Safety Data Sheet

Section 01 - Identification

Product Identifier	HAL-10
Other Means of Identification	Liquid alum, aluminum sulphate solution, papermaker's alum, sulfuric acid
Product Use and Restrictions on Use	Water treatment, wastewater treatment, coagulant.
Initial Supplier Identifier	ClearTech Industries Inc. 1500 Quebec Avenue Saskatoon, SK. Canada S7K 1V7
Prepared By	ClearTech Industries Inc. Technical Writer Phone: 1 (800) 387-7503
24-Hour Emergency Phone	Phone: 1 (306) 664 – 2522

Section 02 - Hazard Identification

GHS-Classification

Skin Corrosion/Irritation	Category 1
Serious Eye Damage/Irritation	Category 1

Physical Hazards

Corrosive To Metals	Category 1

Danger

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

Pictograms

Precautionary Statements
P234 – Keep only in original container.
P405 – Store locked up.
P260 – Do not breathe mist, vapours or spray.
P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P280 – Wear protective gloves, protective clothing, eye protection, and face protection.

P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P363 – Wash contaminated clothing before reuse.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301 +P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 – Immediately call a POISON CENTER or doctor/physician.
P390 – Absorb spillage to prevent material damage.
P501 – Dispose of contents/container in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 03 - Composition / Information on Ingredients

Chemical Name	CAS Number	Weight %	Unique Identifiers
Aluminum Sulphate	10043-01-3	20-50%	

Section 04 - First Aid Measures

Inhalation

If symptoms are experienced, remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek immediate medical attention.

Skin Contact / Absorption

Remove contaminated clothing. Rinse skin with lukewarm, gently flowing water for 30 minutes. Seek immediate medical attention. Completely decontaminate clothing, shoes and leather goods before reuse or discard.

Eye Contact

Immediately flush eye(s) with lukewarm, gently flowing water for 30 minutes while forcibly holding the eyelids open to ensure complete irrigation of the eye tissue. If a contact lens is present, remove only if easy to do so. Seek immediate medical attention.

Ingestion

Do not induce vomiting. If vomiting occurs, lean victim forward to prevent breathing in vomitus. Do not give anything by mouth to an unconscious or convulsing person. Have victim rinse mouth and give 1 to 2 glasses of milk. Water may be used if milk is not available but is not as effective. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in vomitus, rinse mouth and administer more milk or water. Seek immediate medical attention.

Additional Information

Not Available

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media

Product itself does not burn. However, decomposition product sulfur trioxide will react with water to produce sulfuric acid. Use appropriate extinguishing agent.

Unsuitable Extinguishing Media

Not Available

Specific Hazards Arising From the Chemical

Under fire conditions (or at temperatures greater than 650^{o}C), product decomposes to give off sulfur trioxide, an oxidizing agent which will support combustion. Hydrogen chloride and oxides of aluminum, carbon, nitrogen, ammonia.

Special Protective Equipment for Fire-Fighters

Wear NIOSH-approved self-contained breathing apparatus and protective clothing.

Further Information

Isolate materials that are not involved in the fire and protect personnel. Cool containers with flooding quantities of water until well after the fire is out. Spilled material may cause floors and contact surfaces to become slippery.

Section 06 - Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures

Wear appropriate personal protective equipment. Ventilate area. Only enter area with PPE. Stop or reduce leak if safe to do so. Prevent material from entering sewers. Flush with water to remove any residue.

Environmental Precautions	Prevent material from entering sewers or waterways.
Methods and Materials for Containment and Cleaning Up	Stop or reduce leak if safe to do so. Absorb spill with inert material like dry sand or earth, then place in a chemical waste container. Neutralize with sodium carbonate, caution should be taken as carbon dioxide may form.

Section 07 - Handling and Storage

Precautions for Safe Handling	Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.
Conditions for Safe Storage	Store in well ventilated place with temperatures above 10^{o}C and below 35^{o}C. Keep container tightly closed, and away from incompatible materials.
Incompatibilities	Corrosive to carbon steel, aluminium and zinc. Reacts with strong alkali to form aluminum hydroxide.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Aluminum Sulphate	OSHA	PEL-TWA	2mg/m^3
	ACGIH	TLV-TWA	10mg/m^3

Engineering Control(s)

Ventilation Requirements	Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions must be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.
Other	Emergency shower and eyewash must be available and tested in accordance with regulations and be in close proximity.

Protective Equipment

Eyes/Face	Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.
Hand Protection	Impervious gloves of chemically resistant material (rubber or PVC) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
Skin and Body Protection	Body suite, aprons, and/or coveralls of chemical resistant material should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse. Impervious boots of chemically resistant material should be worn at all times. No special footwear is required other than what is mandated at place of work.
Respiratory Protection	Where misty conditions occur, use a NIOSH approved high efficiency particulate respirator (dust, mist and fume) with a full face piece.
Thermal Hazards	Not Available

Section 09 - Physical and Chemical Properties

Appearance

Physical State	Liquid
Colour	Clear, pale straw coloured

Odour	Odourless
Odour Threshold	Not Applicable

Property

pH	1.8-2.3
Melting Point/Freezing Point	-16°C
Initial Boiling Point and Boiling Range	101-103°C
Flash Point	Not Applicable
Evaporation Rate	Not Available
Flammability	Non-Flammable
Upper Flammable Limit	Not Applicable
Lower Flammable Limit	Not Applicable
Vapour Pressure (mm Hg, 20°C)	Not Available
Vapour Density (Air=1)	Not Applicable
Relative Density	Not Available
Solubility(ies)	Completely miscible in water.
Partition Coefficient: n-octanol/water	Not Available
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	650-760°C
Viscosity	Not Available
Explosive Properties	No explosion hazards.
Specific Gravity (Water=1)	1.30-1.35
% Volatiles by Volume	Not Available
Formula	Not Applicable
Molecular Weight	Not Applicable

Section 10 - Stability and Reactivity

Reactivity	Not Available
Stability	Stable under normal conditions.
Possibility of Hazardous Reactions	Corrosive to some metals. Corrosive to aluminum. Hazardous polymerization will not occur.
Conditions to Avoid	High temperatures, sparks, open flames and all other sources of ignition. Decomposition will occur about 650 to 760°C. This residue is caustic. Secure containers at all times.
Incompatible Materials	Corrosive to carbon steel, aluminium and zinc. Reacts with strong alkali to form aluminum hydroxide.
Hazardous Decomposition Products	Oxides of aluminum, sulfuric acid.

Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD_{50}	Dermal LD_{50}	LC_{50}
Aluminum sulphate	>730mg/kg (mouse) 1930mg/kg (rat)	Not Available	Not Available

Chronic Toxicity – Carcinogenicity

Component	IARC
Aluminum sulphate	Not known to be a carcinogen.

Skin Corrosion/Irritation	Corrosive. Capable of producing severe burns, blisters, ulcers and permanent scarring.
Serious Eye Damage/Irritation	Expected to cause serious eye irritation. The dust becomes acidic following contact with moisture in the eye.
Ingestion	Large amounts may cause abdominal pain, nausea, and vomiting. Can cause burns of the mouth, bleeding stomach, incoordination, muscle spasms, and kidney injury.
Inhalation	Inhalation of mists can be irritating to the respiratory tract, nose and lungs.
Respiratory or Skin Sensitization	Aluminum sulfate may rarely cause skin sensitization.
Germ Cell Mutagenicity	No reliable studies using live animal and no human studies were located. A positive result has been obtained in cultured human cells. Negative results have been obtained in cultured mammalian cells and bacterial tests.
Reproductive Toxicity	There is no evidence that Aluminum Sulfate affects reproduction.
STOT-Single Exposure	May produce respiratory irritation.
STOT-Repeated Exposure	Not Available
Aspiration Hazard	Inhalation of high airborne concentrations may cause constriction of the airways and can result in potentially fatal pulmonary edema.
Synergistic Materials	Not Available

Section 12 - Ecological Information

Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Aluminum sulphate	Not Available	LC_{50}(96hr, Salvelinus fontanalis): 3.6mg/L	Not Available

Biodegradability	The products of biodegradation are more toxic than the original product.
Bioaccumulation	Not Available
Mobility	Not Available
Other Adverse Effects	May be harmful to aquatic life. Toxicity is primarily associated with the acidic pH. Acidic soil conditions develop where contamination with this material occurs.

Section 13 - Disposal Considerations

Waste From Residues/Unused Products	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.
Contaminated Packaging	Dispose in accordance with all federal, provincial, and/or local regulations including the Canadian Environmental Protection Act.

Section 14 - Transport Information

UN Number	UN 3264
UN Proper Shipping Name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Aluminum sulfate)
Transport Hazard Class(es)	8
Packaging Group	III
Environmental Hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
Special Precautions	Not Available
Transport in Bulk	Not Available

Additional Information

Packing Group	Limited Quantity Index
I	0
II	1 L
III	5 L

TDG

Other Secure containers (full and/or empty) with suitable hold down devises during shipment and ensure all caps, valves, or closures are secured in the closed position.

TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 14 of this MSDS / SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and/or published test data regarding the classification of this product are listed in the references at section 16 of this MSDS / SDS.

Section 15 - Regulatory Information

NOTE: THE PRODUCT LISTED ON THIS SDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

NSF Certification..... Product is certified under NSF for coagulation and flocculation at a maximum dosage of: 157 mg/L

NSF product use restrictions based on requirements obtained from the NSF website for current requirements.

Section 16 - Other Information

Preparation Date August 7, 2015

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

Attention: Receiver of the chemical goods / MSDS coordinator

As part of our commitment to the Canadian Association of Chemical Distributors (CACD) Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Material Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

1) CHEMINFO
2) eChemPortal
3) TOXNET
4) Transportation of Dangerous Goods Canada
5) HSDB
6) ECHA

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