

MSDS# 22350

## Section 1 - Chemical Product and Company Identification

MSDS Name: Sulfuric acid 90-98%

Catalog Numbers: AC124640000, AC124640010, AC124640011, AC124640025, AC124640026, AC124645000, AC124645000, AC124645001, AC133610000, AC133610011, AC133610025, AC133610026, AC133610026, AC133610051, AC302070000, AC302070010, AC302070011, AC302070025, AC302070025, AC302070026, AC302070100, AC388270000, AC424520000, AC424520026, AC424520026, AC424525001, 13361-0010, 42452-0025, 42452-5000, A298-212, A298N119, A300-212, A300-225LB, A300-500, A300-500LC, A300-612GAL, A300-700LB, A300C-212, A300C-212002, A300C-212003, A300C-212LC, A300C212004, A300C212005, A300C212006, A300C212007, A300C212008, A300C212009, A300C212010, A300J-500, A300P-500, A300S-212, A300S-212EA, A300S-212LC, A300S-500, A300SI-212, A468-1, A468-2, A468-250, A468-500, A484-212, A510-212, A510-212LC, A510-500, A510SK-212, NC9008405, NC9825433, S71211SC, S71211SCMF, S79200, SA174-212, SA174-4, SA176-4, SA196-500

Synonyms: Hydrogen sulfate; Oil of vitriol; Vitriol brown oil; Mattling acid; Battery acid; Sulphuric acid; Electrolyte acid; Dihydrogen sulfate; Spirit of sulfur; Chamber acid.

Company Identification:

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410

For information in the US, call:

201-796-7100

Emergency Number US:

201-796-7100

CHEMTREC Phone Number, US:

800-424-9300

## Section 2 - Composition, Information on Ingredients

CAS#: 7664-93-9

Chemical Name: Sulfuric acid

%: 90-98

EINECS#: 231-639-5

Hazard Symbols:

C



Risk Phrases:

35

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Danger! Hygroscopic (absorbs moisture from the air). May cause lung damage. Causes eye and skin burns. Causes digestive and respiratory tract burns. Corrosive to metal. May be fatal if mist inhaled. Concentrated sulfuric acid reacts violently with water and many other substances under certain conditions. Strong inorganic acid mists containing sulfuric acid may cause cancer. Target Organs: Lungs, teeth, eyes, skin.

## Potential Health Effects

Eye: Causes severe eye burns. May cause irreversible eye injury. May cause blindness. May cause permanent corneal opacification. 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.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns.  
May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal

Inhalation: as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Because its vapor pressure is negligible, it exists in the air only as a mist or spray. Exposure may impair lung function and cause mucostasis (reduced mucous clearance).

Chronic: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated 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.

#### Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.

Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Inhalation: POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Monitor arterial blood gases, chest x-ray, and pulmonary function tests if respiratory tract irritation or respiratory depression is evident. Treat dermal irritation or burns with standard topical therapy. Effects may be delayed. Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

#### Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Substance is noncombustible. Contact with water can cause violent liberation of heat and splattering of the material. Contact with metals may evolve flammable hydrogen gas. Runoff from fire control or dilution water may cause pollution. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Strong dehydrating agent, which may cause ignition of finely divided materials on contact. Oxides of sulfur may be produced in fire.

Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Do NOT get water inside containers. If water is used, care should be taken, since it can generate heat and cause spattering if applied directly to sulfuric acid.

Autoignition Temperature: Not available.

Flash Point: Not applicable.

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: ; Special Hazard: -W-

#### Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Carefully scoop up and place into appropriate disposal container. Provide ventilation. Do not get water inside containers. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

#### Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not allow water to get into the container because of violent reaction. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Discard contaminated shoes. Use only with adequate ventilation. Do not breathe spray or mist. Do not

use with metal spatula or other metal items. Inform laundry personnel of contaminant's hazards.

**Storage:** Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store near alkaline substances. Store protected from moisture. Ideally, sulfuric acid should be stored in isolation from all other chemicals in an approved acid or corrosives safety cabinet.

## Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sulfuric acid	0.2 mg/m <sup>3</sup> (thoracic fraction)	1 mg/m <sup>3</sup> TWA 15 mg/m <sup>3</sup> IDLH	1 mg/m <sup>3</sup> TWA

OSHA Vacated PELs: Sulfuric acid: 1 mg/m<sup>3</sup> TWA

### Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use a corrosion-resistant ventilation system.

### Exposure Limits

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles and face shield.

**Skin:** Wear neoprene gloves, apron, and/or clothing. Viton gloves are recommended.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a

**Respirators:** NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

Physical State: Liquid

Color: oily - clear colorless to yellow

Odor: odorless

pH: 0.3 (1N solution)

Vapor Pressure: < 0.001 mm Hg @ 20 deg C

Vapor Density: 3.38 (air=1)

Evaporation Rate: Slower than ether.

Viscosity: 21 mPas @ 25 C

Boiling Point: 290 - 338 deg C

Freezing/Melting Point: 10 deg C ( 50.00°F)

Decomposition Temperature:

Solubility in water: Soluble with much heat

Specific Gravity/Density: 1.84

Molecular Formula: H<sub>2</sub>SO<sub>4</sub>

Molecular Weight: 98.07

## Section 10 - Stability and Reactivity

**Chemical Stability:** Sulfuric acid reacts vigorously, violently or explosively with many organic and inorganic chemicals and with water.

**Conditions to Avoid:** Excess heat, exposure to moist air or water, Note: Use great caution in mixing with water due to heat evolution that causes explosive spattering. Always add the acid to water, never the reverse..

**Incompatibilities with Other Materials** Metals, oxidizing agents, reducing agents, bases, acrylonitrile, chlorates, finely powdered metals, nitrates, perchlorates, permanganates, epichlorohydrin, aniline, carbides, fulminates, picrates, organic materials, flammable liquids.

**Hazardous Decomposition** Oxides of sulfur.

Products  
Hazardous  
Polymerization

Has not been reported.

#### Section 11 - Toxicological Information

RTECS#: CAS# 7664-93-9: WS5600000

RTECS:

**CAS# 7664-93-9:** Draize test, rabbit, eye: 250 ug Severe;

Inhalation, mouse: LC50 = 320 mg/m<sup>3</sup>/2H;

Inhalation, mouse: LC50 = 320 mg/m<sup>3</sup>;

LD50/LC50: Inhalation, rat: LC50 = 510 mg/m<sup>3</sup>/2H;

Inhalation, rat: LC50 = 510 mg/m<sup>3</sup>;

Oral, rat: LD50 = 2140 mg/kg;

Other:

Sulfuric acid - ACGIH: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)

Carcinogenicity: California: carcinogen, initial date 3/14/03 (Strong inorganic acid mists containing sulfuric acid). NTP:

Known carcinogen (Strong inorganic acid mists containing s). IARC: Group 1 carcinogen

Other: See actual entry in RTECS for complete information.

#### Section 12 - Ecological Information

Ecotoxicity: Fish: Bluegill/Sunfish: 49 mg/L; 48Hr; TLm (tap water @ 20C)

Fish: Bluegill/Sunfish: 24.5 ppm; 48Hr; TLm (fresh water)

#### Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

#### Section 14 - Transport Information

US DOT

Shipping Name: SULFURIC ACID

Hazard Class: 8

UN Number: UN1830

Packing Group: II

Canada TDG

Shipping Name: SULFURIC ACID

Hazard Class: 8

UN Number: UN1830

Packing Group: II

USA RQ: CAS# 7664-93-9: 1000 lb final RQ; 454 kg final RQ

#### Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: C

Risk Phrases:

R 35 Causes severe burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 30 Never add water to this product.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7664-93-9: 2

Canada

CAS# 7664-93-9 is listed on Canada's DSL List

Canadian WHMIS Classifications: D2A, D1A, E

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 7664-93-9 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 7664-93-9 is listed on the TSCA  
Inventory.

Section 16 - Other Information

MSDS Creation Date: 4/22/1999

Revision #16 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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