G.J. CHEMICAL COMPANY, INC. SAFETY DATA SHEET

1. PRODUCT IDENTIFIER

1.1 PRODUCT NAME: Sulfuric Acid 95-98%

PRODUCT NUMBER(S): 274700 – 96%, 274710 - ACS

TRADE NAMES/SYNONYMS: Hydrogen Sulfate, Oil of Vitriol, Mattling Acid, Battery Acid, Sulphuric Acid, Dihydrogen Sulfate, Babcock Acid, Spit of sulfur.

CAS-No: 7664-93-9

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST
RECOMMENDED USE: Manufacture of substances, Laboratory Chemicals
USES ADVISED AGAINST: No information available

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET
Company: G.J. CHEMICAL CO., INC.
Address: 40 VERONICA AVENUE
SOMERSET, NJ 08873
Telephone: 1-973-589-1450
Fax: 1-973-589-3072

1.4 Emergency Telephone Number
Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29CFR 1910 (OSHA HCS)
Corrosive to metals (Category 1), H290
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

2.2 GHS Label elements, including precautionary statements

Pictogram

GHS05 GHS07

Signal word DANGER

Hazard statement(s)
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage

Precautionary statement(s)
Prevention:
P234 Keep only in original container.
P264 - Wash hands, forearms and face thoroughly after handling
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
Storage:
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. INGREDIENTS

3.1 SUBSTANCE:

Ingredient	CAS No.	% by WT. Range	CLASSIFICATION
Sulfuric Acid	7664-93-9 EC-No.231-639-5 Index-No.016-020-00-8 Reg.-No.01-2119458838-20-XXXX	95-98	Corrosive to metals (Category 1), H290 Skin corrosion (Category 1B), H314 Serious eye damage (Category 1), H318
Water	7732-18-5 EC-No.231-791-2	2-5	None

3.2 MIXTURE: Not applicable

4. FIRST-AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES:

INHALATION: Sulfuric Acid

****FIRST AID-** Poison material. Immediately get medical aid. Remove to fresh air immediately. If not breathing give artificial respiration. If breathing is difficult give oxygen. Do not use mouth to mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. Keep warm and quiet.**

In case of SERIOUS INHALATION: Sulfuric Acid

****FIRST AID-** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention**

EYE CONTACT (Splash): Sulfuric Acid

****FIRST AID-** Immediately irrigate eyes with water for 15 minutes. Hold eyelids open for complete irrigation. Remove contact lenses, if worn, after initial flush. Do not allow victim to rub or keep eyes closed. Take to a physician.**

SKIN CONTACT (Splash): Sulfuric Acid

****FIRST AID-** Immediately wash affected area with soap and water and rinse for 15 minutes. Remove contaminated clothing and shoes. Immediately get a physician.**

In case of SERIOUS SKIN CONTACT: Sulfuric Acid

****FIRST AID-** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention immediately.

INGESTION: Sulfuric Acid

****FIRST AID-** DO NOT INDUCE VOMITING. If the victim is conscious and alert give a cupful of water. Never give anything by mouth to an unconscious person. Immediately consult a physician or poison control center, treat symptomatically.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED
INGESTION:
Eye: Causes severe eye burns. Direct contact with liquid may cause blindness or irreversible eye damage. May cause permanent corneal damage. The severity of injury depends on the concentration of the solution and the duration of exposure.
Skin: Causes skin burns. The severity of injury depends on the concentration of the solution and the duration of exposure. Redness, pain, and severe burn can occur. Continued contact can cause tissue necrosis.
Inhalation: May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed pulmonary edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Cause corrosive action on mucous membranes. May affect cardiovascular system (hypotension, depressed cardiac output, bradycardia). Circulatory collapse with clammy skin, weak and rapid pulse, shallow respiration, and scanty urine may follow. Circulatory shock is often the immediate cause of death. May also affect teeth (changes in teeth and supporting structures - erosion, discoloration).
Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Can cause severe burns of the mouth, throat, and stomach. May cause perforation of the stomach, GI bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse(similar to acute inhalation). It may also cause systemic toxicity with acidosis leading to death.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:
Specific details on antidote: No recommendation given.

5. FIRE FIGHTING MEASURES

Flash Point:	**N.D.**	**LEL %: NA**
Auto-ignition Temp:	**NA**	**UEL %: NA**

5.1 SUITABLE EXTINGUISHING MEDIA: Foam--> x CO2--> x Dry Chemical--> x Water-fog--> x Other-->

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE: Contact with water can cause violent liberation of heat and splattering of the material. Not flammable, but reacts with most metals and may evolve flammable hydrogen gas. Vapors may be heavier than air, and can spread along the ground and collect in low or confined areas.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not flammable, but reacts with most metals and may evolve flammable hydrogen gas. Metal acetylides (Monocesium and Monorubidium), and carbides ignite with concentrated sulfuric acid. White Phosphorous + boiling Sulfuric acid or its vapor ignites on contact. May ignite other combustible materials. May cause fire when sulfuric acid is mixed with Cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phorphorous (III) oxide, and oxidizing agents such as chlorates, halogens, permanganates.
Vapors may be heavier than air, and can spread along the ground and collect in low or confined areas. Strong dehydrating agent, which may cause ignition of finely divided materials on contact. Oxides of sulfur may be produced in a fire. Mixtures of sulfuric acid and any of the following can explode: p-nitrotoluene, pentasilver trihydroxydiaminophosphate, perchlorates, alcohols with strong hydrogen peroxide, ammonium tetraperoxychromate, mercuric nitrite, potassium chlorate, potassium permanganate with potassium chloride, carbides, nitro compounds, nitrates, carbides, phosphorous, iodides, picratres, fulminates, dienes, alcohols (when heated) Nitramide decomposes explosively on contact with concentrated sulfuric acid. 1,3,5-Trinitrosohexahydro-1,3,5-triazine + sulfuric acid causes explosive decompositon.

CONDITIONS OF FLAMMABILITY: Not flammable or combustible.

HAZARDOUS COMBUSTION PRODUCTS: Products of combustion are not available since material is non-flammable. However, products of decomposition include fumes of oxides of sulfur and hydrogen. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates to generate carbon dioxide gas. Reacts with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively

5.3 ADVICE FOR FIREFIGHTERS: Shut off source. Wear NIOSH/MSHA approved self-contained breathing apparatus (SCBA) in pressure demand or other positive pressure mode and full protective gear for confined spaces. Contact with water can cause violent liberation of heat and splattering of the material. Water run-off can cause environmental damage. Dike and collect water used to fight fire. Use water spray to keep fire exposed containers cool.

⑥. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations.

6.2 ENVIRONMENTAL PRECAUTIONS:
Keep out of water sources, drains and sewers. Do not flush into surface water or sanitary sewer system

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:
Methods for cleanup and containment:
Approach spill from upwind. Keep all non-essential people away from exposure.

Small Spill: Dilute with water and absorb with an inert dry material and place in an appropriate waste disposal container. If necessary, neutralize the residue with a dilute solution of sodium carbonate.

Large spills: Corrosive liquid. Poisonous liquid. Stop leak ONLY if without risk. May be neutralized with dilute alkaline solutions of soda ash, or lime. A vapor suppressing foam may be used to reduce vapors. Absorb spill using a non combustible absorbent such as, earth, sand or vermiculite. Do not touch spilled material.

Methods for disposal:
Remove contaminated soil to remove contaminated trace residues. Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Do not get water inside container. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations.

REPORTABLE QUANTITY (RQ): 1000 POUNDS
The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the national response center must be notified immediately at (800) 424-8882 or (202) 426-2675 in the metropolitan Washington, D. C. area (40 CFR 302.6).

6.4 REFERENCE TO OTHER SECTIONS: See Sections 8 and 13.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:
Keep locked up. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Avoid work practices that may release volatile components in the atmosphere. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contaminating soil or releasing material into sewage and drainage systems. Do not take internally. Avoid free fall of liquid in excess of a few inches. Use only with adequate ventilation or respiratory protection. Wash thoroughly after handling. Remove contaminated clothing and wash before

reuse. Do not allow water to get into container because of violent reaction. Contents may develop pressure upon prolonged storage. Do not get in eyes, on skin, or on clothing. Discard contaminated shoes. Keep away from strong bases and metals. Use caution when opening. Do not use with metal spatula or other metal items. When diluting, the acid should always be added slowly to water and in small amounts.

Advice on general occupational hygiene:
Wash hands before breaks and after work. Keep away from food, drink and animal feeding stuffs. When using do not smoke.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Do not store in direct sunlight or near combustible materials. Store large quantities only in buildings designed to comply with OSHA 1910.106. Keep containers tight and upright to prevent leakage. Keep away from incompatibles such as oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture. Keep containers closed when not in use. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package. Hygroscopic. Reacts violently with water. Keep container tightly closed. Keep container in a cool, well ventilated area. Do not store above 23°C (73.4°F).

CONTAINER WARNINGS> Empty containers release residue and can be dangerous. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner.

7.3 SPECIFIC END USES: Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROL (PERSONAL PROTECTION)

8.1 CONTROL PARAMETERS:

Ingredient	CAS No.	% by WT. Range	Exposure Limits
Sulfuric Acid	7664-93-9 EC-No.231-639-5 Index-No.016-020-00-8 Reg.-No.01-2119458838-20-XXXX	95-98	0.2ppm TWA (ACGIH) 0.25mg/m3 PEL TWA (OSHA) 1mg/m3 PEL TWA (OSHA) 15mg/m3 (IDLH)
Water	7732-18-5 EC-No.231-791-2	2-5	None

Key: (PEL) = Permissible Exposure Limit OSHA
(TLV) = Threshold Limit Value OSHA & ACGIH
(STEL) = Short Term Exposure Limit ACGIH
(WEEL) = USA. Workplace Environmental Exposure Levels
(TWA) = Time Weighted Average
CAS = Chemical Abstracts Registry Number

IDLH = Immediate Danger to Life and Health
N.E. =None Established

8.2 EXPOSURE CONTROLS

EXPOSURE GUIDELINES> Consider the potential hazards of this material (Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

ENGINEERING CONTROLS> Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

RESPIRATORY PROTECTION> The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA):

For vapor concentrations 1 to 10 times TWA or PEL an air purifying NIOSH/MSHA Approved respirator with full face-piece and organic vapor cartridges. For concentrations over 10 times TWA or PEL, in confined areas, and/or where vapor concentrations are unknown use a NIOSH approved positive pressure full face-piece supplied air respirator.

BODY CLOTHING> Use a complete chemical resistant suit or other impervious clothing. Remove and wash contaminated clothing before reuse.

SKIN PROTECTION> Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.
Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min

HYGIENE: Use good personal hygiene practices, wash hands before eating, drinking, smoking or using toilet facilities.

EYE/FACE PROTECTION> Use safety eyewear with splash guards or face shield. Maintain shower and eyewash in the work area.

⑨. PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:

Sulfuric Acid 95-98% 7664-73-9
Appearance----------> Clear oily liquid
Color----------> Colorless
Odor----------> Pungent
Odor Threshold---------- > Approx. 1mg/m3
pH---------- > 1.2 @ 5g/L
Molecular weight---------- > 98.08amu
Melting/Freezing Point----------> 3°C (37°F)
Boiling Range (°F)---------- > 290°C (554°F) - 338°C Decomposition
Specific Gravity---------- > 1.835-1.844
Vapor Pressure----------> <0.001mmHg@ 20°C
Vapor Density (air=1)----------> 3.38
Water Solubility---------- > Soluble with much heat
Partition Coefficient N-Octanol/water- > No data available
Evaporation Rate (Butyl Acetate=1)----> Slower than ether
Flash Point----------> No data available
Upper Flammability Limit----------> No data available
Lower Flammability Limit----------> No data available
Auto-ignition Temperature----------> No data available
Decomposition Temperature----------> No data available
Viscosity----------> No data available
Explosive Properties----------> No data available
Oxidizing Properties----------> No data available

9.2 Other information:
Surface tension----------> 55.1 mN/m at 20°C (68°F)

⑩. STABILITY AND REACTIVITY INFORMATION

10.1 REACTIVITY: No data available.

10.2 CHEMICAL STABILITY: Unstable ( ) Stable (X)
Sulfuric acid reacts violently or explosively with many organic and inorganic chemicals and with water.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS: Hygroscopic. Strong oxidizer. Reacts violently with water and alcohol especially when water is added to the product

HAZARDOUS POLYMERIZATION--> May occur ( ) Will not occur (X)

10.4 CONDITIONS TO AVOID> Conditions to Avoid: Incompatible materials, excess heat, combustible material materials, organic materials, exposure to moist air or water, oxidizers, amines, bases. Always add the acid to water, never the reverse.

10.5 INCOMPATIBLE MATERIALS-->
Reactive with oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture. Corrosive: Extremely corrosive in presence of aluminum, of copper, of stainless steel (316). Highly corrosive in presence of stainless steel (304). Non-corrosive in presence of glass.

Incompatible (can react explosively or dangerously) with the following: ACETIC ACID, ACRYLIC ACID, AMMONIUM HYDROXIDE, CRESOL, CUMENE, DICHLOROETHYL ETHER, ETHYLENE CYANOHYDRIN, ETHYLENEIMINE, NITRIC ACID, 2-NITROPROPANE, PROPYLENE OXIDE, SULFOLANE, VINYLIDENE CHLORIDE, DIETHYLENE GLYCOL MONOMETHYL ETHER, ETHYL ACETATE, ETHYLENE CYANOHYDRIN, ETHYLENE GLYCOL MONOETHYL ETHER ACETATE, GLYOXAL, METHYL ETHYL KETONE, dehydrating agents, organic materials, moisture (water), Acetic anhydride, Acetone, cyanohydrin, Acetone+nitric acid, Acetone + potassium dichromate, Acetonitrile, Acrolein, Acrylonitrile, Acrylonitrile +water, Alcohols + hydrogen peroxide, ally compounds such as Allyl alcohol, and Allyl Chloride, 2-Aminoethanol, Ammonium hydroxide, Ammonium triperchromate, Aniline, Bromate + metals, Bromine pentafluoride, n-Butyraldehyde, Carbides, Cesium acetylene carbide, Chlorates, Cyclopentanone oxime, chlorinates, Chlorates + metals, Chlorine trifluoride, Chlorosulfonic acid, 2-cyano-4-nitrobenzenediazonium hydrogen sulfate, Cuprous nitride, p-chloronitrobenzene, 1,5- Dinitronaphthlene + sulfur, Diisobutylene, p-dimethylaminobenzaldehyde, 1,3-Diazidobenzene, Dimethylbenzylcarbinol + hydrogen peroxide, Epichlorohydrin, Ethyl alcohol + hydrogen peroxide, Ethylene diamine, Ethylene glycol and other glycols, Ethylenimine, Fulminates, hydrogen peroxide, Hydrochloric acid, Hydrofluoric acid, Iodine heptafluoride, Indane + nitric acid, Iron, Isoprene, Lithium silicide, Mercuric nitride, Mesityl oxide, Mercury nitride, Metals (powdered), Nitromethane, Nitric acid + glycerides, p-Nitrotoluene, Pentasilver trihydroxydiaminophosphate, Perchlorates, Perchloric acid, Permanganates + benzene, 1-Phenyl-2-methylpropyl alcohol + hydrogen peroxide, Phosphorus, Phosphorus isocyanate, Picrates, Potassium tert-butoxide, Potassium chlorate, Potassium Permanganate and other permanganates, halogens, amines, Potassium Permanganate + Potassium chloride, Potassium Permanganate + water, Propiolactone (beta)-, Pyridine, Rubidium aceteylene carbide, Silver permanganate, Sodium, Sodium carbonate, sodium hydroxide, Steel, styrene monomer, toluene + nitric acid, Vinyl acetate, Thalium (I) azidodithiocarbonate, Zinc chlorate, Zinc Iodide, azides, carbonates, cyanides, sulfides, sulfites, alkali hydrides, carboxylic acid anhydrides, nitriles, olefinic organics, aqueous acids, cyclopentadiene, cyano-alcohols, metal acetylides, Hydrogen gas is generated by the action of the acid on most metals (i.e. lead, copper, tin, zinc, aluminum, etc.). Concentrated sulfuric acid oxidizes, dehydrates, or sulfonates most organic compounds.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS--> Oxides of sulfur.

11. TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:

Routes of Entry: Inhalation--> x Skin--> x Ingestion--> x Eye--> x

ACUTE HEALTH EFFECTS:

Effects of overexposure:

Eye> Causes severe eye burns. Direct contact with liquid may cause blindness or irreversible eye damage. May cause permanent corneal damage. The severity of injury depends on the concentration of the solution and the duration of exposure.

Skin> Causes skin burns. The severity of injury depends on the concentration of the solution and the duration of exposure. Redness, pain, and severe burn can occur. Continued contact can cause tissue necrosis.

Inhalation> May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed pulmonary edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Cause corrosive action on mucous membranes. May affect cardiovascular system (hypotension, depressed cardiac output, bradycardia). Circulatory collapse with clammy skin, weak and rapid pulse, shallow respiration, and scanty urine may follow. Circulatory shock is often the immediate cause of death. May also affect teeth (changes in teeth and supporting structures - erosion, discoloration).

Ingestion> Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Can cause severe burns of the mouth, throat, and stomach. May cause perforation of the stomach, GI bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse(similar to acute inhalation). It may also cause systemic toxicity with acidosis leading to death.

Chronic: Prolonged or repeated skin contact may cause dermatitis. Inhalation may cause nosebleeds, nasal congestion, erosion of teeth, perforation nasal septum, chest pain and bronchitis. Prolonged eye contact may cause conjunctivitis. Effects may be delayed. Workers chronically exposed to sulfuric acid mists may show various lesions of the skin tracheobronchitis, stomatitis, conjunctivitis, or gastritis. Occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans.

Medical Conditions Aggravated by Exposure: Any individuals with chronic respiratory, skin, eye disease and digestive diseases may be more prone to the corrosive properties of the acid.

ACUTE TOXICITY:

The effects of overexposure shown in Section II are based on acute toxicity profiles. Typical values are:

Ingredient	Oral LD50(Rat)	Skin LD50(Rabbit)	Inhalation LC50
Sulfuric Acid 95-98%	2140mg/kg		510mg/m3/2hr Mouse

Sulfuric Acid

Skin corrosion/irritation: Skin - Rabbit Result: Extremely corrosive and destructive to tissue.

Serious eye damage/irritation: Eyes - Rabbit Result: Corrosive to eyes

Respiratory or skin sensitization: Not classified

MUTAGENIC EFFECTS: Cytogenetic Analysis: Hamster, ovary = 4mmol/L

EMBRYO TOXICITY: This product is not reported to produce embryo toxic effects in humans.

TERATOGENICITY: Neither embryotoxic, fetoxic, nor teratogenetic in mice or rabbits at inhaled doses producing some maternal toxicity. This product is not reported to cause teratogenic effects in humans

CARCINOGEN STATUS:
The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong inorganic- acid mists containing sulfuric acid is carcinogenic to humans (group 1).
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: Known to be human carcinogen (Sulfuric acid) Code 1
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

REPRODUCTIVE TOXICITY: May cause adverse reproductive effects based on animal data. Developmental abnormalities (musculoskeletal) in rabbits at a dose of 20 mg/m3 for 7 hrs. (RTECS)

Specific target organ toxicity (STOT-SE)- single exposure (Globally Harmonized System): May cause respiratory irritation.

Specific target organ toxicity (STOT-RE)- repeated exposure (Globally Harmonized System): no data available
California; carcinogen, initial date 3/14/03

Epidemiology： Workers exposed to industrial sulfuric acid mist showed a statistical increase in laryngeal cancer. This suggests a possible link between carcinogenesis and inhalation of sulfuric acid mist.
Teratogenicity: Sulfuric acid was not teratogenic in mice and rabbits but was slightly embryotoxic in rabbits.
Neurotoxicity: No information available.

ASPIRATION HAZARD: No data available

11.2 ADDITIONAL DATA:
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed. May cause damage to the following organs: kidneys, lungs, heart, cardiovascular system, upper respiratory tract, eyes, teeth.

RTECS: WS5600000

12. ECOLOGICAL INFORMATION

DANGEROUS TO AQUATIC LIFE
May be dangerous if it enters water intakes.
Notify local health and pollution control officials.
Notify operators of nearby water intakes.

12.1 AQUATIC TOXICITY:
Toxicity to Fish:
LC50 - Gambusia affinis (Mosquito fish) - 42 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 - Daphnia magna (Water flea) - 29 mg/l - 24 h

12.2 PERSISTANCE AND DEGRADABILITY: The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 BIOACCUMULATIVE POTENTIAL:
Bioaccumulation: not applicable. Not established

12.4 MOBILITY IN SOIL: No data available

12.5 RESULTS OF PBT AND vPvB :
PBT assessment results: This substance is not classified as PBT or vPvB.

12.6 OTHER ADVERSE EFFECTS: No data available.

13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS: Contact a licensed professional waste disposal service to dispose of this material. Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. Incinerate or biologically treat under controlled conditions in a permitted facility.

CONTAMINATED PACKAGING: Dispose of as unused product.

RCRA: The unused product is a RCRA hazardous waste if discarded. The RCRA ID number is: D002.

DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 48 CFR 262

14. TRANSPORT INFORMATION

Land Transport (DOT)
14.1 USDOT ID Number----------> UN1830
14.2 USDOT Shipping Name----------> Sulfuric Acid (with more than 51% acid)
14.3 USDOT Hazard Classification-------> 8 (Corrosive Liquid)
USDOT Label Codes----------> 8
14.4 USDOT Package Code----------> II
14.5 Marine Pollutant----------> No
14.6 Special precautions for user--------> Yes
Emergency Response Guide--------> 137
Reportable Quantity----------> 1000lbs.

Sea Transport (IMDG)
14.1 ID Number----------> UN1830
14.2 Proper shipping name----------> SULFURIC ACID (WITH MORE THAN 51% ACID)
14.3 Hazard Classification----------> 8 (Corrosive Liquid)
Label Codes----------> 8
14.4 Package Code----------> II
14.5 Marine Pollutant----------> No
14.6 Special precautions for user----------> Yes
EMS-Number----------> F-A, S-B

Air Transport (IATA)
14.1 ID Number----------> UN1830
14.2 Proper shipping name----------> Sulfuric Acid (with more than 51% acid)
14.3 Hazard Classification----------> 8 (Corrosive Liquid)
Label Codes----------> 8
14.4 Package Code----------> II
14.5 Environmental hazard----------> None
14.6 Special precautions for user----------> Yes

15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE:

SARA TITLE III (Superfund Amendment and Reauthorization Act)
SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355) - Listed
Sulfuric acid CAS-No.7664-93-9; EHSTPQ: 1000lbs.
SECTION 313: Toxic Chemicals Listing (40 CFR 372.65) - Listed
Sulfuric acid CAS-No. 7664-93-9
SECTION 311/312: Hazard Categorization (40 CFR 370) - Acute Health Hazard, Chronic Health Hazard

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)

SECTION 102(A) Hazardous Substances (40 CFR 302.4) - Listed
Reportable Quantity - 1,000 pounds.
SECTION 101(14) Reportable Quantity: 1,000 lbs

Massachusetts Right to Know Components
Sulfuric acid CAS-No. 7664-93-9

Pennsylvania Right to Know Components
Sulfuric acid CAS-No. 7664-93-9

New Jersey Right to Know Components
Sulfuric acid CAS-No. 7664-93-9

California Prop. 65 Components
WARNING! This product contains a chemical known to the State of California to cause cancer.
Sulfuric acid CAS-No.7664-93-9

TSCA (Toxic Substance Control Act)

Sulfuric acid CAS-No.7664-93-9 is listed on the TSCA Inventory.

International Inventories:

Country or Region	Inventory Name	On inventory yes/no
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemicals Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Japan	Industrial Safety & Health Law Inventory (ISHL)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Mexico	National Inventory of Chemical Substances (INSQ)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Switzerland	Inventory of Notified New Substances (CHINV)	Yes
Taiwan	National Existing Chemical Inventory (NECI)	Yes
United States & Puerto Rico	Toxic Substances Control Act Inventory	Yes

15.2 CHEMICAL SAFETY ASSESSMENT: A chemical safety assessment has been carried out for this substance.

16. OTHER INFORMATION:

Hazard Rating:

4-Extreme
3-High
2-Moderate
1-Slight
0-Insignificant

NFPA RATINGS (SCALE 0-4): Health=3 Fire=0 Reactivity=0
HMIS RATINGS (SCALE 0-4): Health=3 Fire=0 Reactivity=0 PPE=K

Text of hazard statement codes in Section 2 and 3:
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Date of preparation--------> September 12, 2007
Revision Number----------> 1.6

Revision Content----------> General update all sections
Revision Date----------> September 11, 2018
Prepared by----------> T.G. Fenstermaker, Jr.

Acronyms:

ACGIH	-	American Conference of Governmental Industrial Hygenists
AIHA	-	American Industrial Hygiene Association
ANSI	-	American Nation Standards Institute
API	-	American Petroleum Institute
CERCLA	-	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	-	U.S. Department of Transportation
EPA	-	U.S. Environmental Protection Agency
HMIS	-	Hazardous Materials Information System
IARC	-	International Agency For Research On Cancer
MSHA	-	Mine Safety and Health Administration
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute of Occupational Safety and Health
NOIC	-	Notice of Intended Change (Proposed change to ACGIH TLV)
NTP	-	National Toxicology Program
OPA	-	Oil Pollution Act of 1990
OSHA	-	U.S. Occupational Safety & Health Administration
PEL	-	Permissible Exposure Limit (OSHA)
RCRA	-	Resource Conservation and Recovery Act
REL	-	Recommended Exposure Limit (NIOSH)
SARA	-	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	-	Self-Contained Breathing Apparatus
STEL	-	Short-Term Exposure Limit (generally 15 minutes)
TLV	-	Threshold Limit Value
TSCA	-	Toxic Substances Control Act
TWA	-	Time Weighted Average (8hr.)
WHMIS	-	Canadian Workplace Hazardous Materials Information System