Univar USA Inc Material Safety Data Sheet

MSDS No: DQ4950CR
Version No: 022 2010-01-27
Order No: 

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300
PRODUCT NAME: SULFURIC ACID, 77 TO 100%

DATE ISSUED: 01/07/2009

Material Safety Data Sheet

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

CAS Number: 7664-93-9
Formula: H2SO4
Molecular Weight: 98.08
CAS Name: SULFURIC ACID
Grade: 77 to 100% TECHNICAL

Distributed by:
Univar USA Inc.
17425 NE Union Hill Road
Redmond, WA 98052
425-889-3400
Chemtrec: 1-800-424-9300

PHONE NUMBERS
Transport Emergency: CHEMTREC 1-800-424-9300 (outside U.S.
703-527-3887)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

<table>
<thead>
<tr>
<th>Material</th>
<th>CAS Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFURIC ACID</td>
<td>7664-93-9</td>
<td></td>
</tr>
<tr>
<td>STRONG ACID MISTS CONTAINING SULFURIC ACID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 DEG TECHNICAL</td>
<td></td>
<td>77.7</td>
</tr>
<tr>
<td>66 DEG TECHNICAL</td>
<td></td>
<td>93.2</td>
</tr>
<tr>
<td>1.835 ELECTROLYTE</td>
<td></td>
<td>93.2</td>
</tr>
<tr>
<td>98% TECHNICAL</td>
<td></td>
<td>98</td>
</tr>
<tr>
<td>99% TECHNICAL</td>
<td></td>
<td>99</td>
</tr>
<tr>
<td>100% TECHNICAL</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>0-22</td>
</tr>
</tbody>
</table>

HAZARDS IDENTIFICATION

Potential Health Effects

Exposure to Sulfuric Acid mists by inhalation may cause irritation of the nose and throat with sneezing, sore throat or runny nose; non-specific effects such as headache, nausea and weakness. Gross overexposure may cause irritation of nose, throat, and lungs with cough, difficulty breathing or shortness of breath. Pulmonary edema (body fluid in the lungs) with cough, wheezing, abnormal lung sounds, possibly progressing to severe shortness of breath and bluish discoloration of the skin; symptoms may be delayed. Repeated and/or prolonged exposure to mists may cause corrosion of teeth.
Skin contact with liquid Sulfuric Acid may cause skin corrosion, burns or ulcers. Contact with a 1 % solution may cause slight irritation with itching, redness or swelling. Repeated and/or prolonged exposure to mists may cause irritation with itching, burning, redness, swelling or rash.

Eye contact with liquid Sulfuric Acid may cause eye corrosion or ulceration; blindness may result. Repeated and/or prolonged exposure to mists may cause eye irritation with tearing, pain or blurred vision.

Immediate effects of ingestion of Sulfuric Acid may include burns of the mouth, throat, esophagus and stomach, with severe pain, bleeding, vomiting, diarrhea and collapse of blood pressure - damage may appear days after exposure.

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the lungs.

The International Agency for Research on Cancer (IARC) classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for strong inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions. The basis for the IARC classification rests on several epidemiology studies which have several deficiencies. These studies did not account for exposure to other substances, some known to be animal or potential human carcinogens, social influences (smoking, etc.) and included small numbers of subjects.

Based on the overall weight of evidence from all human and chronic animal studies, no definitive casual relationship between sulfuric acid mist exposure and respiratory tract tumors has been shown.

Strong inorganic acid mists containing sulfuric acid are also listed by The National Toxicology Program (NTP) as known human carcinogens. This limits the classification to sulfuric acid aerosols and does not extend to the liquid product, unless the acid is used under conditions that result in the formation of mists or aerosols. Fuming acid is covered by the classification.

# Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

<table>
<thead>
<tr>
<th>Material</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRONG ACID MISTS CONTAINING SULFURIC ACID</td>
<td>1</td>
<td>X</td>
<td></td>
<td>A2</td>
</tr>
</tbody>
</table>

FIRST AID MEASURES

First Aid

INHALATION

If inhaled, immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Symptoms may be delayed; prompt medical attention may be required. Call a physician.
SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes, while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

While the patient is being transported to a medical facility, continue the application of cold, wet compresses. If medical treatment must be delayed, repeat the flushing with cold water or soak the affected area with cold water to help remove the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Give large quantity of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

Notes to Physicians

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of the treatment.

FIRE FIGHTING MEASURES

Flammable Properties

Will not burn.

Fire and Explosion Hazards:

Reacts with most metals, especially when dilute, to give flammable, potentially explosive hydrogen gas. Follow appropriate National Fire Protection Association (NFPA) codes.

Extinguishing Media

Use media appropriate for surrounding material.

Use water spray to cool containers exposed to fire; do not get water inside containers.

Fire Fighting Instructions

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Generates heat upon addition of water, with possible spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize run-off with lime, soda ash, etc., to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.
ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Stop flow if possible. Review "Fire and Explosion Hazards" and "Safety Precautions" before proceeding with clean up. Use appropriate protective equipment during clean up. Soak up small spills with dry sand, clay or diatomaceous earth. Dike large spills, and cautiously dilute and neutralize with lime or soda ash, and transfer to waste water treatment system. Prevent liquid from entering sewers, waterways, or low areas.

If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the Reportable Quantity is 1,000 lbs. (based on the sulfuric acid content of the solution spilled). Comply with Federal, State, and local regulations on reporting releases.

DuPont Emergency Exposure Limits (EEL) are established to facilitate site or plant emergency evacuation and specify airborne concentrations of brief durations which should not result in permanent adverse health effects or interfere with escape. EEL's are expressed as airborne concentration multiplied by time (CxT) for up to a maximum of 60 minutes and as a ceiling airborne concentration. These limits are used in conjunction with engineering controls/monitoring and as an aid in planning for episodic releases and spills.

The DuPont Emergency Exposure Limit (EEL) for Sulfuric Acid is 10 mg/m3 for 15 to 60 minutes and 20 mg/m3 for up to 15 minutes with a not-to-exceed ceiling of 20 mg/m3.

HANDLING AND STORAGE

Handling (Personnel)

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mist. Wash thoroughly after handling.

Keep containers closed. Do not add water to contents while in container because of violent reaction.

Storage

Keep out of sun and away from heat, sparks, and flame. Keep container tightly closed and (drum) closure up to prevent leakage. Loosen closure carefully. Relieve internal pressure when received and at least weekly thereafter. Do not use pressure to empty. Be sure closure is securely fastened before moving container. Do not wash out container or use it for other purposes; replace closure after each withdrawal and return it with empty container.
EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Good general ventilation should be provided to keep vapor and mist concentrations below the exposure limits.

Personal Protective Equipment

Have available and wear as appropriate for exposure conditions when handling containers or operating equipment containing sulfuric acid: chemical splash goggles; full-length face shield/chemical splash goggles combination; acid-proof gauntlet gloves, apron, and boots; long sleeve wool, acrylic, or polyester clothing; acid proof suit and hood; and appropriate NIOSH respiratory protection. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves. If acid vapor or mist are present and exposure limits may be exceeded, wear appropriate NIOSH respiratory protection.

Exposure Guidelines

Exposure Limits

<table>
<thead>
<tr>
<th>Substance</th>
<th>PEL (OSHA)</th>
<th>TLV (ACGIH)</th>
<th>AEL * (DuPont)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfuric Acid, 77 to 100%</td>
<td>1 mg/m³, 8 Hr. TWA</td>
<td>0.2 mg/m³, 8 Hr. TWA</td>
<td>0.5 mg/m³, 8 &amp; 12 Hr. TWA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.5 mg/m³, 15 minute TWA</td>
</tr>
</tbody>
</table>

* AEL is DuPont's Acceptable Exposure Limit. Where governally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

- Boiling Point: 193-327 °C (379-621 °F) @ 760 mm Hg
- Vapor Pressure: <0.3 mm Hg @ 25 °C (77 °F) <0.6 mm Hg @ 38 °C (100 °F)
- Vapor Density: 3.4
- Melting Point: -35 to 11 °C (-31 to 52 °F)
- Evaporation Rate: <1 (Butyl Acetate=1.0)
- Solubility in Water: 100 WT%
- pH: <1
- Odor: Odorless.
- Form: Oily; clear to turbid liquid
- Color: Colorless to light gray
<table>
<thead>
<tr>
<th>GRADE</th>
<th>BOILING PT.</th>
<th>MELTING PT.</th>
<th>SPECIFIC GRAVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 DEG TECHNICAL</td>
<td>193 DEG C, 380 DEG F</td>
<td>-12 DEG C, 10 DEG F</td>
<td>1.706</td>
</tr>
<tr>
<td>66 DEG TECHNICAL</td>
<td>279 DEG C, 535 DEG F</td>
<td>-35 DEG C, -31 DEG F</td>
<td>1.835</td>
</tr>
<tr>
<td>1.835 ELECTROLYTE</td>
<td>279 DEG C, 535 DEG F</td>
<td>-35 DEG C, -31 DEG F</td>
<td>1.835</td>
</tr>
<tr>
<td>98% TECHNICAL</td>
<td>327 DEG C, 621 DEG F</td>
<td>-2 DEG C, 29 DEG F</td>
<td>1.844</td>
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<tr>
<td>99% TECHNICAL</td>
<td>310 DEG C, 590 DEG F</td>
<td>4 DEG C, 40 DEG F</td>
<td>1.842</td>
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<tr>
<td>100% TECHNICAL</td>
<td>274 DEG C, 526 DEG F</td>
<td>11 DEG C, 51 DEG F</td>
<td>1.839</td>
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</tbody>
</table>

STABILITY AND REACTIVITY

Chemical Stability

Stable, but reacts violently with water and organic materials with evolution of heat.

Incompatibility with Other Materials

Vigorous reactions with water; alkaline solutions; metals, metal powder; carbides; chlorates; fuminates; nitrates; picrates; strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

Decomposition

Releases sulfur dioxide at extremely high temperatures.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Sulfuric Acid

Oral LD50: 2,140 mg/kg in rats

Inhalation 8 hour LC50: 30 mg/m3 in guinea pigs

Concentrated Sulfuric Acid is a skin and eye corrosive. Animal testing indicates that Sulfuric Acid is a moderate eye irritant and a slight skin irritant when tested as a 10% solution.

Single and repeated inhalation exposures caused irritation of the respiratory tract, corrosion of the respiratory tract, lung damage, labored breathing, altered respiratory rate, and pulmonary edema. Repeated exposure caused altered red blood cell counts.

No adequate animal data are available to define carcinogenic potential of Sulfuric Acid. Limited studies do not suggest effects. In animal testing Sulfuric Acid has not caused developmental toxicity. No animal data are available to define reproductive toxicity. Sulfuric Acid has not produced genetic damage in bacterial cultures.
ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:
Slightly to moderately toxic.
96 hour LC50 - Bluegill sunfish: 10.5 ppm.
48 hour TLm - Flounder: 100-300 ppm

DISPOSAL CONSIDERATIONS

Waste Disposal

Cleaned-up material may be an RCRA Hazardous Waste on disposal due to the corrosivity characteristic. Do not flush to surface water or sanitary sewer system. Comply with Federal, State, and local regulations. If approved, neutralize and transfer to waste treatment system.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO
Proper Shipping Name : SULFURIC ACID
Hazard Class          : 8
UN No.                : 1830
DOT/IMO Label         : CORROSIVE
Packing Group         : II
Reportable Quantity   : 1000 lb (454 kg)

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute       : Yes
Chronic     : Yes
Fire        : No
Reactivity  : Yes
Pressure    : No

HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance: Yes
CERCLA Hazardous Substance      : Yes
SARA Toxic Chemical             : No
State Regulations (U.S.)

Strong inorganic acid mists containing sulfuric acid are known to the State of California to cause cancer.

OTHER INFORMATION NFPA, NPCA-HMIS

NFPA Rating
Health : 3
Flammability : 0
Reactivity : 2

Water Reactive.

NPCA-HMIS Rating
Health : 3
Flammability : 0
Reactivity : 2

Personal Protection rating to be supplied by user depending on use conditions.

Because of its corrosive characteristics and inherent hazards, Sulfuric Acid should not be used in sewer or drain cleaners or any similar application; regardless of whether they are formulated for residential, commercial or industrial use. Vendor will not knowingly sell sulfuric acid to individuals or companies who repackage the product for sale as sewer or drain cleaners, or any other similar use.
Notice

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