1 Identification

- **Product identifier**
  - Trade name: *Sulfuric Acid 50% v/v*
  - Product code: 880000341

- **Recommended use and restriction on use**
  - **Recommended use:** Laboratory chemicals
  - **Restrictions on use:** No relevant information available.

- **Details of the supplier of the Safety Data Sheet**
  - **Manufacturer/Supplier:**
    AquaPhoenix Scientific, Inc.
    860 Gitts Run Road
    Hanover, PA 17331
    Phone: (717)632-1291
    Toll-Free: (866)632-1291
    info@aquaphoenixsci.com
  - **Distributor:**
    Delaval Inc.
    11100 N. Congress Ave.,
    Kansas City, MO 64153
    (816) 891-1600
  - **Emergency telephone number:**
    ChemTel Inc.
    (800)255-3924 (North America)
    +1 (813)248-0585 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Met. Corr. 1  H290  May be corrosive to metals.
  - Skin Corr. 1A H314  Causes severe skin burns and eye damage.
  - Eye Dam. 1  H318  Causes serious eye damage.

- **Label elements**
  - **GHS label elements**
    The product is classified and labeled according to the Globally Harmonized System (GHS).
  - **Hazard pictograms:**
    ![GHS pictogram]
    GHS05

- **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.
  - P260  Do not breathe mist/vapors/spray.
  - P264  Wash thoroughly after handling.

(Cont'd. on page 2)
Trade name: Sulfuric Acid 50% v/v

P280 Wear protective gloves/protective clothing/eye protection.
P301+P330+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 Store locked up.
P310 Immediately call a poison center/doctor.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.

Components:

- Chemical characterization: Mixtures
- Met. Corr. 1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318

7732-18-5 Water 35%
7664-93-9 Sulfuric acid 65%

Additional information:
For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements, refer to section 16.

3 Composition/information on ingredients

4 First-aid measures

- Description of first aid measures
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact:
    - Immediately remove any clothing soiled by the product.
    - Immediately rinse with water.
    - Seek immediate help for blistering or open wounds.
    - If skin irritation continues, consult a doctor.
  - After eye contact:
    - Protect unharmed eye.
    - Remove contact lenses if worn.
    - Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing:
    - Rinse out mouth and then drink plenty of water.
    - Do not induce vomiting; immediately call for medical help.

  Most important symptoms and effects, both acute and delayed:
  - Strong caustic effect on skin and mucous membranes.
  - Gastric or intestinal disorders when ingested.
  - Eye damage.
Trade name: Sulfuric Acid 50% v/v

50.0.4 Acidosis
• Danger:
  Danger of gastric perforation.
  Causes serious eye damage.
  Danger of impaired breathing.
• Indication of any immediate medical attention and special treatment needed:
  Medical supervision for at least 48 hours.
  If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures
• Extinguishing media
  • Suitable extinguishing agents:
    The product is not flammable.
    Use fire fighting measures that suit the environment.
  • For safety reasons unsuitable extinguishing agents: None.
  • Special hazards arising from the substance or mixture
    During heating or in case of fire poisonous gases are produced.
• Advice for firefighters
  • Protective equipment:
    Wear self-contained respiratory protective device.
    Wear fully protective suit.

6 Accidental release measures
• Personal precautions, protective equipment and emergency procedures
  For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.
  Wear protective equipment. Keep unprotected persons away.
  Ensure adequate ventilation.
• Environmental precautions
  Do not allow to enter sewers/ surface or ground water.
• Methods and material for containment and cleaning up
  Use limestone to neutralize and/or absorb spill.
  Clean the affected area carefully; suitable cleaners are:
    Warm water
  Dispose of the collected material according to regulations.
• Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage
• Handling
  • Precautions for safe handling:
    Avoid splashes or spray in enclosed areas.
    Use only in well ventilated areas.
    Avoid breathing mist, vapors, or spray.
Avoid contact with the eyes and skin.
Open and handle receptacle with care.

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

**Requirements to be met by storerooms and receptacles:**
Store in cool, dry conditions in well sealed receptacles.
Store only in the original receptacle.
Unsuitable material for receptacle: steel.
Unsuitable material for receptacle: aluminium.

**Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with alkalis (caustic solutions).
Store away from metals.

**Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

**Specific end use(s)** No relevant information available.

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**8 Exposure controls/personal protection**

**Control parameters**

**Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

<table>
<thead>
<tr>
<th>7664-93-9 Sulfuric acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
</tr>
<tr>
<td>REL (USA)</td>
</tr>
<tr>
<td>TLV (USA)</td>
</tr>
<tr>
<td>*as thoracic fraction</td>
</tr>
<tr>
<td>EL (Canada)</td>
</tr>
<tr>
<td>ACGIH A2; IARC 1</td>
</tr>
<tr>
<td>EV (Canada)</td>
</tr>
<tr>
<td>LMPE (Mexico)</td>
</tr>
<tr>
<td>A2;*fracción torácica</td>
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</tbody>
</table>

**Exposure controls**

**General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not inhale dust / smoke / mist.

**Engineering controls:** Provide adequate ventilation.

**Breathing equipment:** Use suitable respiratory protective device when high concentrations are present.

**Protection of hands:**

![Protective gloves]

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Trade name: Sulfuric Acid 50% v/v

- Material of gloves
  - Nitrile rubber, NBR
  - Neoprene gloves
  - Natural rubber, NR
  - Laminated film gloves.
- Not suitable are gloves made of the following materials: PVA gloves

- Body protection: Protective work clothing
- Eye protection:
  - Safety glasses

- Body protection: Protective work clothing

Limitation and supervision of exposure into the environment
No relevant information available.

Risk management measures
No relevant information available.

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
</tr>
<tr>
<td>Form: Liquid</td>
</tr>
<tr>
<td>Color: Colorless</td>
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<tr>
<td>Odor: Characteristic</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
</tbody>
</table>

- pH-value at 20 °C (68 °F): <2.0
- Melting point/Melting range: Not determined.
- Boiling point/Boiling range: Not determined.
- Flash point: The product is not flammable.
- Flammability (solid, gaseous): Not applicable.
- Auto-ignition temperature: Not determined.
- Decomposition temperature: Not determined.
- Danger of explosion: Product does not present an explosion hazard.

- Explosion limits
  - Lower: Not determined.
  - Upper: Not determined.
- Oxidizing properties: Not determined.
- Vapor pressure: Not determined.

- Density:
  - Relative density: 1.4-1.5
  - Vapor density: Not determined.
  - Evaporation rate: Not determined.
- Solubility in / Miscibility with Water: Fully miscible.
Trade name: Sulfuric Acid 50% v/v

10 Stability and reactivity

- **Reactivity**: No relevant information available.
- **Chemical stability**: Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided**: No decomposition if used and stored according to specifications.

**Possibility of hazardous reactions**
Toxic fumes may be released if heated above the decomposition point.
Corrosive action on metals.
Reacts with certain metals.
Reacts with alkali (lyes).
Reacts with oxidizing agents.

- **Conditions to avoid**: No relevant information available.
- **Incompatible materials**
  - Metals.
  - Alkalis.
  - Strong oxidizers such as perchlorates, bromates, and nitrates; hydrofluoric acid.
- **Hazardous decomposition products** Sulfur oxides (SOx)

11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity**: Based on available data, the classification criteria are not met.
  - **LD/LC50 values that are relevant for classification**: None.
  - **Primary irritant effect**:
    - **On the skin**: Strong caustic effect on skin and mucous membranes.
    - **On the eye**: Strong caustic effect.
    - **Sensitization**: Based on available data, the classification criteria are not met.

**IARC (International Agency for Research on Cancer):**
None of the ingredients are listed.

**NTP (National Toxicology Program):**
7664-93-9 Sulfuric acid K

**OSHA-Ca (Occupational Safety & Health Administration):**
None of the ingredients are listed.

- **Probable route(s) of exposure**:
  - Ingestion.
  - Inhalation.
  - Eye contact.
Trade name: Sulfuric Acid 50% v/v

Skin contact.
- Germ cell mutagenicity: Based on available data, the classification criteria are not met.
- Carcinogenicity: Based on available data, the classification criteria are not met.
- Reproductive toxicity: Based on available data, the classification criteria are not met.
- STOT-single exposure: Based on available data, the classification criteria are not met.
- STOT-repeated exposure: Based on available data, the classification criteria are not met.
- Aspiration hazard: Based on available data, the classification criteria are not met.

12 Ecological information

- Toxicity
  - Aquatic toxicity No relevant information available.
- Persistence and degradability No relevant information available.
- Bioaccumulative potential: No relevant information available.
- Mobility in soil: No relevant information available.
- Additional ecological information
  - General notes:
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. If the dilution of the use-level pH-value is considerably increased after use, the aqueous waste, emptied into drains, is only low water-dangerous.
  - Other adverse effects No relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation:
    Dilute concentrate with water and neutralize afterwards with suitable material (lime or chalk). The formed salts are inert and pose little hazard.
    The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
  - Uncleaned packagings
    - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  DOT, ADR/RID/ADN, IMDG, IATA UN1830
- UN proper shipping name
  - DOT Sulfuric acid
  - ADR/RID/ADN, IMDG SULPHURIC ACID
  - IATA Sulphuric acid
### Transport hazard class(es)
- **DOT**
  - Class: 8
  - Label: 8
- **ADR/RID/ADN**
  - Class: 8 (C1)
  - Label: 8
- **IMDG, IATA**
  - Class: 8
  - Label: 8
- **Packing group**
  - DOT, ADR/RID/ADN, IMDG, IATA: II

### Environmental hazards
- Marine pollutant: No

### Special precautions for user
- Warning: Corrosive substances
- Hazard identification number (Kemler code): 80
- EMS Number: F-A,S-B
- Segregation groups: Acids

### Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
- Not applicable.

### Transport/Additional information:
- **DOT**
  - Hazardous substance: 1000 lbs, 454 kg

### 15 Regulatory information
- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - United States (USA)
  - SARA

(Cont'd. on page 9)
Trade name: Sulfuric Acid 50% v/v

- **Section 302 (extremely hazardous substances):**
  None of the ingredients are listed.

- **Section 355 (extremely hazardous substances):**
  7664-93-9 Sulfuric acid

- **Section 313 (Specific toxic chemical listings):**
  7664-93-9 Sulfuric acid

- **TSCA (Toxic Substances Control Act):**
  All ingredients are listed or exempt.

- **Proposition 65 (California):**
  - Chemicals known to cause cancer:
    None of the ingredients are listed.
  - Chemicals known to cause developmental toxicity for females:
    None of the ingredients are listed.
  - Chemicals known to cause developmental toxicity for males:
    None of the ingredients are listed.
  - Chemicals known to cause developmental toxicity:
    None of the ingredients are listed.

- **EPA (Environmental Protection Agency):**
  None of the ingredients are listed.

- **IARC (International Agency for Research on Cancer):**
  None of the ingredients are listed.

- **Canadian Domestic Substances List (DSL):**
  None of the ingredients are listed.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Abbreviations and acronyms:**
  ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  OSHA: Occupational Safety & Health Administration
  Met. Corr. 1: Corrosive to metals – Category 1
  Skin Corr. 1A: Skin corrosion/irritation – Category 1A
  Eye Dam. 1: Serious eye damage/eye irritation – Category 1

- **Sources:**
  Website, European Chemicals Agency (echa.europa.eu)
  Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
  Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

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<table>
<thead>
<tr>
<th>Trade name: Sulfuric Acid 50% v/v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Data Sheets, Individual Manufacturers</td>
</tr>
<tr>
<td>SDS Prepared by:</td>
</tr>
<tr>
<td>ChemTel Inc.</td>
</tr>
<tr>
<td>1305 North Florida Avenue</td>
</tr>
<tr>
<td>Tampa, Florida USA 33602-2902</td>
</tr>
<tr>
<td>Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573</td>
</tr>
<tr>
<td>Website: <a href="http://www.chemtelinc.com">www.chemtelinc.com</a></td>
</tr>
</tbody>
</table>