

Material Safety Data Sheet

Sulfuric Acid (Fuming)

ACC# 17310

Section 1 - Chemical Product and Company Identification

MSDS Name: Sulfuric Acid (Fuming)

Catalog Numbers: A305-212, A305-500, A305212, A305500

Synonyms: Disulphuric acid; Dithionic acid; Fuming sulfuric acid; Oleum; Pyrosulphuric acid; Sulfuric acid mixture with sulfur trioxide

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7446-11-9	Sulfur trioxide	30.0	231-197-3
8014-95-7	Sulfuric acid	Balance	unlisted

Hazard Symbols: C

Risk Phrases: 14 35 37

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless or almost colorless viscous liquid. **Danger!** Corrosive. Causes eye and skin burns. May be harmful if swallowed. Harmful if inhaled. Water-reactive. May ignite or explode on contact with moist air. Reacts violently and/or explosively with water, steam or moisture. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. Hygroscopic (absorbs moisture from the air). May cause lung damage.

Target Organs: Heart, lungs, respiratory system, cardiovascular system, teeth, eyes.

Potential Health Effects

Eye: Causes severe eye burns. May result in corneal injury.

Skin: Causes skin burns. Continued contact can cause tissue necrosis.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May be harmful if swallowed.

Inhalation: Harmful if inhaled. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. Causes corrosive action on the mucous membranes. May cause hypotension, depressed cardiac output, and bradycardia.

Chronic: Prolonged inhalation may cause respiratory tract inflammation and lung damage. Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivitis. Repeated exposure may cause erosion of teeth. Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes). SPEEDY ACTION IS CRITICAL!

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure. Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively. Monitor arterial blood gases, chest x-ray, and pulmonary function tests if respiratory tract irritation or respiratory depression is evident. Treat dermal irritation or burns with standard topical therapy. Effects may be delayed. Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

Antidote: Do NOT use oils or ointments in eye.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water Reactive. Material will react with water and may release a flammable and/or toxic gas. Contact with water can cause

violent liberation of heat and splattering of the material. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. May ignite or explode on contact with steam or moist air. Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water. Runoff from fire control or dilution water may cause pollution. **Extinguishing Media:** Use dry sand or earth to smother fire. Do NOT use water directly on fire. Use carbon dioxide or dry chemical. Do NOT get water inside containers. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out. For large fires, flood fire area with large quantities of water, while knocking down vapors with water fog.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 2; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Cover with sand, dry lime or soda ash and place in a closed container for disposal. Provide ventilation. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water. Keep combustibles (wood, paper, oil, etc.,) away from spilled material.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not allow water to get into the container because of violent reaction. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Do not allow contact with water. Use only in a chemical fume hood. Discard contaminated shoes. Keep from contact with moist air and steam.

Storage: Do not store near combustible materials. Do not store in direct sunlight. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from water. Corrosives area. Do not store in metal containers. Do not store near alkaline substances. Store protected from moisture. Keep tightly closed in a glass stoppered bottle.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sulfur trioxide	none listed	none listed	none listed
Sulfuric acid	none listed	none listed	none listed

OSHA Vacated PELs: Sulfur trioxide: No OSHA Vacated PELs are listed for this chemical. Sulfuric acid: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear a chemical apron. Wear neoprene gloves, apron, and/or clothing. Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

Physical State: Viscous liquid

Appearance: colorless or almost colorless

Odor: acrid odor

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: 6.14

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: 140 deg C @ 760.00mm Hg

Freezing/Melting Point:2 deg C

Decomposition Temperature:Not available.

Solubility: Reacts.

Specific Gravity/Density:1.9150g/cm3

Molecular Formula:H2O4S.SO3

Molecular Weight:178.14

Section 10 - Stability and Reactivity

Chemical Stability: Combines vigorously with water with the evolution of heat. Reported to have exploded when in a sealed container. This was most likely due to pressure of hydrogen by reduction of water.

Conditions to Avoid: Incompatible materials, metals, excess heat, combustible materials, organic materials, exposure to moist air or water, amines, bases.

Incompatibilities with Other Materials: Acetic acid, acetic anhydride, acrolein, acrylonitrile, allyl chloride, acids, metals, nitric acid, vinyl acetate, water, finely powdered metals, moisture, carbides, chlorates, azides, fulminates, picrates, nitrates, alkali halides, zinc, iodides, permanganates, hydrogen peroxides, perchlorates, nitromethane, phosphorus, nitrites, cyclopentadiene, cyclopentanone oxime, nitroaryl amines, lithium silicides, iron, mercuric nitride, benzene, phosphorus trioxide, acrylic acid, acetone, allyl alcohol, 2-amino ethanol, styrene monomer, vinylidene chloride, sulfolane, aniline, cresol, n-butylaldehyde, cumene, dichloroethyl cyanohydrin, ethylene glycol, reducing agents, sulfuric acid, dimethyl sulfoxide, dioxan, diphenylmercury, formamide, pyridine, metal oxides, ethyleneimine, hydrochloric acid, hydrofluoric acid, isoprene, isopropyl alcohol, mesityl oxide, methyl ethyl ketone, beta-propiolactone, propylene oxide, sodium hydroxide.

Hazardous Decomposition Products: Oxides of sulfur, irritating and toxic fumes and gases, hydrogen gas.

Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 7446-11-9: WT4830000

CAS# 8014-95-7: WS5605000

LD50/LC50:

Not available.

CAS# 8014-95-7:

Inhalation, rat: LC50 = 347 ppm/1H;

Carcinogenicity:

CAS# 7446-11-9: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 8014-95-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No data available.

Teratogenicity: No information available.

Reproductive Effects: No data available.

Neurotoxicity: No data available.

Mutagenicity: No information available.

Other Studies: No data available.

Section 12 - Ecological Information

Ecotoxicity: Fish: Bluegill/Sunfish: 24 ppm; 24 Hr; Lethal (fresh water) No data available.

Environmental: Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intakes.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	No information available.				No information available.
Hazard Class:					
UN Number:					
Packing Group:					

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 7446-11-9 is listed on the TSCA inventory.

CAS# 8014-95-7 is not listed on the TSCA inventory. It is for research and development use only.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RQs

CAS# 8014-95-7: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 7446-11-9: 100 lb TPQ (This material is a reactive solid. The TPQ does not default to 10000 pounds for non-powder, non-molten, non-sol vent form)

SARA Codes

CAS # 8014-95-7: acute, flammable, reactive.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 7446-11-9 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

CAS# 8014-95-7 can be found on the following state right to know lists: New Jersey, Pennsylvania, Massachusetts.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

C

Risk Phrases:

R 14 Reacts violently with water.

R 35 Causes severe burns.

R 37 Irritating to respiratory system.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 30 Never add water to this product.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7446-11-9: 2

CAS# 8014-95-7: 2

Canada - DSL/NDSL

CAS# 7446-11-9 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of E, C, F, D1A.

Canadian Ingredient Disclosure List

CAS# 7446-11-9 is listed on the Canadian Ingredient Disclosure List.

Exposure Limits

CAS# 7446-11-9: OEL-CZECHOSLOVAKIA:TWA 1 mg/m³;STEL 2 mg/m³ OEL-FIN

LAND:STEL 1 ppm (3 mg/m³);Skin OEL-HUNGARY:STEL 1 mg/m³ OEL-POLAND:T

WA 1 mg/m³ OEL-RUSSIA:STEL 1 mg/m³;Skin

Section 16 - Additional Information

MSDS Creation Date: 4/09/1999

Revision #3 Date: 3/18/2003

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.