

# SAFETY DATA SHEET

Version 8.4  
Revision Date 08/10/2022  
Print Date 09/28/2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : Sulfuric Acid GR ACS  
Product Number : SX1244  
Brand : Millipore  
Index-No. : 016-020-00-8  
CAS-No. : 7664-93-9

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Reagent for analysis

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to Metals (Category 1), H290  
Skin corrosion (Category 1A), H314  
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word : Danger

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

Precautionary statement(s)	
P234	Keep only in original container.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
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/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

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

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula	: H2SO4
CAS-No.	: 7664-93-9
EC-No.	: 231-639-5
Index-No.	: 016-020-00-8

Component	Classification	Concentration
<b>sulphuric acid</b>	Met. Corr. 1; Skin Corr. 1A; Eye Dam. 1; H290, H314, H318 Concentration limits: >= 0.3 %: Met. Corr. 1, H290; >= 15 %: Skin Corr. 1A, H314; 5 - < 15 %: Skin Irrit. 2, H315; 5 - < 15 %: Eye Irrit. 2, H319;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Not combustible.

Fire may cause evolution of:

Sulfur oxides

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® H<sup>+</sup>, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

### **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

No metal containers.

Tightly closed.

Recommended storage temperature see product label.

#### **Storage class**

Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Ingredients with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
sulphuric acid	7664-93-9	TWA	0.2 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		TWA	1 mg/m <sup>3</sup>	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		TWA	1 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

## 8.2 Exposure controls

### Appropriate engineering controls

Change contaminated clothing and immerse in water. Preventive skin protection Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: > 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.7 mm

Break through time: > 120 min

Material tested: Butoject® (KCL 898)

#### Body Protection

Acid-resistant protective clothing

#### Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid Color: colorless
b) Odor	odorless
c) Odor Threshold	Not applicable
d) pH	0.3 at 49 g/l at 25 °C (77 °F)
e) Melting point/freezing point	Melting point: -20 °C (-4 °F)
f) Initial boiling point and boiling range	ca.335 °C ca.635 °F at 1,013 hPa
g) Flash point	( )Not applicable
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	ca.0.0001 hPa at 20 °C (68 °F)
l) Vapor density	ca.3.4
m) Density	1.84 g/cm <sup>3</sup> at 20 °C (68 °F)
Relative density	No data available
n) Water solubility	soluble, (caution ! development of heat)
o) Partition coefficient: n-octanol/water	No data available
p) Autoignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	Not classified as explosive.
t) Oxidizing properties	Oxidizing potential

### 9.2 Other safety information

Bulk density	Not applicable
Relative vapor density	ca.3.4

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

has a corrosive effect  
strong oxidising agent

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .  
The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances:

Violent reactions possible with:

Alkali metals  
alkali compounds  
Ammonia  
Aldehydes  
acetonitrile  
Alkaline earth metals  
alkalines  
Acids  
alkaline earth compounds  
Metals  
metal alloys  
Oxides of phosphorus  
phosphorus  
hydrides  
halogen-halogen compounds  
oxyhalogenic compounds  
permanganates  
nitrates  
Carbides  
combustible substances  
organic solvent  
acetylidene  
Nitriles  
organic nitro compounds  
anilines  
Peroxides  
picrates  
nitrides  
lithium silicide  
iron(III) compounds  
bromates  
chlorates  
Amines  
perchlorates  
hydrogen peroxide

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

animal/vegetable tissues, Metals  
Contact with metals liberates hydrogen gas.

## 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute toxicity estimate Oral - 2,218 mg/kg

(Calculation method)

LD50 Oral - Rat - male and female - 2,140 mg/kg (sulphuric acid)

Remarks: (ECHA)

Inhalation: Corrosive to respiratory system. (sulphuric acid)

Dermal: No data available

#### Skin corrosion/irritation

Skin - Rabbit (sulphuric acid)

Result: Extremely corrosive and destructive to tissue.

Remarks: (IUCLID)

#### Serious eye damage/eye irritation

Causes serious eye damage. (sulphuric acid)

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Test Type: Ames test

(sulphuric acid)

Test system: Salmonella typhimurium

Result: negative

Remarks: (HSDB)

#### Carcinogenicity

No data available

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

NTP: No ingredient 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 on OSHA's list of regulated carcinogens.

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

### 11.2 Additional Information

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

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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. (sulphuric acid)

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

After inhalation of aerosols: damage to the affected mucous membranes. After skin contact: severe burns with formation of scabs. After eye contact: burns, corneal lesions. After swallowing: severe pain (risk of perforation!), nausea, vomiting and diarrhoea. After a latency period of several weeks possibly pyloric stenosis. (sulphuric acid)

Other dangerous properties can not be excluded. (sulphuric acid)

Handle in accordance with good industrial hygiene and safety practice. (sulphuric acid)

Stomach - Irregularities - Based on Human Evidence (sulphuric acid)

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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates      static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (sulphuric acid) (OECD Test Guideline 202)

Toxicity to algae      static test ErC50 - Desmodemus subspicatus (green algae) - > 100 mg/l - 72 h (sulphuric acid) (OECD Test Guideline 201)

### 12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Endocrine disrupting properties

No data available

### 12.7 Other adverse effects

Biological effects:

Forms corrosive mixtures with water even if diluted.

Harmful effect due to pH shift.

Endangers drinking-water supplies if allowed to enter soil or water.

Further information on ecology

Discharge into the environment must be avoided.

Biological effects:

Harmful effect due to pH shift.

Caustic even in diluted form.

Does not cause biological oxygen deficit.  
Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.  
Neutralisation possible in waste water treatment plants.  
Discharge into the environment must be avoided.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

#### DOT (US)

UN number: 1830 Class: 8 Packing group: II  
Proper shipping name: Sulfuric acid  
Reportable Quantity (RQ): 1036 lbs  
Poison Inhalation Hazard: No

#### IMDG

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

#### IATA

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

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## SECTION 15: Regulatory information

#### SARA 302 Components

sulphuric acid	CAS-No. 7664-93-9	Revision Date 2007-07-01
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#### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

sulphuric acid	CAS-No. 7664-93-9	Revision Date 2007-07-01
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#### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

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## **SECTION 16: Other information**

### **Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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