MATERIAL SAFETY DATA SHEET

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Section 1 Chemical Product and Company Information

Product	**SULFURIC ACID, CONCENTRATE, 95-98%**
Synonyms	Sulfuric acid, Hydrogen Sulfate, Battery Acid

CHEMTREC 24 Hour Emergency Phone Number (800) 424-9300

Section 2 Composition / Information on Ingredients

Chemical Name	CAS #	%	TLV Units
Sulfuric acid	7664-93-9	95-98%	TWA: 1 mg/m^3; STEL: 3 mg/m^3

Section 3 Hazards Identification

Emergency Overview

DANGER! CORROSIVE!
HARMFUL OR FATAL IF SWALLOWED OR INHALED.
CAUSES SEVERE BURNS TO SKIN AND EYES.
Vapor extremely hazardous. Do not get in eyes, on skin or on clothing. Do not breathe mist or vapors. Use with adequate ventilation. Wash thoroughly after handling. Target organs: Respiratory system, eyes, skin, teeth.

0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

Health	3
Fire	0
Reactivity	3
Contact	4

HMIS *

Section 4 First Aid Measures

INGESTION: Call physician or Poison Control Center immediately. Induce vomiting only if advised by appropriate medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

EYE CONTACT: Check for and remove contact lenses. Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get immediate medical attention.

SKIN CONTACT: Remove contaminated clothing. Flush thoroughly with mild soap and water. If irritation occurs, get medical attention.

Section 5 Fire Fighting Measures

General information: In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Fires involving a small amount of combustibles may be smothered by dry chemical. Use water on combustibles burning in vicinity of acid but use care as water applied to the acid results in severe generation of heat and may cause boiling and splattering. Sulfuric acid will not burn, but is capable of igniting finely divided combustible materials on contact. May react violently with organic materials and water with the evolution of heat. Contact with reactive metals, e.g. aluminum, may result in the generation of flammable hydrogen gas.

Extinguishing Media: Dry chemical. Do not use water on this product.

Flash Point: Non-flammable.

Autoignition temperature: N/A

Explosion Limits: Lower: N/A **Upper:** N/A

NFPA

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Section 6 Accidental Release Measures

Use proper personal protective equipment as indicated in Section 8. Remove all sources of ignition. Provide adequate ventilation. Recover for use if not contaminated. Absorb with inert dry material, sweep or vacuum up and place in a suitable container for proper disposal. Wash spill area with soap and water. Avoid runoff into storm sewers and ditches which lead to waterways.

(2004 EMERGENCY RESPONSE GUIDEBOOK, RSPA P 5800.9, GUIDE PAGE NO. 137)

Section 7 Handling & Storage CORROSIVE STORAGE CODE WHITE

Read label on container before using. Do not wear contact lenses when working with chemicals. Keep container tightly closed. For laboratory use only. Not for drug, food or household use. Keep out of reach of children.
Handling: Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid ingestion. Do not inhale vapors, spray or mist. Wash thoroughly after handling. Wash clothing before reuse.
Storage: Store in a cool, dry, well-ventilated area away from incompatible substances. Hygroscopic material. Never add water to this solution, always add acid, slowly and in small amounts to water to avoid splattering.

Section 8 Exposure Controls / Personal Protection

Engineering controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Personnel should wear safety glasses, goggles, or faceshield, lab coat or apron, appropriate protective gloves, fire extinguishing material. Use adequate ventilation to keep airborne concentrations low.

Respiratory protection: Use a chemical fume hood and/or wear a NIOSH/MSHA-approved respirator.

Section 9 Physical & Chemical Properties

Physical state: Oily liquid.
Appearance: Clear to slightly cloudy.
Odor: Odorless to slightly pungent.
pH: N/A
Vapor pressure (mm Hg): Variable.
Vapor Density (Air = 1): N/A
Evaporation rate (Butyl acetate = 1): N/A
Viscosity: N/A
Boiling point: ~275-325°C (527-617°F)
Freezing / Melting point: <11°C (52°F)
Decomposition temperature: N/A
Solubility: Complete.
Specific gravity (H_2O = 1): 1.84
Percent volatile (%): 0-20 water by weight
Molecular formula: H_2SO_4
Molecular weight: 98.01

Section 10 Stability & Reactivity

Chemical stability: Stable
Hazardous polymerization: Will not occur.
Conditions to avoid: Temperatures above 250°C (482°F) and water.

Incompatibilities with other materials: Alkalies, amines, anhydrides, combustibles, organics, oxidizers, powdered metals.

Hazardous decomposition products: Sulfur trioxide and/or sulfur dioxide. Hydrogen gas by reaction with metals.

Section 11 Toxicological Information

Effects of overexposure: Inhalation of this material is irritating and/or corrosive to the nose, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema which can result in shortness of breath, wheezing, choking, chest pain and impairment of lung function. Inhalation of high concentrations may result in permanent lung damage. Repeated inhalation may cause bronchitis, and also etching of dental enamel followed by the erosion of the enamel and dentine with loss of tooth substance. Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage. Skin contact can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Ingestion may cause irritation and/or burns to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration. IARC has concluded that there is sufficient evidence that occupational exposure to a mixture of strong inorganic acid mists is carcinogenic to humans. Because cancer has not been observed in animals when they are exposed only to sulfuric acid mists, exposure to sulfuric acid by itself was not determined to be carcinogenic to humans. ORL-RAT LD50: 2140 mg/kg; IHL-RAT LC50: 510 mg/m3/2H; RTECS #: WS5600000

Section 12 Ecological Information

This material is a strongly acidic aqueous solution and may cause adverse environmental effects. When diluted with a large amount of water, this material released directly or indirectly, is not expected to have a significant impact.

Section 13 Disposal Considerations

These disposal guidelines are intended for the disposal of catalog-size quantities only. Federal regulations may apply to empty container. State and/or local regulations may be different. Dispose of in accordance with all local, state and federal regulations or contract with a licensed chemical disposal agency.

Section 14 Transport Information

UN/NA number: UN1830
Shipping name: Sulfuric acid
Hazard class: 8
Packing group: II
Exceptions: Ltd Qty ≤ 1 Lt.

Section 15 Regulatory Information

TSCA-listed, EINECS-listed (231-639-5), RCRA code D002, D003.

Section 16 Additional Information

The information contained herein is furnished without warranty of any kind. Employers should use this information only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use of these materials and the safety and health of employees. * Hazardous Materials Industrial Standards.