available
p) Density Relative density	: 2.710 kg/m3 at 25 °C
q) Relative vapor density	: Not Available
r) Particle characteristics	: Not Available
s) Explosive properties	: Not Available
t) Oxidizing properties	: Not Available

SECTION 10: Stability and reactivity

10.1 Reactivity

Not Available

10.2 Chemical

Not Available

10.3 Possibility of hazardous

Not Available

10.4 Conditions to avoid

Strong heating, humidity

10.5 Incompatible materials

Not Available

10.6 Hazardous decomposition products

Hazardous decomposition products: At 280 oC, Ammonia, Sulfur trioxide.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not Available

Acute oral toxicity

Acute toxic responses to aluminium are confined to the more soluble forms. Large doses of ammonia or injected ammonium salts may produce diarrhoea and may be sufficiently absorbed to produce increased production of urine and systemic poisoning. Symptoms include weakening of facial muscle, tremor, anxiety, reduced muscle and limb control.

Acute inhalation toxicity

This substance can cause respiratory irritation in some people.

Skin corrosion/irritation

Skin contact is not considered to have any harmful health effects.

Serious eye damage/eye irritation

This material can cause eye irritation and damage in some persons.

Respiratory or skin sensitization

Not Available

Germ cell mutagenicity

Not Available

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to daphnia

NOEC - Danio rerio (previous name: Brachydanio rerio) - >= 0.105 mg/L - 96 h. Remarks:Al

12.2 Persistence and degradability

Not Available

12.3 Bio accumulative potential

If a large amount of alum is leaked into water sources, it could be harmful to aquatic animals.

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Harmful effect on aquatic organisms. Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form. Does not cause biological oxygen deficit. Endanger drinking water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants. Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment 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.

SECTION 14: Transport information

Land Transport (ADR/RID)

UN proper shipping name	: Aluminium sulfate
UN Number	: 3077
Transport hazard class	: 9
Packing group	: III
Environmental hazards	: No
Special precautions for user	: Yes

Sea transport (IMDG)

UN proper shipping name	: Aluminium sulfate
UN Number	: 3077
Transport hazard class	: 9
Packing group	: III
Marine pollutant	: No
Special precautions for user	: Yes

Air transport (IATA)

UN proper shipping name	: Aluminium sulfate
UN Number	: 3077
Transport hazard class	: 9
Packing group	: III
Environmental hazards	: No
Special precautions for user	: Yes

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety information is provided in accordance with the requirements of the Global Identification and Labeling of Identified Girlfriends (GHS).

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not Available

15.2 Chemical Safety Assessment

Chemical safety assessment not conducted

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.

Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.

Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany,

Source: IFA for Databases on hazardous substances (GESTIS).

Recommended restrictions

Take notice of labels and safety data sheets for the working.

Further information : Contact to Numchai Industry Co.,Ltd.

NUMCHAI INDUSTRY CO., LTD

Safety Data Sheet (SDS)

Liquid Alum

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product Name : Liquid Alum

Chemical Name : Aluminium sulfate (Liquid)

Molecular formula : $Al_2(SO_4)_3.51H_2O$

Molecular Weight : 1260.04

CAS No. : 10043-01-3

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

Identified uses : Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Company : NUMCHAI INDUSTRY CO., LTD

84 Moo 1. Rama 2 Rd., Bangtorad Ampur Muang Samutsakorn

Samutsakorn 74000 Thailand

Telephone : 034-432518-20

Fax : 034-432519

1.4 Emergency telephone number

Emergency Phone # : 034-432518-20

SECTION 2 : HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Corrosive to Metals (Category 1), H290

Skin corrosion (Category 1A), H314

Serious eye damage (Category 1), H318

Acute aquatic toxicity (Category 3)

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary statement(s)

P264	Wash skin thoroughly after handling
P280	Wear protective gloves / protective clothing / eye protection / face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P361 + P354	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
P305 + P354 + P338	IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P363	Wash contaminated clothing before reuse.
P406	Store in corrosion resistant/ container with a resistant inner liner

2.3 Other hazards None

SECTION 3: Composition/information on ingredients

3.1 Substances

Product name : Aluminium sulfate (Liquid)

Synonyms : Alum, Ammonium alum

Formula : $Al_2 (SO_4)_3.51H_2O$

Molecular weight : 1260.04 g/mol

CAS-No. : 10043-01-3

UN number : 1760

Ingredients

CAS No.	Name	% by weight
10043-01-3	Aluminium sulfate	49
7732-18-5	Water	51

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice Show this safety data sheet to the doctor in attendance.

Inhalation Move to fresh air in case of accidental inhalation of vapors. Keep patient warm.In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing or under medical supervision. No artificial aspiration mouth to mouth or mouth to nose. Use suitable instruments/apparatus.

Skin contact Remove contaminated clothing and wash affected skin with soap and water. Dab with polyethylene glycol 400. If signs of poisoning appear, treat as for inhalation. Obtain medical attention. Wash contaminated clothing before reuse.

Eye contact If the substance has got into the eyes, immediately wash out with plenty of water at least 15 minutes. Obtain medical attention.

Ingestion After swallowing: make victim drink water (two glasses at the most), avoid vomiting, risk of perforation. Immediately call-in physician. Do not attempt to neutralize.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

In adaption to materials stored in the immediate neighborhood.

5.2 Special hazards arising from the substance or mixture

Non-combustible. Ambient fire may liberate hazardous vapors. Hydrogen may form upon contact with metals (danger of explosion). The following may develop in event of fire: Sulfur oxide.

5.3 Advice for firefighters

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

5.4 Further information

Contain escaping vapors with water. Prevent fire-fighting water from entering surface water or ground water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Do not breathe vapors or spray mist. Wear a positive-pressure supplied-air respirator, flame retardant antistatic protective clothing. Shut off leaks if without risk. Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Contain or absorb leaking liquid with sand or earth, consults an expert. Prevent liquid entering sewers, basements and work its. If substance has entered a water course or sewer or contaminated soil, advise police.

6.3 Methods and materials for containment and cleaning up

Spillage: soak up with inert absorbent material (e.g. sand, silica gel or chemical absorbent pads). Prevent liquid entering sewers, basements and work its. Transfer to covered drums. Dispose of promptly.

6.4 Reference to other sections

For disposal see section 13.

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

Keep tightly closed in a dry, cool and well-ventilated place. Keep out of direct sunlight and away from heat, water and incompatible materials. Requirements for containers, no metal containers.

7.3 Specific and use (s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

7.4 Environmental precautions

Setting up the substance to the environment because this substance affects living things, resulting in changes in the pH of the water.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Mexico OEL (TWA) : 2 mg/m^3

OSHA PEL : 2 mg/m^3

8.2 Exposure controls

Appropriate engineering controls

The product should only be used in ventilation hoods and fans.

Skin protection

Chemical resistant apron / corrosive protective clothing, heavy duty work shoes. Handle with gloves

- Full contact wears gloves from viton material.

- Splash contact wears gloves from butyl rubber material.

The select protective gloves have to satisfy the specifications of EU Directive 89/686 EEC and standard EN 374 derived from it.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Required when vapor/aerosols are generated filter P2 (EN 141 or EN 14387).

Environmental exposure controls

Prevent liquid entering sewers, basements and work its.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state	: liquid
b) Color	: clear to yellowish brown in color.
c) Odor	: Not Available
d) Melting point/freezing point Melting point	: 101 °C
e) Initial boiling point and boiling range	: 86 °C
f) Flammability (solid, gas)	: Not Available
g) Upper/lower flammability or explosive limits	: Not Available
h) Flash point	: Not Available
i) Autoignition temperature	: Not Available
j) Decomposition temperature	: Not Available
k) pH	: > 2.8 at 10% Of solution
l) Viscosity	: Not Available
m) Water solubility: Dissolves well	: Not Available
n) Partition coefficient: n-octanol/water	: Not Available
o) Vapor pressure	: Not Available
p) Density Relative density	: 1.315 g/cm^3
q) Relative vapor density	: Not Available

r) Particle characteristics	: Not Available
s) Explosive properties	: Not Available
t) Oxidizing properties	: Not Available

SECTION 10: Stability and reactivity

10.1 Reactivity

May corrode metals. May produce flammable hydrogen gas. May cause exothermic reactions. Adding acid to base or base to acid may cause violent reactions.

10.2 Chemical

Stable under normal environmental conditions

10.3 Possibility of hazardous

The danger of polymerization reaction will not occur.

10.4 Conditions to avoid

If it evaporates until dry, the remaining part should not be exposed to high temperatures, which will cause toxic and corrosive gases.

10.5 Incompatible materials

weak base, metal

10.6 Hazardous decomposition products

Aluminum oxide, sulfur oxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not Available

Acute oral toxicity

Nausea, vomiting, diarrhea and irritation of the digestive system occur.

Acute inhalation toxicity

This substance can cause respiratory irritation in some people.

Skin corrosion/irritation

Skin contact is not considered to have any harmful health effects.

Serious eye damage/eye irritation

This material can cause eye irritation and damage in some persons.

Respiratory or skin sensitization

Not Available

Germ cell mutagenicity

Not Available

Carcinogenicity

Not Available

Reproductive toxicity

Not Available

Teratogenicity

Not Available

Specific target organ toxicity (STOT) - single exposure

Not Available

Specific target organ toxicity (STOT) - repeated exposure

Not Available

Aspiration hazard

Not Available

Further information

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

12.1 Toxicity

LD_{50}: 6207 mg/kg

LD_{50}: 1930 mg/kg

12.2 Persistence and degradability

Not Available

12.3 Bio accumulative potential

If a large amount of alum is leaked into water sources, it could be harmful to aquatic animals.

12.4 Mobility in soil

Not Available

12.5 Other adverse effects

Harmful effect on aquatic organisms. Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form. Does not cause biological oxygen deficit. Endanger drinking water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants. Do not allow to enter waters, waste water or soil.

SECTION 13: Disposal considerations

13.1 Waste treatment 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.

SECTION 14: Transport information

Land Transport (ADR/RID)

UN proper shipping name	: Liquid Alum
UN Number	: 1760
Transport hazard class	: 8
Packing group	: II
Environmental hazards	: No

Special precautions for user	: Yes

Sea transport (IMDG)

UN proper shipping name	: Liquid Alum
UN Number	: 1760
Transport hazard class	: 8
Packing group	: II
Marine pollutant	: No
Special precautions for user	: Yes

Air transport (IATA)

UN proper shipping name	: Liquid Alum
UN Number	: 1760
Transport hazard class	: 8
Packing group	: II
Environmental hazards	: No
Special precautions for user	: Yes

River transport (AND/ADNR)

(Not examined)

SECTION 15: Regulatory information

This safety information is provided in accordance with the requirements of the Global Identification and Labeling of Identified Girlfriends (GHS).

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Not Available

15.2 Chemical Safety Assessment

Chemical safety assessment not conducted

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Reference

Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Labelling according to EC Directives 67/548 EEC and Regulation (EC) No 1272/2008.

Transportation information according to Recommendations on the Transport of Dangerous Goods, Model Regulations. Twelfth revised edition. United Nations.

Institute for Occupational Safety and Health of the German Social Accident Insurance in Sankt Augustin/Germany,

Source: IFA for Databases on hazardous substances (GESTIS).

Recommended restrictions

Take notice of labels and safety data sheets for the working.

Further information **:** Contact to Numchai Industry Co.,Ltd.