FloChem Ltd
Quality Chemical Management

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT & COMPANY IDENTIFICATION:

Product Identifier: **Sulphuric Acid 93%**
H_2O_4S

Other Means of Identification:
7664-93-9

Emergency Phone Number: **877-378-7745**

Effective Date: December 28, 2015

Product Use: Used in the manufacture of fertilizers, explosives, other acids, metal pickling and petroleum processing.

Supplier Name & Address:
FLOCHEM LTD.
6986 Wellington Rd. 124,
Guelph, Ontario Canada N1H 6J4

SECTION 2 - HAZARDS IDENTIFICATION:

Classification of Substance

Acute Toxicity - Inhalation, Vapours	H330
Skin Corrosion/Irritation	H314
Serious Eye Damage/Irritation	H318

GHS LABEL STATEMENT - EMEREGENCY OVERVIEW

DANGER

Hazard Statements

H318 - Causes Serious Eye Damage
H314 - Causes severe skin burns and eye damage
H330 - Fatal if inhaled
H350 - May cause Cancer

Precautionary Statements - GHS

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe fume, mist, vapours, spray
P264 - Wash hands and forearms thoroughly after handling
P271 - Use in a well-ventilated area
P280 - Wear eye protection, face protection, protective gloves, protective clothing, rinse skin with water, shower
P284 - Wear respiratory protection
P320 - Specific treatment is urgent *(see Section 4)*
P363 - Wash contaminated clothing prior to reuse
P403 + P233 - Store in well-ventilated place. Keep container tightly closed

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS:

			Exposure Limits:
Ingredients	**CAS#**	**Wt%**	**TLV-TWA (mg/m3)**
Sulphuric Acid	7664-93-9	77-100%	0.2 (thoracic fr.)
Water	7732-18-5	0-22%	Not established

SECTION 4 - FIRST AID MEASURES:

Description of First Aid Measures:

Skin Contact: Remove contaminated clothing and place victim under a deluge shower for 15 minutes. If irritation persists, repeat flushing. Obtain medical attention immediately. **Ointments/creams should not be applied during or before the washing phase.** Discard heavily contaminated clothing and shoes in a manner that limits further exposure. Otherwise, wash clothing separately before reuse. Possibility of burns and scarring.

Eye Contact: Remove contact lenses if present. Immediately flush eyes with plenty of running water for a minimum of 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention immediately. Possibility of severe burns and permanent eye damage.

Inhalation: Move victim to fresh air. Give artificial respiration only if breathing has stopped. Do not use mouth-to-mouth method if victim ingested or inhaled the substance: induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention immediately. Possibility of irritation to the upper respiratory tract.

Ingestion: Do not induce vomiting. If victim is alert and not convulsing, rinse mouth and give ½ to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Immediately contact local poison control center. Immediately transport victim to an emergency facility.

Note to Physician:

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of Sulphuric Acid. Creams or ointments should not be applied before or during the washing phase of the treatment.

SECTION 5 - FIRE FIGHTING MEASURES:

Extinguishing Media:

Use extinguishing media suitable for surrounding fire.

Auto Ignition Temperature:	Not applicable
Products of Combustion:	Release of sulphur dioxide at extremely high temperatures.
Fire Hazard:	Not flammable

Explosion Hazards: Highly reactive. Strong dehydrating agent, which may cause ignition of finely divided combustible materials on contact. Reacts violently with water and with evolution of heat can react with organic materials explosively (see section 10). Reacts with many metals to liberate hydrogen gas which can form explosive mixtures with air. Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any types of steel containers or tanks upon storage. Oxides of sulfur may be produced in fire.

Fire Fighting Procedures:
Evacuate personnel and residents to a safe area downwind of fire. Prevent unauthorized entry to fire area. Full protective clothing should be worn and self-contained breathing apparatus if fumes or mists are present. Dike area to contain runoff and prevent contamination of water sources. Neutralize runoff with lime, soda ash or other suitable neutralizing agents. Cool containers that are exposed to flame with streams of water until fire is out.

SECTION 6 - ACCIDENTAL RELEASE MEASURES:

Steps to be taken in the event of a spill or leak: Remove all ignition sources *(no smoking, flares, sparks or flames)*. All equipment should be grounded. Ventilate area. Use appropriate Personal Protective Equipment. Prevent liquid from entering sewers or waterways. Stop or reduce leak if safe to do so.
Small Spills: Cover with dry earth, sand or other non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
Large Spills: Prevent liquid from entering sewers or waterways. Dike with inert material *(sand, earth, etc.)*. Collect into plastic containers for disposal. Consider insitu neutralization and disposal.
Ensure adequate decontamination of tools and equipment following clean up. Comply with Federal, Provincial and Local regulations on reporting releases.

Deactivating Chemicals: Lime, limestone, sodium carbonate (soda ash), sodium bicarbonate, dilute sodium hydroxide, dilute aqua ammonia.

Waste Disposal Methods: Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

SECTION 7 - HANDLING & STORAGE:

Precautions: Wear appropriate Personal Protective Equipment. Do not breathe sprays or mists. Do not get in eyes, on skin or on clothing. Keep ignition sources away from Sulphuric Acid storage, when handling and in transportation of equipment. Locate safety shower and eyewash station close to chemical handling area. Use extreme care when diluting with water. Always add acid to water. **CAUTION:** Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or any type of steel containers or tanks upon storage. Carbon steel storage tanks must be vented. People working with this chemical should be properly trained regarding its hazards and its safe use.

Handling Procedures and Equipment: Carbon steel, Cast iron, as well as certain alloys or stainless steels are suitable for use for acid concentrations equal to or greater than 93%. However, the effect of lower concentrations on materials of construction can be very complex. Contact product supplier for specific recommendations when handling Sulphuric Acid at strengths less than 71%. Inspect containers for leaks before handling. Secondary protective containers must be used when this material is being carried. Keep containers tightly closed when not in use. Assume that empty containers contain residues, which are hazardous. Use corrosion-resistant transfer equipment when transferring acid.

Storage Temperature: Store above freezing point (Section 9). Elevated temperatures will increase the corrosion rate of most metals. **Storage Requirements:** Store packaged acid in a dry, well, ventilated location preferably in the original container. Protect the label and keep it visible. Keep away from combustibles, oxidizers, bases, or metallic powders. Storage tanks should be protected from water ingress, be well ventilated, and maintained structurally in a safe and reliable condition.

Other Precautions: Sulphuric Acid will attack some forms of plastics and coatings. ***Always add acid to water - not water to acid.*** If kept in upper floors of building, floors should be acid proof with drains to a recovery tank.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION:

Exposure Guidelines: OSHA PEL: 1 mg/ m3; OEL TWA: 0.2 mg /m3

Engineering Controls: Good, general ventilation should be provided to keep vapour and mist concentrations below the exposure limits.

Exposure Controls: Recommended Personal Protective Equipment: Impervious (i.e. neoprene, PVC) gloves, chemical suits, boots and/or other acid resistant protective clothing, tight-fitting chemical splash goggles and face shield and an air-supplied NIOSH respirator if ventilation is not adequate. Eyewash and safety shower within safe distance of work area.

SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES:

Physical State: Liquid (Oily; clear to turbid)
Appearance and Odour: Odourless
Boiling Point: 535 ° F
Melting/Freezing Point: - 31 ° F
Vapour Pressure: < 0.3 mm Hg @ 25 °C
Vapour Density (Air =1): 3.4
Specific Gravity): 1.835
Vapour Density: (Air=1): 3.4
Solubility: Yes-Water
pH: < 1

SECTION 10 - STABILITY & REACTIVITY:

Stability: Under Normal Conditions: Stable, but reacts violently with water and organic materials with evolution of heat. Under Fire Conditions: Decomposes to form sulfur dioxide, sulfur trioxide, Sulphuric Acid vapours and hydrogen gas.
Conditions to Avoid: Keep away from heat and sources of ignition. Avoid temperatures, which may have a negative effect on the materials of construction used in equipment.
Incompatibles: Contact with organic materials *(such as alcohol, acrylonitrile, chlorates, carbides, epichlorohydrin, fulminates, isoprene, nitrates and picrates)* may cause fire and explosions. Contact with metals may produce flammable hydrogen gas. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides and carbides. Polymerization will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION:

Potential Health Effects:

Acute Effects: Sulphuric Acid may be fatal if inhaled or ingested in large quantities. Liquid or acid mists may produce tissue damage to mucous membranes: eyes, mouth, and respiratory tract. **Extremely** dangerous by eye and skin contact. **Corrosive** – severe irritant for eyes: inflammation (redness, watering, itching). Very dangerous in case of inhalation. May cause severe irritation of the respiratory tract – shortness of breath, choking.

Chronic Effects:

Overexposure to strong inorganic mists containing Sulphuric Acid: Possibility of laryngeal cancer. Possibility of irritation of the nose/throat with sneezing, sore throat and runny nose. May include nausea, headache and weakness. Symptoms may be delayed. Target organs for acute and chronic overexposure – respiratory system, eyes, skin, and teeth.

Contact-Skin: Possibility of corrosion, burns, ulcers. Repeated or long exposure: itching, burning, redness, swelling, rash.

Contact-Eye: Possibility of corrosion or ulceration. Blindness may result. Prolonged exposure, possibility of irritation, tearing, blurred vision.

Contact-Ingestion: Immediate effects of over-exposure may include burns of the mouth and stomach with severe pain, bleeding, vomiting and collapse of blood pressure. Damage may appear days after exposure. Contact-Inhalation: Possibility of irritation to the nose and throat and lungs with cough. Prolonged exposure, possibility of wheezing, shortness of breath.

Toxicity: Persons with the following pre-existing conditions warrant particular attention: Laryngeal irritation. LD50 Oral Rat: 2140 mg/kg; LC50 Inhalation Rat: 510 mg/kg (exposure time - 2 hr).

SECTION 12 - ECOLOGICAL CONSIDERATIONS:

Ecotoxic Effects: Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intake; Fish toxicity; 2.8lg/L 96 hrs LC50 Rainbow trout, donaldson trout.

Toxicity to Animals: **EYE:** Concentrated compound is corrosive 10% solution: moderate eye irritant.
SKIN: Concentrated compound is corrosive 10% solution: slight skin irritant.

SECTION 13- DISPOSAL CONSIDERATIONS:

DO NOT flush to surface water or sanitary sewer system. Comply with Federal, Provincial and Municipal regulations. If approved, neutralize and transfer to waste treatment system.

SECTION 14 - TRANSPORT INFORMATION:

Proper Shipping Name:	Sulphuric Acid, with more than 51 percent Acid
Classification(s):	Class 8, Corrosive
Product Identification No:	UN1830
Packing Group:	II

SECTION 15 - REGULATORY INFORMATION:

WHMIS Classification(s): Class D1A- Very toxic material causing immediate and serious toxic effects. Class E -Corrosive material.

- DSL: Listed
- TSCA Inventory: Listed
- Class B Precursor : Health Canada Controlled Substance

SECTION 16 - OTHER INFORMATION:

Disclaimer:

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO THE BEST OF OUR KNOWLEDGE, TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THIS DATA OR THE RESULTS OBTAINED FROM THE USE THEREOF.

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