1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product name
Sulfuric Acid 0.02N

Other means of identification
Product Code(s) 6068

Recommended use of the chemical and restrictions on use
Recommended Use
Use as a laboratory reagent. Laboratory chemicals. Industrial (not for food or food contact use).

Details of the supplier of the safety data sheet

Emergency telephone number
24 Hour Emergency Number (CHEM-TEL):USA, Canada, Puerto Rico 1-800-255-3924 Outside North American Continent (Call collect) 813-248-0585

2. HAZARDS IDENTIFICATION

Skin corrosion/irritation Category 1
Serious eye damage/eye irritation Category 1

DANGER

Hazard statements
Causes severe skin burns and eye damage.

Appearance Clear, colorless
Physical state liquid
Odor Odorless

Precautionary Statements - Prevention
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not taste or swallow. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling.

Precautionary Statements - Response
Immediately call a POISON CENTER or physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
IF SWALLOWED, Rinse mouth, Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>0.1</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>to 100%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First Aid Measures

General advice
Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact
Immediately flush eyes with gentle stream of water for at least 15 minutes, occasionally lifting upper and lower eyelids. Call a physician immediately.

Skin contact
Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Excess acid on skin can be neutralized with a 2% solution of sodium bicarbonate in water. Consult a physician.

Inhalation
Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and contact emergency personnel.

Ingestion
Do NOT induce vomiting. Drink plenty of water. Clean mouth with water. Call a physician immediately. Never give anything by mouth to an unconscious person.

Self-protection of the first aider
Use personal protective equipment. See section 8 for more information. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Dry chemical or CO₂. DO NOT USE WATER.

Specific hazards arising from the chemical
Contact with most metals causes the formation of explosive and flammable hydrogen gas. React vigorously with water.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Personal precautions
Ensure adequate ventilation. Avoid contact with skin, eyes, and inhalation of vapors. Use personal protective equipment. See section 8.

Environmental precautions
See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for cleaning up
Neutralize spill with alkaline material (sodium bicarbonate), being careful to prevent splattering, then containerize slurry and hold for later disposal. If local regulations permit, dilute slurry with water and rinse to drain with excess water. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Prevent contact with skin, eyes, and clothing. Do not taste or swallow. Do not eat, drink, or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from incompatible materials such as cyanides or sulfides. Store away from strong bases or metals. Do not store near combustible materials. Keep out of the reach of children.

Incompatible Products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>TWA: 0.2 mg/m³</td>
<td>TWA: 1 mg/m³</td>
<td>IDLH: 15 mg/m³</td>
</tr>
<tr>
<td>7664-93-9</td>
<td></td>
<td></td>
<td>TWA: 1 mg/m³</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>Not Established</td>
</tr>
<tr>
<td>7732-18-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Wear safety glasses with side shields (or goggles).

Skin and body protection
Wear protective gloves/clothing.

Respiratory protection
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| Physical state | liquid |
| Appearance     | Clear, colorless |
| Odor           | Odorless |

Page 3 / 7
10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions of use and storage.

Hazardous Reactions
Reacts violently with water. Contact with metals may evolve flammable hydrogen gas.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Excessive heat. Incompatible products. Direct sunlight.

Incompatible materials

Hazardous decomposition products
Hydrogen gas. Sulfur oxides (SOx).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

<table>
<thead>
<tr>
<th>Component Information</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>= 2140 mg/kg ( Rat )</td>
<td>Not Established</td>
<td>= 510 mg/m³ ( Rat ) 2 h</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>&gt; 90 mL/kg ( Rat )</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

Information on toxicological effects

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>A2</td>
<td>Group 1</td>
<td>Known</td>
<td>X</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

ACGIH (American Conference of Governmental Industrial Hygienists)
A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

NTP (National Toxicology Program)
Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X - Present

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicity to Algae</th>
<th>Toxicity to Fish</th>
<th>Daphnia Magna (Water Flea)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>Not Established</td>
<td>500: 96 h Brachydanio rerio mg/L</td>
<td>Not Established</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

Persistence and degradability
No information available.

Bioaccumulation/Accumulation
When released into the soil, this material may leach into ground water. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet or dry deposition.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>Not Established</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose according to federal, state, and local regulations. If permitted, neutralize reagent with sodium bicarbonate/sodium carbonate, add slurry to large volume of water to dilute, rinse to drain with excess water.

Contaminated packaging
Do not reuse empty containers.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>RCRA</th>
<th>RCRA - Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>Not Established</td>
<td>-</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
<td>-</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Hazardous Waste Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>-</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>-</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
Not regulated
IATA  Not regulated
IMDG/IMO  Not regulated

**15. REGULATORY INFORMATION**

**International Inventories**
- TSCA  Complies
- DSL/NDSL  Complies
- EINECS/ELINCS  Complies
- ENCS  Complies
- IECSC  Complies
- KECL  Complies
- PICCS  Complies
- AICS  Complies

**Legend:**
- TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS - Japan Existing and New Chemical Substances
- IECSC - China Inventory of Existing Chemical Substances
- KECL - Korean Existing and Evaluated Chemical Substances
- PICCS - Philippines Inventory of Chemicals and Chemical Substances
- AICS - Australian Inventory of Chemical Substances

**US Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>1.0</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**
- Acute health hazard: Yes
- Chronic Health Hazard: No
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: Yes

**CWA (Clean Water Act)**
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid 7664-93-9</td>
<td>1000 lb</td>
<td>Not Established</td>
<td>Not Established</td>
<td>X</td>
</tr>
<tr>
<td>Water 7732-18-5</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

**CERCLA**
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>RQ</th>
</tr>
</thead>
</table>
US State Regulations

California Proposition 65

California Proposition 65 has classified "strong inorganic acid mists containing sulfuric acid" as a chemical known to the State of California to cause cancer. This classification applies only to "inorganic mists containing sulfuric acid" and not to sulfuric acid or sulfuric acid solutions.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>California Proposition 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>Carcinogen</td>
</tr>
<tr>
<td>7664-93-9</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Not Established</td>
</tr>
<tr>
<td>7732-18-5</td>
<td></td>
</tr>
</tbody>
</table>

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7664-93-9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Not Established</td>
<td>Not Established</td>
<td>X</td>
</tr>
<tr>
<td>7732-18-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CPSC (Consumer Product Safety Commission) - Specially Regulated Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CPSC (Consumer Product Safety Commission) - Specially Regulated Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric acid</td>
<td>Add POISON to label, 16 CFR 1500.129 (&gt;=10%, free or chemically unneutralized)</td>
</tr>
<tr>
<td>7664-93-9</td>
<td></td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

NFPA

<table>
<thead>
<tr>
<th>Health hazard</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

HMIS

<table>
<thead>
<tr>
<th>Health hazard</th>
<th>Flammability</th>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Prepared by Regulatory Affairs Department
Issuing Date Jan-23-2012
Revision Date Jul-15-2015
Reason for revision New US GHS format (M)SDS sections updated 2

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Material Safety Data Sheet