Safety Data Sheet

Section 01 - Identification

Product Identifier	Battery Acid
Other Means of Identification	Battery electrolyte, battery fluid, fertilizer acid, electrolyte acid, hydrogen sulfate, oil of vitriol, spirit of sulphur
Product Use and Restrictions on Use	Used in manufacture of fertilizers, explosives, other acids, metal pickling and petroleum processing. Lead storage batteries.
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 1A
Serious Eye Damage/Irritation	Category 1
STOT-Single Exposure	Category 3
Carcinogenicity	Category 1A

Physical Hazards

Corrosive to Metals	Category 1

Danger

Hazard Statements

H314 – Causes severe skin burns and eye damage.
H335 – May cause respiratory irritation.
H350 – May cause cancer through exposure to strong-inorganic acid mists.
H290 – May be corrosive to metals.

Pictograms

Precautionary Statements

P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P308 + P313 – IF exposed or concerned: Get medical advice/attention.
P403 + P233 – Store in a well-ventilated place. Keep container tightly closed.
P234 – Keep only in original container.
P405 – Store locked up.
P260 – Do not breathe mist, vapours or spray.
P264 – Wash hands thoroughly after handling.
P280 – Wear protective gloves, protective clothing, eye protection, and face protection.
P301 +P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin
P363 – Wash contaminated clothing before reuse.
P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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
Sulphuric Acid	7664-93-9	35-37%	
Water	7732-18-5	63-65%	

Section 04 - First Aid Measures

Inhalation

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

Contact lenses should never be worn when working with this product. Flush immediately with water for at least 30 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.

Ingestion

Do not induce vomiting. If vomiting occurs, lean victim forward to prevent breathing in vomitus. Give large amounts of water. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

Additional Information

NOTE: Occupational exposure to strong inorganic mists containing sulfuric acid is carcinogenic for humans. Take proper precations to ensure your own safety before assisting others.

Section 05 - Fire Fighting Measures

Suitable Extinguishing Media

Product does not burn. Do not add water to the acid. Use dry chemical to extinguish the surrounding fire.

Unsuitable Extinguishing Media

Not Available

Specific Hazards Arising From the Chemical

Sulphur dioxide, sulphur trioxide, sulphuric acid fumes.

Special Protective Equipment and Precautions for Fire-Fighters

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

Further Information

Not Available

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 from entering sewers.
Methods and Materials for Containment and Cleaning Up	Deactivating materials: Lime, limestone, sodium carbonate (soda ash), sodium bicarbonate, dilute sodium hydroxide. Place in a closed container for disposal.

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 a cool, dry, well-ventilated place. Keep container tightly closed and away from incompatible materials.
Incompatibilities	Highly reactive with materials such as metals, metal oxides, hydroxides, nitrates, amines, carbonates, and other alkaline materials.

Section 08 - Exposure Controls and Personal Protection

Exposure Limit(s)

Component	Regulation	Type of Listing	Value
Sulphuric acid	ACGIH	TLV-TWA	0.2mg/m^3 (Thoracic fraction)
	OSHA	TWA	1mg/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.
Respiratory Protection	NIOSH/OSHA RECOMMENDATIONS FOR SULPHURIC ACID CONCENTRATIONS IN AIR: UP TO 15 mg/m^3: (APF = 25) SAR operated in a continuous flow-mode; or powered air-purifying respiratory with aid gas cartridge(s) in combination with an N100, R100, or P100 filter. (APF=50) Full-facepiece chemical cartridge respirator with acid gas cartridge(s) in combination with an N100, R100, or P100 filter or gas mask with acid gas canister and an N100, R100, or P100 filter or full-facepiece SCBA; or full-facepiece SAR.

	Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus. Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back- mounted acid gas canister having an N100, R100 or P100 filter.
Thermal Hazards	Not Available

Section 09 - Physical and Chemical Properties

Appearance

Physical State	Liquid
Colour	Clear, colourless
Odour	No odour
Odour Threshold	1.0mg/m^3 measured as mist

Property

pH	0.3 (1 N solution); 1.2 (0.1 N solution); 2.1 (0.01 N solution)
Melting Point/Freezing Point	Not Available
Initial Boiling Point and Boiling Range	Not Available
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)	2.952 at 35.4% (0°C)
Vapour Density (Air=1)	3.4
Relative Density	Not Available
Solubility(ies)	Miscible in water, liberates much heat Decomposes in ethanol
Partition Coefficient: n-octanol/water	Not Available
Auto-ignition Temperature	Not Applicable
Decomposition Temperature	340°C

Viscosity	13.6mm^2/s (13.6 centistrokes)(100%); 11.5mm^2/s (11.5 centistokes) (98%); 10.7mm^2/s (96%); 11.0mm^2/s (11.0 centistokes) (93%) at 25°C
Explosive Properties	Evolution of explosive hydrogen gas con contact with most metals. May ignite combustible material. Not sensitive to mechanical impact or static discharge
Specific Gravity (Water=1)	~1.2720 at 15°C
% Volatiles by Volume	Not Available
Formula	H_2SO_4
Molecular Weight	98.08

Section 10 - Stability and Reactivity

Reactivity	Not a very strong oxidizing agent.
Stability	Stable under normal conditions.
Possibility of Hazardous Reactions	Does not polymerize or form peroxides.
Conditions to Avoid	Contact with water.
Incompatible Materials	Highly reactive with materials such as metals, metal oxides, hydroxides, nitrates, amines, carbonates, and other alkaline materials.
Hazardous Decomposition Products	Toxic fumes of oxides of sulfur when heated to decomposition. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates to generate carbon dioxide gas, and with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively.

Section 11 - Toxicological Information

Acute Toxicity

Component	Oral LD_{50}	Dermal LD_{50}	Inhalation LC_{50}
Sulphuric acid (35%)	6114 mg/kg (rat)	Not Available	457 mg/m^3 (mouse, 4hr) 728 mg/m^3 (rat, 4hr)

Chronic Toxicity – Carcinogenicity

Component	IARC
Sulphuric acid	Group 1: Carcinogenic to humans.

This classification applies only to mists containing sulphuric acid and not to sulphuric acid or sulphuric acid solutions.

Skin Corrosion/Irritation	Corrosive. Capable of producing serious burns, blisters, ulcers and permanent scarring.
Ingestion	Severe irritation or burning of the mouth, throat, and stomach walls. May be fatal. Prolonged exposure can result in erosion and discoloration of teeth, chronic irritation of the nose eyes throat and respiratory tract.
Inhalation	Corrosive, severe irritant
Serious Eye Damage/Irritation	Corrosive. Capable of producing severe eye burns and permanent damage, including blindness.
Respiratory or Skin Sensitization	Not Available

Germ Cell Mutagenicity	Sulfuric acid has been shown to be without effect in genetic toxicity studies in vitro (bacterial test). It has been shown to cause chromosomal aberrations in a non-bacterial test in vitro. The chromosomal effects are well known to be a consequence of reduced pH, being seen using any strong acid. There are no in-vivo mutagenicity studies available.
Reproductive Toxicity	Sulfuric acid is not known to cause reproductive toxicity.
STOT-Single Exposure	Inhalation of vapours may cause irritation to the respiratory tract.
STOT-Repeated Exposure	Repeated or prolonged inhalation can cause inflammation of the upper respiratory tract, leading to chronic bronchitis.
Aspiration Hazard	Not Available
Synergistic Materials	There are conflicting results from studies in animals on the interactive effects between ozone and sulfuric acid when they are inhaled concurrently. While some have shown a synergistic affect others have shown no effect or an antagonistic effect.

Section 12 – Ecological Information

Ecotoxicity

Component	Toxicity to Algae	Toxicity to Fish	Toxicity to Daphnia and Other Aquatic Invertebrates
Sulphuric acid	Not Available	LC_{50}(Carassius auratus, 96hr): 17mg/L	LC_{50}(Prawn, 48 hr): 42.5ppm

Biodegradability	Not Available
Bioaccumulation	No potential for accumulation.
Mobility	Not Available
Other Adverse Effects	When released into the soil, this material may leach into groundwater. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material may be removed from the atmosphere to a moderate extent by dry deposition.

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	UN2796
UN Proper Shipping Name	BATTERY FLUID, ACID
Transport Hazard Class(es)	8
Packaging Group	II
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
II	1 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 SDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 – Other Information

Preparation Date August 18, 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 / SDS 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 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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