



MATERIAL SAFETY DATA SHEET

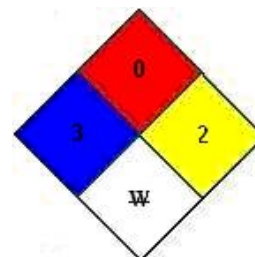
Spent Sulfuric Acid

For more detailed information on the hazards of this product, contact Chemical Safety and Health Department or Medical Services Department at the address below. Technical Information Bulletin may also be available.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Brand Name..... Spent Sulfuric Acid
 Chemical Name N/A
 Common Name..... N/A
 Formula Mixture
 Molecular Weight..... 98.08
 Product Use Neutralization agent, chemical
 manufacture, industrial applications



MANUFACTURER

Tronox LLC
 One Leadership Square, Suite 300
 211 N. Robinson Ave.
 Oklahoma City, OK 73102 US
 www.tronox.com

EMERGENCY TELEPHONE NUMBER

1-866-775-5009 (24 hours)

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	WEIGHT %
Sulfuric acid	7664-93-9	90 – 98
Soluble titanium (as titanium sulfate)	13825-74-6	0-7
Insoluble titanium (as titanium dioxide)	13463-67-7	0-5

See Section 15 of this MSDS for OSHA Regulatory Status

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Colorless to cloudy white with strong, stinging, sulfurous odor. May also have a slight chlorine odor due to residual chlorine that may be present at composition levels under 1%.

DANGER! Causes severe skin and eye burns. Vapor extremely irritating to eyes and respiratory tract. Causes digestive tract burns. Cancer hazard – Long term exposure to sulfuric acid mist may cause cancer. Harmful if inhaled or swallowed. Reacts with water. Contact with certain metals liberates flammable gas.

Will not burn, but may be involved in a fire with other materials. Toxic and corrosive fumes may be released under fire conditions. In case of fire, use extinguishing media suitable for the material that is burning.

POTENTIAL HEALTH EFFECTS

PRIMARY ROUTE(S) OF ENTRY

Eye and skin contact; inhalation

SYMPTOMS OF EXPOSURE

Inhalation: Breathing vapor may cause irritation or burning in the respiratory tract. May cause difficulty in breathing.

Eye Contact: Causes severe eye burns, tearing, pain, and redness. Vapor may cause eye irritation and tearing.

Skin Contact: Causes severe skin burns, burning sensation, redness and swelling.

Ingestion: Severe burns of mucous membranes and digestive tract.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Eye or skin disease, breathing or respiratory disorders.

REPORTED AS CARCINOGEN OR POTENTIAL CARCINOGEN

Not Listed

OSHA

National Toxicology Program (NTP)

International Agency for Research on Cancer (IARC)

4. FIRST AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Call a physician or poison control center immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Call a physician or poison control center immediately. Destroy contaminated clothing and shoes.

Ingestion: If swallowed, DO NOT induce vomiting. Call a physician or poison control center immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN

Chemical of exposure is sulfuric acid which is corrosive.

5. FIRE FIGHTING MEASURES

Flash Point and Method..... N/A

GENERAL HAZARD

Material reacts with water. Contact with certain metals liberates flammable gas. Will not burn, but may release toxic and corrosive fumes under fire conditions.

EXTINGUISHING MEDIA

Use extinguishing media suitable for the material that is burning.

SPECIAL FIREFIGHTING INSTRUCTIONS

Move containers from area if it can be done without risk.

FIREFIGHTING EQUIPMENT

Wear a NIOSH-approved, positive-pressure self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Wear appropriate Personal Protective Equipment. Do not touch or walk through spilled material. Stop leak if it can be done without risk. Evacuate leaker or personnel, or both, to safe area, if possible. Ventilate area. Determine whether spill notification must be made to the appropriate authorities.

ON LAND

Small Spills: Absorb with vermiculite, fuller's earth, or sand. Neutralize with limestone, slaked lime, or soda ash. Shovel up and place in a non-metal waste container for disposal. Neutralize spill area, and wash with plenty of water.

Large Spills: Dike spill area with soil or sandbags to contain it and prevent its spread. Prevent liquid from entering sewers or waterways.

Remove bulk of liquid, for example with a vacuum truck, for recovery or disposal. Then flush area with water, and neutralize washings with limestone, slaked lime, soda ash, or caustic. If permitted, flush neutralized washing to a waste treatment plant; otherwise transfer to a licensed waste disposal contractor.

Dispose of all contaminants according to federal, state, and local regulations.

IN WATER

Small pools of contaminant may be absorbed in a non-reactive absorbent and disposed of as outlined above. Spills into large bodies of water should be dispersed and neutralized with mild alkaline material.

7. HANDLING AND STORAGE

Wear appropriate protective equipment (See Section 8).

HANDLING

Do not breath mist or vapor. Do not get in eyes, on skin or clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.

STORAGE

Keep container tightly closed and dry. Store in a corrosion-proof area. Isolate from incompatible materials (see section 10).

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

PERSONAL PROTECTION

Respirator: In operations where exposure limits are exceeded, use a NIOSH-approved respirator that has been selected by a technically qualified person for the specific work conditions. If respirators are used, OSHA requires compliance with its respiratory protection program (29 CFR 1910.134).

Eye Protection: Wear safety glasses with side shield (or goggles) and a face shield.

Skin Protection: Where contact is likely, wear chemical-resistant gloves, a chemical suit and chemical-resistant boots.

Other: Eye wash, safety shower, washing facilities.

EXPOSURE CONTROLS

COMPONENT	OSHA PEL		ACGIH TLV	
	TWA	STEL	TWA	STEL
Sulfuric acid	1 mg/m ³	N/E	0.2 mg/m ³	N/E
Titanium sulfate	N/E	N/E	N/E	N/E
Titanium dioxide	15 mg/m ³	N/E	10 mg/m ³	N/E

Sulfuric Acid

NIOSH REL (recommended exposure limit) [for up to a 10-hour workday during a 40-hour workweek] is 1 mg/m³. IDLH (immediately dangerous to life or health) concentration is 15 mg/m³.

ERPG (Emergency Response Planning Guidelines): 2 mg/m³ (no more than mild transient effects) for up to 1 hr. exposure, 10 mg/m³ (without serious, adverse effects) for up to 1 hr., 30 mg/m³ (not life threatening) up to 1 hr. exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

StateLiquid
ColorColorless to cloudy white
OdorStrong, stinging, sulfurous, chlorine
Vapor Pressure, mmHg @ 20°C.....0.001
Melting Point °C.....-29
Boiling Point °C281
Volatiles.....N/D
Viscosity, cP @ 20°C.....30
Weight per GallonN/D
Specific Gravity @ 20 °C.....1.86
Water Solubility100% miscible in water

pH.....Strongly acidic

10. STABILITY AND REACTIVITY

REACTIVITY

Stable at room temperature in closed containers under normal storage and handling conditions.

INCOMPATIBILITIES

Water, strong acids, strong bases, halides, powdered metals.

HAZARDOUS DECOMPOSITION PRODUCTS

Sulfur oxides, nitrogen oxides, hydrogen sulfide, hydrochloric acid, titanium oxychloride, chlorine gas.

CONDITIONS TO AVOID

Avoid contact with metals, water and heat.

11. TOXICOLOGICAL INFORMATION

For Sulfuric Acid

RTECS WS5600000:

Inhalation LC₅₀ (rat)510 mg/m³/2H

Eye irritation (rabbit).....Severe

Highly irritating and corrosive to tissue.

IARC has classified occupational exposures to sulfuric acid mist as Group 1 – Carcinogenic to Humans.

ACGIH has classified sulfuric acid mists as A2 – Suspected Human Carcinogen.

For Titanium Sulfate

To the best of our knowledge toxicological properties have not been thoroughly investigated. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes and skin. Inhalation may result in spasm, inflammation, and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

May be fatal if inhaled. Harmful if swallowed or absorbed through skin.

For Titanium Dioxide

Oral LC₅₀ (rat)>25g/kg

Dermal LC₅₀ (rabbit)>10g/kg

Inhalation LC₅₀ (rat)>6.8mg/l (4hr exposure)

Eye irritation (rabbit).....Non-irritant

Skin irritation (rabbit).....Non-irritant

No sensitizing effects known.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

RCRA Waste Code:.....not regulated.

Dispose in accordance with applicable federal, state, and local regulations. Incinerate. Since emptied container retain product residue, follow label warnings even after container is emptied.

14. TRANSPORT INFORMATION

DOT Proper Shipping NameSulfuric Acid, Spent
DOT Hazard Class.....8
DOT I.D. Number.....UN 1832
DOT Packing Group.....II
Label(s).....Water Reactive
ERG – Guide No.137
RQsulfuric acid 46 k

IATA Proper Shipping NameSulfuric Acid, Spent
IATA Hazard Class8 (Forbidden on Passenger Aircraft)
IATA I.D. Number.....UN 1832
Packing Group.....II
Label(s).....8 (Corrosive), Water reactive, Forbidden. Do Not Ship by Passenger Aircraft

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazardous Non-Hazardous

CERCLA/SUPERFUND (40 CFR 117, 302): RQ 1000lb / 454kg, Sulfuric Acid

SARA HAZARD CATEGORY (40 CFR 370)

Acute Chronic Fire Pressure Reactive None

SARA TOXIC CHEMICAL (40 CFR 372): Sulfuric acid CAS #7664-93-9 (90– 98%)

SARA EXTREMELY HAZARDOUS SUBSTANCE REPORTING QUANTITY (lb/ kg)

Section 302 (EHS Reportable Quantity): 1000/ 454

SARA Section 312 (Lower Reportable Quantity): 500/ 227

CLEAN WATER ACT SECTION 311 HAZARDOUS SUBSTANCE: RQ 1000lb / 454kg, Sulfuric Acid

CLEAN AIR ACT SECTION 112 ACCIDENTAL RELEASE PREVENTION: RQ 1000lb / 454kg, Sulfuric Acid

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (CPR Section (33))

This product has been classified according to the hazard criteria of the Controlled Products Regulations, and the MSDS contains all required information.

Controlled Product; Classification: D1A, D2A, E Does not meet the criteria for a controlled product.

INVENTORY STATUS: These chemicals are listed on the US TSCA Chemical Substance Inventory and the Canadian Domestic Substances List.

TOXIC SUBSTANCES CONTROL ACT

No specific regulations apply.

STATE REGULATIONS

California Proposition 65.....	sulfuric acid and titanium dioxide, carcinogen
California Hazardous Substance List.....	sulfuric acid
California OELs, Airborne Contaminants.....	TWA 1mg/m ³ (8hr)
California Accidental Release Prevention Substances.....	1000lb TPQ
Connecticut Hazardous Material Survey.....	sulfuric acid, titanium sulfate solution
Illinois Toxic Substance Disclosure Act.....	sulfuric acid and titanium dioxide
Illinois Chemical Safety Act.....	sulfuric acid
Indiana Occupational Health and Safety Standards, Air Contaminants.....	sulfuric acid and titanium dioxide
Kentucky Occupational Health and Safety Standards, Air Contaminants.....	sulfuric acid and titanium dioxide
Louisiana Right-to-know Reporting List.....	1000lb RQ
Louisiana Spill Reporting.....	1000lb RQ
Massachusetts Right to Know List.....	sulfuric acid and titanium dioxide
Massachusetts Oil and Hazardous Substance List.....	50lb RQ
Minnesota Hazardous Substance List.....	sulfuric acid and titanium dioxide
North Carolina Exposure Limits for Air Contaminants.....	sulfuric Acid and titanium dioxide
North Carolina Toxic Air Pollutants.....	0.1mg/m ³ (1hr)
New Jersey Right to Know List.....	sulfuric acid substance number 1761, Titanium sulfate substance number 1863, titanium dioxide substance number 1861.
New Jersey Community Right to Know Survey.....	500lb RQ
New York Release reporting.....	air 1000lb, land 100lb RQ
Oregon Rules for Air Contaminants.....	TWA 1mg/m ³ (8hr)
Pennsylvania Right to Know List.....	sulfuric acid and titanium dioxide
Rhode Island Hazardous Substance List.....	sulfuric acid and titanium dioxide
Texas Effects screening Levels.....	sulfuric acid and titanium dioxide

16. OTHER INFORMATION

ABBREVIATIONS

C - Ceiling limit

ERG – 2000 Emergency Response Guidebook

LC_{Lo} - The lowest concentration of a substance in air that will kill a test animal within a certain exposure period.

LC₅₀ - The concentration of a substance in air that will kill 50% of test animals within a certain exposure period.

LD₅₀ - The dose that causes death in 50% of test animals.

N/A - Not applicable
N/D - Not determined
N/E - Not established
N/K - Not known
PIN - Product Identification Number
RQ - Reportable Quantity
TPQ - Threshold Planning Quantity

PREPARATION INFORMATION

Prepared by Chemical Safety and Health Department
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