SAFETY DATA SHEET
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

SECTION 1. Identification
Product identifier
- Product number: SX1244
- Product name: Sulfuric Acid GR ACS
- CAS-No.: 7664-93-9

Relevant identified uses of the substance or mixture and uses advised against
- Identified uses: Reagent for analysis

Details of the supplier of the safety data sheet
- Company: EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
- Emergency telephone: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification
GHS Classification
- 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.

GHS-Labeling
- Hazard pictograms
- Signal Word: Danger
- Hazard Statements:
  H290 May be corrosive to metals.
  H314 Causes severe skin burns and eye damage.
Precautionary Statements

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): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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.
P321 Specific treatment (see supplemental first aid instructions on this label).
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
P405 Store locked up.
P406 Store in corrosive resistant stainless steel container with a resistant inliner.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Formula</th>
<th>H₂SO₄</th>
<th>H₂O₄S (Hill)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molar mass</td>
<td>98.08 g/mol</td>
<td></td>
</tr>
</tbody>
</table>

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.
sulphuric acid (>= 90 % - <= 100 %)
7664-93-9

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

General advice
First aider needs to protect himself.

Inhalation
After inhalation: fresh air. Call in physician.

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

Eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.
Ingestion
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
Irritation and corrosion, Cough, Shortness of breath, Nausea, Vomiting, Diarrhea, pain, Risk of blindness!

Indication of any immediate medical attention and special treatment needed
No information available.

SECTION 5. Fire-fighting measures

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.

Special hazards arising from the substance or mixture
Not combustible.
Ambient fire may liberate hazardous vapors.
Fire may cause evolution of:
Sulfur oxides

Advice for firefighters
Special protective equipment for fire-fighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system. Suppress (knock down) gases/vapors/mists with a water spray jet.

SECTION 6. Accidental release measures

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.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions
Do not empty into drains.

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 neutralizing material (e.g. Chemizorb® H⁺, Art. No. 101595). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling
Observe label precautions.

Conditions for safe storage, including any incompatibilities
Requirements for storage areas and containers
No metal containers.
Tightly closed.
Dry.
Store at room temperature.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Basis</th>
<th>Value</th>
<th>Threshold limits</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>sulphuric acid 7664-93-9</td>
<td>ACGIH Time Weighted Average (TWA):</td>
<td>0.2 mg/m³</td>
<td></td>
<td>Form of exposure: Thoracic fraction.</td>
</tr>
<tr>
<td></td>
<td>NIOSH/GUIDE Recommended exposure limit (REL):</td>
<td>1 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OSHA_TRANS PEL:</td>
<td>1 mg/m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Z1A Time Weighted Average (TWA):</td>
<td>1 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Engineering measures
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

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

Eye/face protection
Tightly fitting safety goggles

Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:
Acid-resistant protective clothing.
Respiratory protection
required when vapors/aerosols are generated.
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment
indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the
hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>at 49 g/l</td>
</tr>
<tr>
<td></td>
<td>77 °F (25 °C)</td>
</tr>
<tr>
<td>Melting point</td>
<td>-20 °C</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>ca. 635 °F (335 °C)</td>
</tr>
<tr>
<td></td>
<td>at 1,013 hPa</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available.</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>ca. 0.0001 hPa</td>
</tr>
<tr>
<td></td>
<td>at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>ca. 3.4</td>
</tr>
<tr>
<td>Density</td>
<td>1.84 g/cm³</td>
</tr>
<tr>
<td></td>
<td>at 68 °F (20 °C)</td>
</tr>
<tr>
<td>Relative density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Water solubility</td>
<td>soluble, (caution! development of heat)</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
Autoignition temperature  No information available.
Decomposition temperature No information available.
Viscosity, dynamic ca.24 mPa.s at 68 °F (20 °C)
Explosive properties Not classified as explosive.
Oxidizing properties Oxidizing potential
Ignition temperature Not applicable
Bulk density Not applicable
Corrosion May be corrosive to metals.

SECTION 10. Stability and reactivity
Reactivity
has a corrosive effect
strong oxidizing agent

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

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

Violent reactions possible with:
Water, 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

Conditions to avoid
no information available

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

Hazardous decomposition products
in the event of fire: See section 5.
SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Eye contact, Skin contact

Target Organs
Eyes
Skin
Respiratory system
teeth
Mucous membranes

Skin irritation
Causes severe burns.

Eye irritation
Causes serious eye damage. Risk of blindness!

Teratogenicity
Did not show teratogenic effects in animal experiments. (IUCLID)

Specific target organ systemic toxicity - single exposure
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC Group 1: Carcinogenic to humans
sulphuric acid 7664-93-9

OSHA No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP Known carcinogen.
sulphuric acid 7664-93-9

ACGIH A2: Suspected human carcinogen
sulphuric acid 7664-93-9

Further information
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 diarrhea. After a latency period of several weeks possibly pyloric stenosis.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity
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<table>
<thead>
<tr>
<th>Product number</th>
<th>SX1244</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product name</td>
<td>Sulfuric Acid GR ACS</td>
</tr>
</tbody>
</table>

No information available.

**Persistence and degradability**
No information available.

**Bioaccumulative potential**
No information available.

**Mobility in soil**
No information available.

**Additional ecological information**
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.

**SECTION 13. Disposal considerations**
The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

**SECTION 14. Transport information**

**Land transport (DOT)**
- UN number: UN 1830
- Proper shipping name: SULPHURIC ACID
- Class: 8
- Packing group: II
- Environmentally hazardous: --

**Air transport (IATA)**
- UN number: UN 1830
- Proper shipping name: SULPHURIC ACID
- Class: 8
- Packing group: II
- Environmentally hazardous: --
- Special precautions for user: no

**Sea transport (IMDG)**
- UN number: UN 1830
- Proper shipping name: SULPHURIC ACID
- Class: 8
- Packing group: II
- Environmentally hazardous: --
SAFETY DATA SHEET
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Product number SX1244
Product name Sulfuric Acid GR ACS

Special precautions for user yes
EmS F-A S-B

SECTION 15. Regulatory information
United States of America

SARA 313
The following components are subject to reporting levels established by SARA Title III, Section 313:
Ingredients
sulphuric acid 7664-93-9 96.5 %

SARA 302
The following components are subject to reporting levels established by SARA Title III, Section 302:
Ingredients
sulphuric acid 7664-93-9

Clean Water Act
The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:
Ingredients
sulphuric acid

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:
Ingredients
sulphuric acid

DEA List I
Not listed

DEA List II
Listed
Ingredients
sulphuric acid 7664-93-9

US State Regulations

Massachusetts Right To Know
Ingredients
sulphuric acid

Pennsylvania Right To Know
Ingredients
sulphuric acid

New Jersey Right To Know
Ingredients
sulphuric acid

California Prop 65 Components
WARNING: this product contains a chemical known in the State of California to cause cancer.
Ingredients
sulphuric acid
SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Labeling
Hazard pictograms

Signal Word
Danger

Hazard Statements
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary Statements
Prevention
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Full text of H-Statements referred to under sections 2 and 3.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.
The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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