MATERIAL SAFETY DATA SHEET
Sulfuric Acid 93%

Trade Name: Sulfuric Acid 93%
Registration No: None

Chemical Product and Company Information

Company: Deerpoint Group, Inc.
4339 N. Selland Ave
Fresno, CA 93722
Emergency Phone: 1-800-424-9300 (24 hrs)

Product Name: Sulfuric Acid 93%
Common Name: Sulfuric Acid 93%
Chemical Type: Inorganic Acid

Composition/Information on Ingredients

Chemical Name and Synonyms	C.A.S. No.	Chemical Formula	WT% Hazardous	TLV	PEL
Sulfuric Acid	7664-93-9	H_2SO_4	93%	0.2 mg/m3	1 mg/m3 8Hr Twa
			Non-Haz		
Water	7732-18-5	H_2O	7%	Not listed	Not listed

HAZARDS IDENTIFICATION

Ingestion: Moderately toxic. Corrosive to the mouth, throat and stomach. May cause gastrointestinal disturbances. Symptoms may include salivation, irritation, throat burns, nausea, abdominal pains, vomiting and diarrhea.

Inhalation: Highly toxic. May cause respiratory tract irritation, throat burns, constriction of the windpipe, severe pulmonary edema and death. May also cause inflammation of the stomach, bronchitis, and tooth erosion. Exposure may cause symptoms similar to those listed under “Ingestion.”

Eye Contact: Extremely irritating and corrosive. Direct contact may cause conjunctivitis, corneal ulceration and permanent injury.

Skin Absorption: May destroy the epidermis and penetrate some distance into the skin and subcutaneous tissues and cause necrosis. Ulceration of the skin.

Skin Contact: May cause irritation or burns on skin. Prolonged contact may cause severe, deep burns to tissue; very corrosive effects. May cause dermatitis, ulceration. Burns may not become symptomatic for several hours after contact.

Effects of Overdose: LOCAL: Conjunctivitis, corneal necrosis, dermatitis, skin burns, ulceration. RESPIRATORY: Irritation of the nose and throat, laryngeal edema, bronchitis, pneumonia, pulmonary edema. GASTROINTESTINAL: Dental erosion, shock, anuria, burning in mouth, throat and abdomen; nausea, vomiting of blood and eroded tissue, perforation of gastrointestinal tract, albumin, blood and casts in urine.

FIRST AID MEASURES

Emergency and First Aid Procedures: Treatment is symptomatic and no specific antidotes are known.

Ingestion: Rinse mouth with large amounts of water, DO NOT INDUCE VOMITING. If patient is conscious give milk mixed with egg whites or as much water as possible

Inhalation: Remove person from exposure area to fresh air and support breathing.

Eyes: IMMEDIATELY flush eyes with fresh running water for 15-20 minutes.

Skin: Give continuous flow of water to wash material off body. Remove contaminated clothing (under a shower if possible) and subject patient to deluge-type shower, if possible. Treat for shock. Prompt medical consultation is essential.

FIRE FIGHTING MEASURES

Extinguishing Media: Fires involving small amounts of combustibles may be smothered with suitable dry chemicals. Use water on combustibles in vicinity of this material but use care, as water applied directly to their acid results in evolution of heat, causes splattering, and can further disperse aerosols.

Special Fire Fighting Procedures: Avoid any contact with acid. Wear full protective rubber clothing, gloves, boots, wear self-contained breathing apparatus.

Unusual Fire & Explosion Hazards: Not flammable but highly reactive and can cause ignition by contact with combustible materials. Reacts violently with water and organics. May release explosive hydrogen gas inside storage tanks, drums, tank cars, and tank trucks. This is a very powerful acidic oxidizer which can ignite or even explode on contact with many materials; i.e., acetic acid, acetone cyanhydrin, (acetone + HNO_3), (acetone + $K_2Cr_2O_7$), acetonitrile, acrolein, acrylonitrile, (acrylonitrile +H_2O), (alcohols + H_2O), allyl alcohol, allyl chloride, NH_4OH, 2-amino ethanol, NH_4triperchromate, aniline, (bromates + metals, BrF_5, n-butyraldehyde, carbides, $CoHC_2$, chlorates, (metals + chlorates), CIF_3, chlorosulfonic acid, Cu_3N, diisobutylene, (dimethylbenzylcarbinol + H_2O_2), epichlorohydrin, ethylene, cyanhydrin, ethylene diamine, ethylene glycol, ethylene imine, fulminates, HCl, H_2, IF_7 (indene + HNO_3 + glycerides, p-nitroluene, perchlorates, $HClO_4$, (C_6H_6 + permanganates), pentasilvertrihydroxydiamino phosphate, (l-phenyl-2methylpropylalcohol + H_2O_2), P, $P(OCN)_3$, picrates, potassium-tert-butoxide, $KClO_3$, $KMnO_4$, ($KMnO_4$ + KCl), $KMnO_4$ + H_2O) beta-

propiolactone, $RbHC_2$, propylene oxide, pyridine, NA, Na_2CO_3, NaOH, steel, styrene monomer, water, vinylacetate, (HNO_3 + toluene).

ACCIDENTAL RELEASE MEASURES

Environmental Precautions: No information available; however, Sulfuric Acid has a reportable quantity of 1000 lbs. and, in the event of an accidental release, should be kept out of all watercourses and bodies of water. Do not contaminate any watercourse or body of water by direct application, cleaning of equipment or disposal.
Steps to be taken in case material is released or spilled: Treat with extreme caution. Zone off contaminated area. Dike area with sand or earth. Acid may be neutralized with soda ash or lime. Neutralization or dilution of strong Sulfuric Acid will ALWAYS be accompanied by a very strong chemical reaction with release of heat and possible splattering of acid. Organic or combustible materials such as sawdust or rags should never be used to soak up spills. Wear full protective clothing (acid protective slicker suit).

Handling and Storage

Precautions to be taken in handling and storing:

When diluting always add acid to water slowly, never the reverse. Protect against physical damage and water. Wear full protective rubber clothing and rubber gloves and boots, acid hood, and full face shield when loading or unloading tank trucks or railway cars. If exposure is low, acid gas canister may be satisfactory or a self-contained breathing apparatus in the pressure demand mode or a supplied air respirator. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. In any event always wear eye protection.

Exposure Controls/Personal Protection

Ventilation Protection: Maintain adequate ventilation at all locations where acid is handled. Store in the open or in well ventilated buildings or sheds.

Respiratory Protection: Depend on type of exposure, can range from none to full protection. Self-contained breathing apparatus, or positive pressure hose mask, or air-line supplied with clean compressed air. Check with respirator manufacturer to determine the appropriate type of equipment for a given application.

Protective Clothing: When loading or unloading trucks or cleaning out tanks or towers, wear acid resistant slicker suit, rubber clothing with rubber hood or broad soft hat, rubber apron, rubber gloves, rubber boots, and full face shield.

Suit Material Performance: (suggested by E.P.A. – users should determine by specific use)

Butyl – Poor
Butyl/Neoprene – Good
CPE- Excellent
Chlorobutyl- Good
Neoprene- Good

Eye Protection: Chemical splash-proof goggles and/or full face shield.
Other: Safety shower and eyewash fountain checked daily in area.

Physical and Chemical Properties

Boiling Point:	Not Stated	**Solubility in Water:**	Complete (Exothermic)
Specific Gravity:	1.84 @ 60˚F	**% Volatiles (by volume)**	Not Stated
pH:	Less than 1.0	**Vapor Pressure, mm Hg:**	1 @ 294˚F
Appearance:	Clear, colorless to cloudy	**Reaction with Water:**	VIOLENT

Extinguishing media: Use media suitable to extinguish source of fire.
Flashpoint: Non-flammable. It may cause ignition on contact with combustible liquids or solids.

Stability and Reactivity

Stability (Normal Conditions): Stable

Conditions to Avoid: High temperature, organic materials, powdered metals, and other combustible materials.

Incompatibility (Material to Avoid): Water and most common metals, organic materials, carbides, chlorates, fulminates, nitrates, pic rates, powdered metals, other combustible materials and strong oxidizing agents. Attacks many metals, releasing hydrogen. Acetic acid, acetone cyanohydrins, acetone and nitric acid and styrene monomer, vinyl acetate, nitric acid and toluene.

Hazardous Decomposition Products: Hydrogen gas and hazardous fumes of SO

Hazardous Polymerization: Will not occur

Toxicology Information

Acute Oral Toxicity: LD_{50} (rat) is greater than 5,000 mg/kg (ppm); not acutely toxic by oral exposure. (TFI Product Testing Results, OECD Guideline 425)

Acute Inhalation Toxicity: LC_{50} (rat, guinea pig) is 18 – 420 mg/m_3; highly toxic by inhalation. (TFI Product Testing Results)

Acute Aquatic Toxicity: Fish 96-hour LC_{50} is 42-500 mg/L (ppm); daphnia 24-hour EC_{50}: 29-88 mg/L; algae 10 mg/L. Slightly toxic to aquatic organisms. (TFI Product Testing Results)

Ecological Information

None listed.

Disposal Considerations

Waste Disposal Procedures: If possible, avoid pouring or spraying water directly onto strong Sulfuric Acid. This ALWAYS results in a violent chemical reaction. It is always best to slowly pour the acid into water during disposal operations to avoid the violent reaction and splattering of acid. If water must be sprayed into the acid for dilution, flushing, etc., it should always be done from a distance with proper protective gear.

Transport Information

Shipping name:	RQ Sulfuric Acid (with more than 51 percent acid), 8, UN1830 PGII		
Hazard Class:	8	**C.A.S. Number:**	7664-93-9
Reportable Qty (RQ):	1000 lbs Sulfuric Acid	**Sub Hazard Class:**	None
Packaging Group:	II	**DOT Number:**	UN1830
EPA reg No:	None	**Labels Required:**	Corrosive
Haz Waste No:	D002	**Placard:**	Corrosive

Regulatory Information

Carcinogenicity: by IARC?: Yes ( ) No (X) by NTP?: Yes ( ) No (X)

IARC evaluates occupational exposures to strong, inorganic-acid mists containing Sulfuric Acid in “Group 1” as having carcinogenic potential. However, SULFURIC ACID ITSELF WAS NOT CLASSIFIED AS A

GROUP I CARCINOGEN.
This product contains sulfuric acid, CAS No. 7664-93-9, which is subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Other Information

Flash Point (Test Method):	Not applicable	Flammable Limits	Lower	Upper
Autoignition Temperature:	Not applicable	(% By Volume)	N/A	N/A

Hazard Rating (N.F.P.A.):
This N.F.P.A. rating is a recommendation by the manufacturer using the guidelines or published evaluations prepared by the National Fire Protection Association (N.F.P.A.).

FIREFIGHTING TECHNIQUE
Concentrated vapors of Sulfuric Acid are extremely irritating to the respiratory tract and may cause breathing difficulty. Prevent human exposure to fire, smoke, fumes, or products of combustion. Evacuate nonessential personnel from the fire area. Maintain a safe distance from the fire and storage area because excessive heat may cause tank to rupture. Wear full face, self-contained breathing apparatus and impervious clothing (such as gloves, hood, suits, and rubber boots). Use water spray, dry chemical, foam, carbon dioxide, or halogenated extinguishing agents. If the tank is not leaking, keep cooled using a fog spray nozzle to minimize the reactivity of the water and acid. Under no circumstance should water or other liquid be introduced into acid tanks. Take care not to ignite hydrogen gas which can accumulate inside metal tanks containing acid.

SPECIAL HANDLING

Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices.

A small spill can be handled routinely. Use adequate ventilation or wear an air-supplied respirator to prevent inhalation contact. Wear suitable protective clothing to prevent skin and eye contact. Use the following procedures:

- Any leak occurring in pipelines or equipment should be considered an acid leak and treated with extreme caution until the leak is proven not to be an acid leak.
- All contaminated areas should be immediately zoned off to avoid personnel exposure to the acid spray or stream.
- Adjust all appropriate valves to isolate the system and stop further leakage.

- Soda ash or lime should be spread around to neutralize any remaining acidity on the surface of the ground or concrete pad. The contaminated area should be covered with sand or gravel, and acidity neutralized with soda ash or lime.
- Sulfuric Acid leaks, spills or drainings must not come in contact with any acid soluble sulfide wastes (such as in sewers), because the danger of evolving hydrogen sulfide gas.

Large spills should be handled according to the predetermined plan. Part of this plan should include Section V, Fire Fighting Measures.

Corrosivity To Materials Of Construction

Weaker strengths of Sulfuric Acid, particularly concentrations below 60˚ Baume, are highly corrosive to most metals with evolution of hydrogen gas.

Storage Requirements

The following safety facilities should be readily accessible in all areas where Sulfuric Acid is handled or stored.
SAFETY SHOWERS- with quick opening valves which stay open. Water should be supplied through insulated lines to prevent freeze-ups in cold weather.
EYEWASH FOUNTAIN- or other means of washing the eyes with a gentle flow of tap water.
Sulfuric Acid may be safely stored in properly designed bulk storage tanks.

Disposal of Unused Material
Sulfuric Acid that cannot be used or chemically reprocessed should be disposed of in such a manner that will not adversely affect the environment.