Aqua Chemical Supply, Inc.
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name KEMIRAALS, aluminum sulfate liquid

Recommended use - Water treatment chemical, Additive in paper industry.
Recommended restrictions on use - There are no uses advised against.

Manufacturer
Finnchem USA Inc.
1000 Parkwood Circle, Suite 500
30339 Atlanta USA

Emergency telephone number: For emergency assistance involving chemicals call CHEMTREC day or night at: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Corrosive to metals;
Category 1; May be corrosive to metals;
Serious eye damage;
Category 1; Causes serious eye damage;

Hazard pictogram

Signal word: Danger

Hazard statements
May be corrosive to metals.
Causes serious eye damage.

Precautionary statements

Keep only in original container. Wash hands thoroughly after handling. Wear eye protection/ face protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/ physician.
Absorb spillage to prevent material damage.
Storage: Store in corrosive resistant container with a resistant inner liner.
Hazardous components which must be listed on the label:
10043-01-3 Aluminum sulfate

Other hazards which do not result in classification: None

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name Aluminum sulfate
CAS-No.10043-01-3
Concentration[%] 20 -30 %
Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

General advice
Show this safety data sheet to the doctor in attendance.
Inhalation - Move to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, apply artificial respiration. Obtain medical attention.
Skin contact - Rinse with plenty of water. If skin irritation persists, call a physician. Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Eye contact - Rinse immediately with plenty of water for at least 15 minutes. Seek medical advice.
Ingestion - Rinse mouth with water. Drink 1 or 2 glasses of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

5. FIRE FIGHTING MEASURES

Not combustible - Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media - No materials to be especially mentioned.

Special hazards arising from the substance or mixture - Heating above the decomposition temperature will release toxic gases. ((Sulphur oxides (SOx))

Special protective actions for firefighters - Exposure to decomposition products may be a hazard to health. In the event of fire, wear self-contained breathing apparatus.
Protective clothing - Use NIOSH/MSHA approved respiratory protection.

6. ACCIDENTAL RELEASE MEASURES

For personal protection see section 8.
Soak up or flush with plenty of water to prevent slipping hazard. Handle in accordance with good industrial hygiene and safety practice.
Environmental precautions
Restrict the spread of the spillage by using inert absorbent material (sand, gravel). Cover the drains. Must be disposed of in accordance with local and national regulations.
Methods and materials for containment and cleaning up
Clean-up methods - small spillage
Dilute residues with water and then neutralize with lime or limestone powder to a solid consistency. Shovel or sweep up. Must be disposed of in accordance with local and national regulations.
Clean-up methods - large spillage
Remove spill using a vacuum truck. Dilute residues with water and then neutralize with lime or limestone powder to a solid consistency. Shovel or sweep up remaining material. Must be disposed of in accordance with local and national regulations.

Additional advice
Inform the rescue service in case of entry into waterways, soil or drains.

7. HANDLING AND STORAGE

Precautions for safe handling

Danger for slipping. The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized. For personal protection see section 8.
Conditions for safe storage, including any incompatibilities

Avoid freezing. Keep away from incompatible materials. For quality reasons Keep at temperatures below 30 °C.
Keep at temperatures above O °C. Handling operations become difficult due to increased viscosity.
Materials for packaging
Suitable material: plastic (PE, PP, PVC), polyester with fiberglass reinforcement, concrete coated with epoxy, titanium, acid-resistant steel, rubber-coated steel

Materials to avoid:
Avoid contact with unalloyed steel or galvanized surfaces., non-acid proof metals (for example aluminum, copper and iron), hypochlorites, chlorites, sulphites, Bases
Storage stability:

Storage period - 12 Months
Other data - Stable under recommended storage conditions.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice.
Eye wash bottle or emergency eye-wash fountain must be found in the work place.

Individual protection measures, such as personal protective equipment
Respiratory protection - Respiratory protection is not required under normal handling conditions. If aerosols or mist are formed, e.g. when cleaning, containers with a high pressure washer, use half mask with dust filter P2.

Hand protection - Glove material: PVC and neoprene gloves
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion and the contact time. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.
Break through time:> 480 min

Skin and body protection

Eye protection - Tightly fitting safety goggles or face-shield. Eye wash bottle with pure water

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid,
Color	colorless, clear
Odor	not significant

pH	ca.2
Melting point/range	
Crystallization point/range	-10 °C
Boiling point/boiling range	110-120 °C
Flash point	Not applicable, inorganic compound
Flammability (solid, gas)	Does not sustain combustion
Density	1 .30 - 1.34 g/cm3
Solubility(ies):	(20 °C)
Water solubility	completely soluble
Partition coefficient: n-Octanol/water	Not applicable, inorganic compound
Oxidizing potential	Not oxidizing
Volatile organic content (VOC)	Not applicable

10. STABILITY AND REACTIVITY

Corrosive to metals.
Chemical stability - Stable under normal conditions.

Possibility of hazardous reactions
Hazardous reactions - Contact with certain metals may form hydrogen gas, which in tum may form explosive mixtures of gases with air.
Conditions to avoid - Avoid temperatures below crystallization range. Avoid storage at high temperatures.

Incompatible materials
Materials to avoid - Avoid contact with unalloyed steel or galvanized surfaces. non-acid proof metals (for example aluminum copper and iron) hypochlorites chlorites, sulphites, Bases

Hazardous decomposition products - Thermal decomposition products - Sulphur oxides (SOx)

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute oral toxicity - Aluminum sulfate: Conclusion: Not classified as harmful if swallowed. /OECD Test Guideline 401/Rat/> 2,000 mg/kg/L 050
Acute inhalation toxicity - Aluminum sulfate: LC50/Rat/aerosol: />/5 mg/1/0ECD Test Guideline 403. Remarks: No known significant effects or critical hazards., Read-across (Analogy), CAS-No., 39290-78-3
Acute dermal toxicity – Aluminum sulfate:
LD50/Rabbit/5,000 mg/kg/OECD Test Guideline 402/no
Conclusion: Not classified as harmful to health.
Skin corrosion/irritation - Conclusion: Repeated or prolonged skin contact may cause:, Skin irritation, dry skin
Skin corrosion/irritation - Aluminum sulfate:
Rabbit Result: No skin irritation /OECD Test Guideline 404
Serious eye damage/eye irritation - Conclusion: May cause irreversible eye damage.

Serious eye damage/eye irritation - Aluminum sulfate:
Rabbit Result: Severe eye irritation
/OECD Test Guideline 405
Conclusion: May cause irreversible eye damage.
Respiratory or skin sensitization

Skin sensitization - Aluminum sulfate:
/Guinea pig/OECD Test Guideline 406
Remarks: Read-across (Analogy), CAS-No. 1327-41-9
Conclusion: Not sensitizing.

Germ cell mutagenicity

Genotoxicity in vitro - Aluminum sulfate:
AMES test/Mutagenicity (Salmonella typhimurium - reverse mutation assay)/with and without
Result: negative OECD Test Guideline 471

Aluminum sulfate: micronucleus test/in vitro mammalian cells/with and without
Result: negative OECD Test Guideline 487

Aluminum sulfate: Lymphoma/In vitro gene mutation study in mammalian cells/with and without
Result: negative OECD Test Guideline 476

Carcinogenicity - /Rat/Oral/2 years Did not show carcinogenic effects in animal experiments.

Reproductive toxicity

Toxicity for reproduction

Aluminum sulfate:
Reproductive effects/Rat/female/Oral/3,225 mg/kg/OECD Test Guideline 452
Remarks: bw/day, Read-across (Analogy), CAS-No., 31142-56-0
Conclusion: Not believed to be toxic for reproduction.

Aluminum sulfate: Reproductive effects/Rat/female/Oral/300 mg/kg/OECD Test Guideline 452
Remarks: bw/day, Calculated as Al, Read-across (Analogy}, CAS-No., 31142-56-0

Aluminum sulfate: Developmental toxicity test/Rat/male and female/Oral/1,000 mg/kg/1,000 mg/kg/OECD Test Guideline 422
Remarks: bw/day, Read-across (Analogy}, CAS-No., 1327-41-9
Conclusion: Not believed to be toxic for reproduction. In animal studies, did not interfere with reproduction.

Aluminum sulfate: /male and female/Oral/90 mg/kg/90 mg/kg/OECD Test Guideline 422
Remarks: bw/day, Calculated as Al, Read-across (Analogy), CAS-No., 1327-41-9

Teratogenicity Aluminum sulfate:
Rat/Oral/323 mg/kg/3,225 mg/kg/OECD Test Guideline 452
Conclusion: bw/day, Read-across (Analogy), CAS-No., 31142- 56-0

Aluminum sulfate:
Rat/Oral/30 mg/kg/300 mg/kg/OECD Test Guideline 452
Conclusion: bw/day, Calculated as Al, CAS-No., 31142-56-0, Read-across (Analogy)

12. ECOLOGICAL INFORMATION

Ecotoxicity effects Aquatic toxicity

This material is not classified as dangerous for the environment. At environmentally relevant pH 5, 5 - 8, the solubility of aluminum is low. Aluminum salts dissociate with water resulting in rapid formation and precipitation of aluminum hydroxides. At pH <5.5, the free ion (Al3+) becomes the prevalent form, the increased availability at this pH is reflected in higher toxicity. At pH 6.0-7.5, solubility declines due to the presence of insoluble Al(OH)3. At higher pH (pH >8.0), the more soluble Al(OH)4 - species predominate, which again increases availability.
Aluminum salts must not be released to rivers and lakes in an uncontrolled way and pH variations around 5 - 5.5 should be avoided.
LC50/96 h/Danio rerio/semi-static test/OECD Test Guideline 203: > 562 mg/l
NOEC/96 h/Danio rerio/semi-static test/OECD Test Guideline 203: > 562 mg/l
LC50/96 h/Danio rerio/semi-static test/OECD Test Guideline 203: > 0.247 mg/l

Calculated as Al Maximum soluble concentration under the test conditions.

EC50/48 h/Oaphnia magna (Water flea)/semi-static test/OECD Test Guideline 202: > 90 mg/l
NOEC/48 h/Daphnia magna (Water flea)/semi-static test/OECD Test Guideline 202: > 90 mg/l
LC50/48 h/Daphnia magna (Waterflea)/OECD Test Guideline 202: > 0.176 mg/l
Calculated as Al Maximum soluble concentration under the test conditions.

EC50/72 h/Pseudokirchneriella subcapitata (green algae)/static test/OECD Test Guideline 201: 24 mg/l
EC50/72 h/Pseudokirchneriella subcapitata (green algae)/static test/OECD Test Guideline 201: 3.8 mg/l
Calculated as Al
NOEC/72 h/Pseudokirchneriella subcapitata (green algae)/static test/OECD Test Guideline 201: 1.7 mg/l
NOEC/72 h/Pseudokirchneriella subcapitata (green algae)/static test/OECD Test Guideline 201:0.27mg/l
Calculated as Al
Toxicity to other organisms Aluminum sulfate: No data available
Persistence and degradability
Biological degradability: The methods for determining the biological degradability are not applicable to inorganic substances.

Bio-accumulative potential - The product is not expected to bio-accumulate.
Partition coefficient: n-octanol/water: Not applicable, inorganic compound

Mobility in soil - Water solubility: completely soluble (20 °C)
Other adverse effects - May lower the pH of water and thus be harmful to aquatic organisms.

13. DISPOSAL CONSIDERATION

Product Classified as hazardous waste. Must be disposed of in accordance with local and national regulations. Thoroughly cleaned packaging material may be recycled.
Contaminated packaging Packages that cannot be cleaned must be disposed of the same way as the unused product. Must be disposed of in accordance with local and national regulations.

14. TRANSPORT INFORMATION

UN number 3264
Land transport - DOT:
Description of the goods: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Proper shipping name – (Aluminum sulfate)
Class 8
Packaging group: III
DOT-Labels 8
Reportable quantity - Aluminum sulfate

Sea transport - IMDG:
Description of the goods: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
UN proper shipping name (ALUMINIUM SULFATE)
Class: 8
Packaging group: III
IMDG-Labels: 8
Environmentally Hazardous Not a Marine Pollutant

Air transport - ICAO/IATA:
Description of the goods: UN3264, Corrosive liquid, acidic, inorganic, n.o.s
UN proper shipping name - (Aluminum sulfate)
Class: 8

Packaging group: III
ICAO Labels: 8

15. REGULATORY INFORMATION

SARA Title Ill Section 311 Categories
Immediate (Acute} Health Effects: Yes;
Delayed (Chronic} Health Effects: No;
Fire Hazard: No;
Reactivity Hazard: No;
Sudden Release Of Pressure Hazard: No;

SARA 313 - Specific Toxic Chemical Listings
None Present O

CERCLA Hazardous substance (Reportable Quantities)
Aluminium sulfate (10043-01-3) 5,000 lb
Aluminium sulfate* 14 H20 (10043-01-3)

California Proposition 65
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
None Present
Other regulations
Notification status

No restrictions identified other than those already covered in regulations. All components of this product are included in the United States TSCA Chemical Inventory or are not required to be listed on the United States TSCA Chemical Inventory.
All components of this product are included in the Canada Domestic Substance List (DSL) or are not required to be listed on the Canada Domestic Substance List (DSL).
All components of this product are included in the Australian Inventory of Chemical Substances (AICS) or are not required to be listed on the Australian Inventory of Chemical Substances (AICS).
All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.
All components of this product are included in the Korean (ECL} inventory or are not required to be listed on the Korean (ECL) inventory.
All components of this product are included on the Philippine (PICCS} inventory or are not required to be listed on the Philippine (PICCS} inventory.
All components of this product are included on the Japanese (ENCS} inventory or are not required to be listed on the Japanese (ENCS} inventory.
All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS} or are not required to be listed on EINECS.
All components of this product are included in the New Zealand inventory (NZloC} or are not required to be listed on the New Zealand inventory (NZloC).
This product's Taiwan Toxic Chemical Substances Control Act Inventory status has NOT been determined.

16. OTHER INFORMATION

HMIS Rating
Health: 3
Flammability: 0
Reactivity: 0

NFPA Rating
Health: 3
Fire: 0
Reactivity: 0

Training advice
Read the safety data sheet before using the product.

Notice

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Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Aqua Chemical Supply, Inc. sales office.

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