

# MATERIAL SAFETY DATA SHEET

## Sulfuric acid

This MSDS is valid for all grades that start with catalog number 290

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### 1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

**Product Identifier:** High Purity Chemicals  
**Synonyms:** Battery acid; Hydrogen sulfate; Oil of vitriol; Sulphuric acid;  
**Other means of identification:** CAS No. 7664-93-9  
EINECS No.231-639-5

**Recommended use of the chemical and restrictions on use:**  
General reagent use.

#### Supplier Details:

**Pharmco Products, Inc.**  
58 Vale Road, Brookfield,  
CT 06804, USA.  
Tel: 203.740.3471  
Fax: 203.740.3481  
CCN17213

**Pharmco Products, Inc.**  
1101 Isaac Shelby Drive, Shelbyville,  
KY 40065, USA.  
Tel: 502.232.7600  
Fax: 502.633.6100  
CCN17213

**Emergency Contact:** CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

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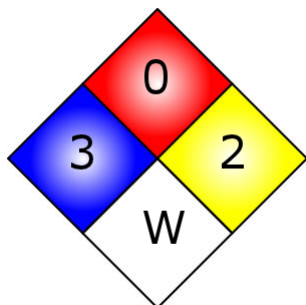
### 2. HAZARDS IDENTIFICATION

**OSHA Hazards:**  
Corrosive, Target organ effect

**Target Organs:**  
Lungs, Teeth

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)  
+1.703.527.3887 (INT)**

**NFPA**



**GHS label elements, including precautionary statements**



**Signal Word:**

DANGER!

**Hazard statement(s)**

H314 Causes severe skin burns and eye damage.

**Precautionary statement(s)**

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.  
P310 Immediately call a POISON CENTER or doctor/ physician.  
P280 Wear protective gloves and eye and face protection.

**GHS Classification(s)**

Skin corrosion (Category 1A)

**Other hazards which do not result in classification:**

**Potential Health Effects:**

Organ	Description
Eyes	Product will cause severe eye damage and severe eye burns.
Ingestion	Harmful if ingested.
Inhalation	Harmful if inhaled. Product is destructive to mucous membranes and the upper respiratory tract.
Skin	Extremely harmful if absorbed through skin. Causes severe skin burns.

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### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical identity:	Sulfuric acid
Common name / Synonym:	Battery acid; Hydrogen sulfate; Oil of vitriol; Sulphuric acid;
CAS number:	7664-93-9
EINECS number:	231-639-5
ICSC number:	0362
RTECS #:	WS5600000
UN #:	1830
EC #:	016-020-00-8

% Weight	Material	CAS
95.0-98%	Sulfuric acid	7664-93-9

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### 4. FIRST AID MEASURES

#### General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### Skin

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing/shoes.

#### Inhalation

Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

#### Eyes

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Keep rinsing while in transport to hospital.

#### Ingestion

Do NOT induce vomiting. If victim is conscious and alert, rinse mouth with water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

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### 5. FIRE FIGHTING MEASURES

#### Suitable (and unsuitable) extinguishing media:

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

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

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Sulphur oxides are expected to be the primary hazardous decomposition products.

**Special protective equipment and precautions for firefighters:**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

**Unusual Fire and Explosion Hazards:**

- Vapors may settle in low or confined spaces.
- Vapors may travel to source of ignition and flash back.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures:**

Use personal protective equipment. Do not inhale vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**Environmental precautions:**

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

**Methods and materials for containment and cleaning up:**

Absorb with an inert dry material and place in an appropriate waste disposal container. Keep disposal containers closed when finished.

**7. HANDLING AND STORAGE**

**Precautions for safe handling:**

Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

**Conditions for safe storage, including any incompatibilities:**

Keep in a tightly closed container in a dry, well-ventilated place. Keep containers upright to prevent leaks/spills.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Control parameters, e.g., occupational exposure limit values or biological limit values:**

**Occupational Exposure Limits**

Component	Source	Type	Value	Note
Sulfuric acid	US (ACGIH)	TWA	0.2 mg/m3	ACGIH Threshold limit value
Sulfuric acid	US (OSHA)	TWA	1 mg/m3	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants.

**Appropriate engineering controls:**

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

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**Individual protection measures, such as 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. 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. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

**Skin and body protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**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

<b>Appearance (physical state, color, etc.)</b>	Slightly viscous, clear to slightly cloudy liquid
<b>Odor</b>	Specific data not available
<b>Odor threshold</b>	Specific data not available
<b>pH</b>	1.2
<b>Freezing point</b>	3 °C (37 °F)
<b>Initial boiling point and boiling range</b>	290 °C (554 °F)
<b>Flash point</b>	Specific data not available
<b>Evaporation rate</b>	Specific data not available
<b>Flammability (solid, gas)</b>	Non-flammable. Is a powerful oxidizing agent and can ignite or cause explosion in contact with other material.
<b>Upper / Lower flammability or explosive limits</b>	Specific data not available
<b>Vapor pressure</b>	1.33 hPa (1.00 mmHg) at 145.8 °C (294.4 °F)
<b>Vapor Density</b>	3.39 - (Air = 1.0)
<b>Relative Density</b>	1.84 g/cm <sup>3</sup>
<b>Solubility(ies)</b>	soluble
<b>Partition coefficient n-octanol/water(ies)</b>	Specific data not available
<b>Auto-ignition temperature</b>	Specific data not available

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Decomposition temperature	Specific data not available
Formula (SULFURIC ACID)	H <sub>2</sub> O <sub>4</sub> S
Molecular Weight (SULFURIC ACID)	98.08 g/mol

## 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No data available
Conditions to avoid (e.g., static discharge, shock or vibration)	No data available
Incompatible materials	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	Sulphur oxides are expected to be, under fire conditions, the primary hazardous decomposition products.

## 11. TOXICOLOGICAL INFORMATION

- Sulfuric acid 7664-93-9

### Product Summary:

No data available for the teratogenic, mutagenic, or reproductive toxicity effects of this product. No data available to designate the product as causing specific target organ toxicity through single or repeated exposure. No data available to designate product as an aspiration hazard.

### Acute Toxicity:

LC50 (Inhalation)	Rat	510 mg/m <sup>3</sup>	2 hours
LD50 (Oral)	Rat	2140 mg/kg	

### Irritation:

#### Eyes

Eyes - rabbit - Severe eye irritation

#### Respiratory or Skin Sensitization

No data available

#### Skin

Skin - rabbit - Extremely corrosive and destructive to tissue.

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#### **Carcinogenicity**

IARC: Group 1: Carcinogenic to humans

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.

#### **Other Hazards**

<b>Organ</b>	<b>Description</b>
Eyes	Product will cause severe eye damage and eye burns.
Ingestion	Harmful if ingested.
Inhalation	Harmful if inhaled. Product is destructive to mucous membranes and upper respiratory tract.
Skin	Extremely harmful if absorbed through skin. Causes severe skin burns.

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## **12. ECOLOGICAL INFORMATION**

- Sulfuric acid 7664-93-9

#### **Ecotoxicity (aquatic and terrestrial, where available):**

##### **Acute fish toxicity (SULFURIC ACID)**

LC50 / 96 h / Mosquito fish - 42 mg/l

#### **Persistence and degradability:**

No data available

#### **Bioaccumulative potential:**

No data available

#### **Other adverse effects:**

Considered an environmental hazard only in the event of improper disposal or handling.

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## **13. DISPOSAL CONSIDERATIONS**

**Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:**

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Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer unused and non-recyclable solutions to a licensed disposal company. Contact local licensed professional waste disposal service to dispose of this material.

## 14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

<b>UN number</b>	1830
<b>UN proper shipping name</b>	Sulfuric acid
<b>Transport hazard class(es)</b>	8
<b>Packing group (if applicable)</b>	II

### Reportable Quantity

1000 lbs

### 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

## 15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

### OSHA Hazards

Corrosive, Target organ effect

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

### SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302: Sulfuric acid



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CAS-No. 7664-93-9 Revision Date 2007-07-01

#### **SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313: Sulfuric acid  
CAS-No. 7664-93-9 Revision Date 2007-07-01

#### **SARA 311/312 Hazards**

Acute Health Hazard  
Chronic Health Hazard

#### **CERCLA**

Sulfuric acid CAS-No. 7664-93-9, RQ: 1,000 lbs

#### **Massachusetts Right To Know Components**

Sulfuric acid CAS-No. 7664-93-9 Revision Date 2007-07-01

#### **Pennsylvania Right To Know Components**

Sulfuric acid CAS-No. 7664-93-9 Revision Date 2007-07-01

#### **New Jersey Right To Know Components**

Sulfuric acid CAS-No. 7664-93-9 Revision Date 2007-07-01

#### **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: INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS**

#### **Disclaimer**

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information may not be applicable. Information is correct to the best of our knowledge at the date of the MSDS publication.