MATERIAL SAFETY DATA SHEET

1. Product Identification

Product Name: Sulfuric Acid  Date Issued: February, 2011

Company: GAC Chemical Corporation
PO Box 436
Searsport, Maine, 04496

Emergency Telephone Numbers:
GAC Chemicals 877-254-0081
Chemtrec 800-424-9300

2. Composition / Information on Ingredients

Identification: 90% - 100% sulfuric acid

Sulfuric acid H₂SO₄  CAS#: 7664-93-9  90 % - 100 %
Water  CAS#: 7732-18-5  0 % - 10 %

3. Hazards Identification

Hazard Communication Status: Corrosive
Acute Health Effects:
General: Reacts with all body tissue and eyes to produce severe burns and/or blindness
Inhalation: Exposure to mists may cause irritation of nose, throat and lungs, cough, headache, nausea, weakness. May cause lung edema, a medical emergency. Symptoms may be delayed
Ingestion: Harmful or fatal if swallowed. Product will severely burn the digestive tract. Damage may appear days after exposure.

Chronic Health Effects:
Inhalation: Repeated exposure may cause severe shortness of breath, chronic bronchitis, chronic inflammation of the nose and throat, corrosion/discoloration of teeth.
Skin Contact: Repeated exposure to mist or low concentrated liquid may cause dermatitis

4. First Aid Measures

Skin Contact: Immediately flush with water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately. Apply cold, wet compress, repeat flushing with cold water.
Eye Contact: Immediately flush with water for at least 15 minutes including under eyelids. Get medical attention immediately.
Inhalation: Remove from exposed area to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: DO NOT induce vomiting. If conscious, give ½ to 1 cup of water or milk. Get medical attention immediately.

5. Fire-fighting Measures

Flash Point: Non flammable.
Extinguishing Media: Water reacts violently with concentrated acid giving off heat.
Small fires: Dry chemical or carbon dioxide.
Large fires: Flood area with large quantities of water, while knocking down vapors with water fog. If insufficient water supply, knock down vapors only.
Special Fire Fighting Procedures: Keep personnel up wind from fire. Generates heat upon addition of water, with possible splattering. Wear NIOSH-approved self-contained breathing apparatus and full protective clothing. Neutralize run-off with lime, soda ash, etc. Thoroughly decontaminate equipment after use.
Unusual Fire and Explosion Hazards: Will react with most metals, especially when dilute, to produce explosive hydrogen gas. Will react with organic materials with evolution of heat and sulfur dioxide.
Accidental Release Measures

Spills: Keep people away. Prevent contact with skin. Wear full protective equipment when handling sulfuric acid. Keep combustibles away from spilled material. Dike flow of spilled material with sand, gravel, or whatever is available. Contact appropriate Federal, State, or local officials. After obtaining approval from Federal, State, or local officials, neutralize spill with soda ash or lime to a pH of 7. Prevent liquid from entering sewers or waterways. US regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.

Disposal: Follow Federal, State and local regulations for disposal. Make sure spilled material is neutralized to a pH of 7 and disposed of in an approved site. If not diluted and neutralized, this waste would be a hazardous waste (RCRA Hazardous Waste No. D002-Corrosive) as designated in 40 CFR 261. Reportable quantity is 1,000 pounds (based on sulfuric acid content.)

Handling and Storage

Handling: Employees must be properly trained to handle sulfuric acid. Avoid breathing vapors or mist. Wear approved respirators if adequate ventilation cannot be provided. Do not add water to contents. Do not smoke in a sulfuric acid storage area. Use non-sparking tools and vapor-proof type electrical fixtures.

Storage: Keep out of sun and away from heat sparks and flame. Keep away from incompatible material. Storage tanks must be ventilated. Never add water to concentrated acid

Exposure Controls / Personal Protection

Engineering Controls: General ventilation must be provided.
Personal Protective Equipment
Eye Protection: Wear chemical safety goggles. Have eye bath and safety shower immediately available.
Skin Protection: Wear full length face shield/chemical splash goggles combination, acid-proof gauntlet gloves, apron and boots, long-sleeved wool, acrylic or polyester clothing, acid-proof suit and hood.
Respiratory Protection: Use NIOSH approved equipment with full face piece when airborne exposure limits are exceeded.

Exposure Limits: PEL (OSHA): 1 mg/m3, 8 Hr. TWA
TLV-TWA (ACGIH): 0.2 mg/m3.

Physical and Chemical Properties

Appearance: Colorless, oily liquid
Odor: None
Boiling Point: 535°F (279°C) @93%
Melting Point: -31°F (-35°C) @93%
Vapor Pressure: <0.6 mm Hg @ 100°F
Specific Gravity: 1.82 – 1.84
Vapor Density: 3.4

Chemical Stability: Product is stable but reacts violently with water and organic materials with evolution of heat and hazardous mists.
Hazardous Polymerization: Will not occur.
Incompatibility: Vigorous reactions with water, alkaline solutions, metals, metal powder, carbides, chlorates, fumarates, nitrates, picrates, combustible organic materials
Hazardous Decomposition Products: Hazardous gases evolve on contact with cyanides, sulfides, carbides. Hydrogen gas (highly flammable/explosive limits 4-75% by volume) is generated by the action of sulfuric acid on most metals.
Decomposition: Releases sulfur dioxide at extremely high temperatures.
Corrosivity: Yes

Toxicological Information

Acute toxicity
Oral: LD50 (rat) 2140 mg/kg
Inhalation: LC50, 2hours (rat): 510mg/m³

Chronic Effects
Acid mists: Overexposure to strong inorganic mists containing sulfuric acid: possibility of laryngeal cancer (HSBD, IARC). Possible headache, nausea, weakness, pulmonary edema, cough, shortness of breath, irritation to nose throat and lungs. Possible discoloration of skin. Possible corrosion of teeth.
Contact (skin)  Possible corrosion, burns, ulcers, itching, burning, redness, swelling or rash
Contact (eye)  Possible corrosion or ulceration (blindness may result); irritation, pain, or blurred vision.

Carcinogenicity
Strong inorganic mists containing sulfuric acid (occupational exposures): PROVEN (human, Group I, IARC); SUSPECTED (human, Group A2, ACGIH); Group X (NTP); Classification not applicable to sulfuric acid and sulfuric acid solutions

12 Ecological Information

Ecotoxicity:
Aquatic toxicity:  Slightly to moderately toxic. Bluegill sunfish (LC₅₀; 48 hrs) 49 mg/L. Flounder (LC₅₀; 48 hrs) 100 - 330 mg/L. Toxicity to aquatic life increases with lowering pH. At pH lower than 5 few fish species can survive.

Environmental Fate:  Sulfate ion: Ubiquitous in the environment. Metabolized by micro-organisms and plants.

13 Disposal Considerations

Waste from residues, cleaned-up, or unused product: May be a hazardous waste under RCRA due to corrosivity characteristic. Do not flush to surface water or sanitary sewer system. Comply with Federal, state, and local regulations.

14 Transport Information

Proper Shipping Name: Sulfuric Acid  Hazard Class: 8
DOT Label: Corrosive  Reportable Quantity: 1000 pounds
UN Number: 1830  Packing Group: II

15 Regulatory Information

Inventory Status:  TSCA EC Japan Australia DSL
YES YES YES YES YES
SARA 302: RQ: 1000  TPQ: 1000
SARA 313: List: YES  Chem. Categ: NO
SARA 311/312: Acute: YES  Chronic: YES  Fire: NO  Pressure: NO
CERCLA: 1000
RCRA 261.33: NO
TSCA 8 (d) NO

NFPA rating:  Fire hazard - 0, Reactivity - 2, Health - 3, special hazard - ACID
NPCA – HMIS rating  Fire hazard - 0, Reactivity - 2, Health - 3

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