

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Sulfuric acid

Product Number : 339741  
Brand : Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +18003255832  
Fax : +18003255052  
Emergency Phone # : (314) 776-6555

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Target Organ Effect, Highly toxic by inhalation, Corrosive

##### Target Organs

Teeth., Lungs

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H303 May be harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H330 Fatal if inhaled.  
H402 Harmful to aquatic life.

Precautionary statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P284 Wear respiratory protection.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/physician.

#### HMIS Classification

Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 2

#### NFPA Rating

Health hazard: 3  
Fire: 0  
Reactivity Hazard: 2  
Special hazard.: W

## Potential Health Effects

<b>Inhalation</b>	May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Skin</b>	May be harmful if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.
<b>Ingestion</b>	May be harmful if swallowed. Causes burns.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : H<sub>2</sub>O<sub>4</sub>S  
Molecular Weight : 98.08 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>Sulfuric acid</b>			
7664-93-9	231-639-5	016-020-00-8	-

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## 4. FIRST AID MEASURES

### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

### If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

### In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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## 5. FIRE-FIGHTING MEASURES

### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Sulfuric acid	7664-93-9	TWA	0.2 mg/m <sup>3</sup>	2004-01-01	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Refers to Appendix A -- Carcinogens. ACGIH 2004 Adoption Sulfuric acid contained in strong inorganic acid mists Thoracic fraction				
		TWA	1 mg/m <sup>3</sup>	1989-03-01	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1 mg/m <sup>3</sup>	1993-06-30	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

### Personal protective equipment

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Hand protection

Handle with gloves.

#### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum).

#### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form liquid

### Safety data

pH 1.2 at 5 g/l  
Melting point 3 °C (37 °F)  
Boiling point 290 °C (554 °F) - lit.  
Flash point not applicable  
Ignition temperature no data available  
Lower explosion limit no data available  
Upper explosion limit no data available  
Vapour pressure 1.33 hPa (1.00 mmHg) at 145.8 °C (294.4 °F)  
Density 1.84 g/cm<sup>3</sup> at 25 °C (77 °F)

Water solubility	soluble
Relative vapour density	3.39 - (Air = 1.0)

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

Reacts violently with water.

### Conditions to avoid

no data available

### Materials to avoid

Bases, Halides, Organic materials, Carbides, fulminates, Nitrates, picrates, Cyanides, Chlorates, alkali halides, Zinc salts, permanganates, e.g. potassium permanganate, Hydrogen peroxide, Azides, Perchlorates., Nitromethane, phosphorous, Reacts violently with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(III) oxide, Powdered metals

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Sulphur oxides

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD50 Oral - rat - 2,140 mg/kg

LC50 Inhalation - rat - 2 h - 510 mg/m<sup>3</sup>

### Skin corrosion/irritation

Skin - rabbit - Extremely corrosive and destructive to tissue.

### Serious eye damage/eye irritation

Eyes - rabbit - Severe eye irritation

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

### Carcinogenicity

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).

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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

### Specific target organ toxicity - single exposure (GHS)

no data available

### Specific target organ toxicity - repeated exposure (GHS)

no data available

### Aspiration hazard

no data available

### Potential health effects

**Inhalation** May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Ingestion** May be harmful if swallowed. Causes burns.  
**Skin** May be harmful if absorbed through skin. Causes skin burns.  
**Eyes** Causes eye burns.

### Signs and Symptoms of Exposure

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., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### Additional Information

RTECS: WS5600000

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## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to fish LC50 - *Gambusia affinis* (Mosquito fish) - 42 mg/l - 96 h

### Persistence and degradability

no data available

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### PBT and vPvB assessment

no data available

### Other adverse effects

no data available

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## 13. DISPOSAL CONSIDERATIONS

### Product

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN-Number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulfuric acid  
Reportable Quantity (RQ): 1000 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN-Number: 1830 Class: 8 Packing group: II EMS-No: F-A, S-B  
Proper shipping name: SULPHURIC ACID  
Marine pollutant: No

### IATA

UN-Number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulphuric acid

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## 15. REGULATORY INFORMATION

**OSHA Hazards**

Target Organ Effect, Highly toxic by inhalation, Corrosive

**DSL Status**

All components of this product are on the Canadian DSL list.

**SARA 302 Components**

Sulfuric acid

CAS-No.  
7664-93-9

Revision Date  
2007-03-01

**SARA 313 Components**

Sulfuric acid

CAS-No.  
7664-93-9

Revision Date  
2007-03-01

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Sulfuric acid

CAS-No.  
7664-93-9

Revision Date  
2007-03-01

**Pennsylvania Right To Know Components**

Sulfuric acid

CAS-No.  
7664-93-9

Revision Date  
2007-03-01

**New Jersey Right To Know Components**

Sulfuric acid

CAS-No.  
7664-93-9

Revision Date  
2007-03-01

**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

Revision Date  
2007-09-28

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**16. OTHER INFORMATION****Further information**

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