1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product identifier: Sulfuric Acid, All Grades.
Chemical Formula: \( \text{H}_2\text{SO}_4 \)
Molecular weight: 98.08
CAS No.: 7664-93-9

1.2 Recommended use of the chemical and restrictions on use

Identified Use(s):
- Used in manufacturing processes.
- Used for processing mineral ores, metal refining, petrochemical processing and water treatment.

Uses Advised Against: None known.

1.3 Supplier's details

Company Identification: Cornerstone Chemical Company
10800 River Road,
Waggaman, Louisiana 70094,
USA.
Telephone: 1-504-431-9511
E-mail: info@cornerstonechemco.com

1.4 Emergency Phone No.

CHEMTREC (USA and Canada): 1-800-424-9300 (24h)
CHEMTREC (Outside of USA and Canada): +1-703-527-3887 (24h)

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture


2.2 Label elements

Hazard Pictogram(s) 

Signal Word(s): Danger.
Hazard Statement(s): Causes severe skin burns and eye damage.
Precautionary Statement(s):
- Do not breathe mist/vapors.
- Wear protective gloves/protective clothing/eye protection/face protection.
- IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Sulfuric Acid, All Grades

2.3 Other hazards
Reacts violently with water.

2.4 Additional Information
None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Hazardous Ingredient(s)</th>
<th>CAS No.</th>
<th>%W/W</th>
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<tbody>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>93 - 98</td>
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</table>

3.2 Additional Information
None.

4. SECTION 4: FIRST AID MEASURES

Speed is essential. Get medical attention immediately. Guarantee that the eye flushing systems and safety showers are located close to the working place.

4.1 Description of first aid measures

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin Contact
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.

Eye Contact
IF IN EYES: Flush eyes with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Ingestion
IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: Corrosive, Burns, Sore throat, Cough.
Skin Contact: Corrosive, Redness, Pain, Blisters, Causes severe skin burns.
Eye Contact: Corrosive, Redness, Pain, Causes severe burns.
Ingestion: Corrosive, Abdominal pain, Burns, Shock, Collapse.

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.
5. SECTION 5: FIRE-FIGHTING MEASURES

Non-combustible.

5.1 Extinguishing Media

Suitable Extinguishing Media

Extinguish preferably with foam, carbon dioxide or dry chemical.

Unsuitable Extinguishing Media

Water.

5.2 Special hazards arising from the substance or mixture

Risk of fire and explosion on contact with base(s), combustible substances, oxidants, reducing agents or water. Thermal decomposition will evolve toxic and corrosive vapors. (Sulfur oxides)

5.3 Advice for fire-fighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid direct contact with water.

6. SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

In event of a spill, evacuate danger area. Stop leak if safe to do so. Ensure adequate ventilation. Do not breathe mist/vapors. Avoid contact with skin and eyes. Ensure suitable personal protection (including respiratory protection) during removal of spillages. Wash hands thoroughly after handling.

6.2 Environmental precautions

Do not allow to enter drains, sewers or waterways.

6.3 Methods and material for containment and cleaning up

Small spillages:

Contain spillages with sand, earth or any suitable adsorbent material. Do NOT absorb in saw-dust or other combustible absorbents. Wash the spillage area with water.

Large spillages:

Cautiously neutralize spilled liquid. Neutralize with: Lime, Soda Ash, Sodium hydroxide, Sodium Bicarbonate. Wash the spillage area with water.

Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorized waste disposal contractor.

6.4 Reference to other sections

See Also Section 8, 13.

7. SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Provide adequate ventilation. Do not breathe mist/vapors. Wear appropriate personal protective equipment, avoid direct contact. See Section 8. Wash hands thoroughly after handling. When using do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities

Keep/store away from: Incompatible materials. Keep away from food, drink and animal feeds. Keep away from any possible contact with water, because of violent reaction and possible flash fire. Store in corrosive resistant container with a resistant inner liner.

7.2.1 Storage temperature

Stable at ambient temperatures.

7.2.2 Storage life

Stable under normal conditions.
Sulfuric Acid, All Grades

7.2.3 Incompatible materials


8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>LTEL (8 hr TWA mg/m³)</th>
<th>STEL (ppm)</th>
<th>STEL (mg/m³)</th>
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<td>TLV (ACGIH)</td>
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</table>

Source: NIOSH = National Institute of Occupational Safety & Health
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
ACGIH = American Conference of Industrial Hygienists

8.2 Appropriate engineering controls

Recommended: Use in closed systems.
Provide adequate ventilation. Use with local exhaust ventilation.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Wear protective eye glasses for protection against liquid splashes. Wear close fitting goggles or full face shield.

Skin protection
Wear suitable protective clothing and gloves.
Wear: Impervious gloves. Gloves should be changed regularly to avoid permeation problems.

Unsuitable gloves materials: Natural rubber, Polychloroprene, Nitrile rubber, PVC.

Respiratory protection
Normally no personal respiratory protection is necessary.
Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely.

Thermal hazards
Not applicable.
9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

This product is hygroscopic.

9.1 Information on basic physical and chemical properties

- **Appearance**: Clear.
- **Color**: Liquid.
- **Odor**: Odorless.
- **Odor Threshold**: Not applicable.
- **pH**: 0.01 (N = 1.2)
  - 1.0 (N = 0.3)
- **Melting Point/Freezing Point**: Sulfuric acid, 98%: -1.3°C
- **Initial boiling point and boiling range**: Sulfuric acid, 98%: 323°C
- **Flash point**: Not applicable.
- **Evaporation Rate**: < Ether.
- **Flammability (solid, gas)**: Non-flammable.
- **Upper/lower flammability or explosive limits**: Not applicable.
- **Vapor pressure**: <0.001mm Hg @ 20°C
- **Vapor density**: 3.38 (Air = 1)
- **Relative density**: 1615 – 1841kg/m³ (OECD 109)
- **Solubility(ies)**: Soluble in water.
- **Partition coefficient: n-octanol/water**: Not applicable.
- **Auto-ignition temperature**: Not applicable.
- **Decomposition Temperature**: 340°C
- **Viscosity**: Sulfuric acid, 98%: 22.5 cP
- **Explosive properties**: Not explosive.
- **Oxidizing properties**: Not oxidizing.

9.2 Other information

- **Percent Volatile by volume (%)**: 0 – 20 (Water)
- **Dissociation constant**: pKa = 1.92 (OECD 112)

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity


10.2 Chemical stability

Stable at ambient temperatures.

10.3 Possibility of hazardous reactions

Risk of fire and explosion on contact with base(s), combustible substances, oxidants, reducing agents or water.

10.4 Conditions to avoid

Keep away from any possible contact with water, because of violent reaction and possible flash fire. Keep/store away from: Incompatible materials.

10.5 Incompatible materials


10.6 Hazardous decomposition product(s)

Sulfur oxides.
11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

An acute toxicity test does not generally need to be conducted if the substance is classified as corrosive to the skin.

Ingestion

Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

LD50 (rat) = 2140 mg/kg

Inhalation

Low acute toxicity.

OECD 403: LC50 (rat) = 375 mg/m³

Skin corrosion/irritation

Causes severe skin burns.

Serious eye damage/irritation

Causes serious eye damage.

Respiratory or skin sensitization

It is not a skin sensitizer.

Germ cell mutagenicity

There is no evidence of mutagenic potential.

Carcinogenicity

No evidence of carcinogenicity.

Reproductive toxicity

None anticipated.

OECD 414: NOAEC (mouse), (rabbit) = 19.3 mg/m³

STOT - single exposure

Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation.

STOT - repeated exposure

Repeated exposure to high levels produces adverse effects on the: Respiratory tract.

Aspiration hazard

None anticipated.

11.2 Other information

None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Low toxicity to aquatic organisms.

OECD201:

ErC50 (Desmodesmus subspicatus) (72 hour) >100 mg/l

EyC50 (Desmodesmus subspicatus) (72 hour) >100 mg/l

OECD 202: EC50 (Daphnia magna) (48 hour) >100 mg/l

12.2 Persistence and degradability

The product is likely to persist in the environment. The product is not biodegradable.

12.3 Bioaccumulative potential

The product has no potential for bioaccumulation.

12.4 Mobility in soil

The product is soluble in water.

12.5 Other adverse effects

Large discharges may contribute to the acidification of water and soil and will injure aquatic life and soil micro-organisms.

13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Neutralize with: Lime, Soda Ash, Sodium hydroxide, Sodium Bicarbonate. Contaminated solids from neutralization activities should be recovered and containerized for proper disposal at a permitted facility.

13.2 Additional information

Disposal should be in accordance with local, state or national legislation. Spillages or uncontrolled discharges into waterways must be reported to the appropriate regulatory body.

US RCRA Hazard Class

Not listed. May be a RCRA D002 characteristically corrosive waste if not neutralized.
14. SECTION 14: TRANSPORT INFORMATION

D.O.T. Classification

14.1 UN number UN 1830
14.2 Proper Shipping Name SULFURIC ACID.
14.3 Transport hazard class(es) 8
14.4 Packing group II
14.5 Environmental hazards Not classified as a Marine Pollutant.
14.6 Special precautions for user None.
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

15. SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1 OSHA
  Toxic and hazardous substances (29 CFR 1910; Subpart Z) Not listed.
  Requirements for preparation, adoption, and submittal of implementation plans (40 CFR 51.100) Not listed.
  National emission standards for hazardous air pollutants (40 CFR 61.01) Not listed.
  Oil pollution prevention (40 CFR 112) Subjected to plan.
  Current good manufacturing practice in manufacturing, processing, packing, or holding of drugs; general (21 CFR 210) Evaluated.

15.1.2 Title III Consolidated List of Lists
  Sec. 302 (EHS) TPQ 1000 lbs
  EHS RQ 1000 lbs
  CERCLA RQ 1000 lbs
  Sec 313 313

15.1.3 OSPAR List of Chemicals for Priority Action Not listed.

15.1.4 State Right to Know Lists
  Sulfuric acid (CAS No.: 7664-93-9): California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

15.1.5 TSCA Listed.

15.1.6 Proposition 65 (California) Not listed.

15.1.7 Ozone Depleting Substances Not listed.
16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

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<th>HMIS</th>
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</table>

LEGEND
- LTEL: Long Term Exposure Limit
- STEL: Short Term Exposure Limit
- STOT: Specific Target Organ Toxicity
- OSHA: Occupational Safety and Health Administration
- TSCA: Toxic Substances Control Act
- NFPA: National Fire Protection Association
- HMIS: Hazardous Material Information System
- OECD: Organisation for Economic Co-operation and Development
- NOAEC: No Observed Adverse Effect Concentration
- NOEC: No Observed Effect Concentration
- LOAEC: Lowest Observed Adverse Effect Concentration

Hazard Pictogram(s)
- Corrosion

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