Material Safety Data Sheet

Sulfuric Acid, 95-98%, C.P.

ACC# 01589 Sheet given by filtra-system for Fisher Sulfuric acid 7/10/09 JLV

Section 1 - Chemical Product and Company Identification

MSDS Name: Sulfuric Acid, 95-98%, C.P.
Catalog Numbers: AC133610000, AC133610010, AC133610025
Synonyms: Hydrogen sulfate; Oil of vitriol; Vitriol brown oil; Matting acid; Battery acid; Sulphuric acid
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7664-93-9	Sulfuric acid	95-98.0	231-639-5

Hazard Symbols: C
Risk Phrases: 35

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colorless - oily liquid. **Danger!** Strong oxidizer. Contact with other material may cause a fire. Corrosive. Hygroscopic. Mutagen. May cause kidney damage. May cause fetal effects based upon animal studies. May cause lung damage. Causes eye and skin burns. Cancer hazard. May be fatal if inhaled. May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns.
Target Organs: Kidneys, heart, lungs, respiratory system, cardiovascular system, teeth, eyes.

Potential Health Effects

Eye: Causes severe eye burns. May cause irreversible eye 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 cause systemic toxicity with acidosis.
Inhalation: 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. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Causes corrosive action on the mucous membranes.
Chronic: Prolonged or repeated inhalation may cause kidney 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. May cause fetal effects.

May cause cancer in humans. Laboratory experiments have resulted in mutagenic effects. May cause ischemic heart lesions.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation is required (at least 30 minutes).
Skin: Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. 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 to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician: 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 - Firefighting 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. Strong oxidizer. Contact with combustible materials may cause a fire. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Contact with water can cause violent liberation of heat and splattering of the material. 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: Do NOT use water directly on fire. Use carbon dioxide or dry chemical. Do NOT get water inside containers. 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.

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. Provide ventilation. Use water spray to reduce vapors, do not put water directly on leak, spill area or inside container. 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 get in eyes, on skin, or on clothing. Keep container tightly closed. 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. 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 near alkaline substances. Store protected from moisture.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: 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
Sulfuric acid	1 mg/m3; 3 mg/m3 STEL	1 mg/m3 TWA 15 mg/m3 IDLH	1 mg/m3 TWA

OSHA Vacated PELs: Sulfuric acid: 1 mg/m3 TWA
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 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: Liquid
Appearance: clear colorless - oily liquid
Odor: odorless
pH: 0.3 (1N Solution)
Vapor Pressure: 1 mm Hg @ 145.8 C
Vapor Density: 3.38
Evaporation Rate: Slower than ether.
Viscosity: 21 mPas @ 25 C
Boiling Point: 280 deg C
Freezing/Melting Point:3 deg C
Decomposition Temperature:340 deg C
Autoignition Temperature: Not available.
Flash Point: Not available.
NFPA Rating: (estimated) Health: 3; Flammability: 0; Reactivity: 2
Explosion Limits, Lower: Not available.
Upper: Not available.
Solubility: Soluble in water and ethanol.

Specific Gravity/Density:1.841
Molecular Formula:H2SO4
Molecular Weight:98.0716

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: Mechanical shock, incompatible materials, metals, excess heat, combustible materials, organic materials, exposure to moist air or water, oxidizers, amines, bases.
Incompatibilities with Other Materials: Bases, strong dehydrating agents, organic materials, finely powdered metals, moisture, carbides, chlorates, cyanides (e.g. potassium cyanide, sodium cyanide), azides, fulminates, picrates, nitrates, alkali halides, zinc, iodides, permanganates, hydrogen peroxides, perchlorates, nitromethane, phosphorus, nitrites, cyclopentadiene, cyclpentanone oxime, nitroaryl amines, lithium silicides, iron, mercuric nitride, benzene, potassium chlorates, steel, cesium acetylene carbide, trihydroxydiamino phosphate, phosphorus trioxide.
Hazardous Decomposition Products: Oxides of sulfur, irritating and toxic fumes and gases.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 7664-93-9: WS5600000
LD50/LC50:
CAS# 7664-93-9:
Inhalation, mouse: LC50 =320 mg/m3/2H;
Inhalation, rat: LC50 =510 mg/m3/2H;
Oral, rat: LD50 = 2140 mg/kg;
Carcinogenicity:
CAS# 7664-93-9:
ACGIH: (contained in strong inorganic acid mists): A2 - Suspected Human Carcinogen
OSHA: Select carcinogen
IARC: Group 1 carcinogen
Epidemiology: No data available.
Teratogenicity: Specific Developmental Abnormalities: Inhalation, rabbit: TCLo = 20 mg/m3/7H (female 6-18 days after conception).
Reproductive Effects: No data available.
Neurotoxicity: No data available.
Mutagenicity: Cytogenetic Analysis: Hamster, ovary = 4mmol/L.
Other Studies: No data available.

Section 12 - Ecological Information

Ecotoxicity: Not available.
Environmental Fate: Sulfuric acid reacts with calcium and magnesium in water to form sulfate salts. During transport through the soil, sulfuric acid can dissolve some of the soil material, in particular carbonate-based materials.

Physical/Chemical: Not available.
Other: Not 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:	SULFURIC ACID				SULFURIC ACID
Hazard Class:	8				8(9.2)
UN Number:	UN1830				UN1830
Packing Group:	II				II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 7664-93-9 is listed on the TSCA inventory.
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

Section 302 (RQ)
CAS# 7664-93-9: final RQ = 1000 pounds (454 kg)
Section 302 (TPQ)
CAS# 7664-93-9: TPQ = 1000 pounds; RQ = 1000 pounds
SARA Codes
CAS # 7664-93-9: acute, chronic, reactive.
Section 313
This chemical is not at a high enough concentration to be reportable under 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 depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water Act:
CAS# 7664-93-9 is listed as a Hazardous Substance 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# 7664-93-9 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, 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 35 Causes severe burns.
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# 7664-93-9: 2
Canada
CAS# 7664-93-9 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of C, D1A, E.
CAS# 7664-93-9 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 7664-93-9: OEL-ARAB Republic of Egypt:TWA 1 mg/m3 OEL-AUSTRALI A:TWA 1 mg/m3 OEL-BELGIUM:TWA 1 mg/m3;STEL 3 mg/m3 OEL-CZECHOSLOVAKI A:TWA 1 mg/m3;STEL 2 mg/m3 OEL-DENMARK:TWA 1 mg/m3 OEL-FINLAND:TWA 1 mg/m3;STEL 3 mg/m3;Skin OEL-FRANCE:TWA 1 mg/m3;STEL 3 mg/m3 OEL-GER MANY:TWA 1 mg/m3 OEL-HUNGARY:STEL 1 mg/m3 OEL-JAPAN:TWA 1 mg/m3 OEL -THE NETHERLANDS:TWA 1 mg/m3 OEL-THE PHILIPPINES:TWA 1 mg/m3 OEL-POL AND:TWA 1 mg/m3 OEL-RUSSIA:STEL 1 mg/m3;Skin OEL-SWEDEN:TWA 1 mg/m3; STEL 3 mg/m3 OEL-SWITZERLAND:TWA 1 mg/m3;STEL 2 mg/m3 OEL-THAILAND:T WA 1 mg/m3 OEL-TURKEY:TWA 1 mg/m3 OEL-UNITED KINGDOM:TWA 1 mg/m3 OE L IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEA LAND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 7/15/1999
Revision #1 Date: 8/02/2000
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 way 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.