

Material Safety Data Sheet

Cerium(IV) sulfate solution 0.1N and concentrate

ACC# 04387

Section 1 - Chemical Product and Company Identification

MSDS Name: Cerium(IV) sulfate solution 0.1N and concentrate

Catalog Numbers: SC66-1

Synonyms: None

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
7732-18-5	Water	90.5	231-791-2
7664-93-9	Sulfuric acid	4.8	231-639-5
13590-82-4	Ceric sulfate	4.7	237-029-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow liquid.

Danger! Corrosive. Causes severe eye and skin burns. May cause severe respiratory and digestive tract irritation with possible burns.

Target Organs: None.

Potential Health Effects

Eye: Causes eye burns. May cause irreversible eye injury.

Skin: Causes skin burns.

Ingestion: Causes gastrointestinal tract burns. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

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.

Chronic: 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.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. SPEEDY ACTION IS CRITICAL! Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: 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.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Cover with sand, dry lime or soda ash and place in a closed container for disposal.

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 allow contact with water. Use only in a chemical fume hood. Wash clothing before reuse. Discard contaminated shoes.

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. Corrosives area. Do not store near alkaline substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Water	none listed	none listed	none listed
Sulfuric acid	0.2 mg/m3 TWA (thoracic fraction)	1 mg/m3 TWA 15 mg/m3 IDLH	1 mg/m3 TWA
Ceric sulfate	none listed	none listed	none listed

OSHA Vacated PELs: Water: No OSHA Vacated PELs are listed for this chemical. Sulfuric acid: 1 mg/m3 TWA Ceric sulfate: 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 gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: yellow

Odor: none reported

pH: Not available.

Vapor Pressure: 14 mm Hg @20C

Vapor Density: 0.7 (water=1)

Evaporation Rate:>1 (ether=1)

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point:Not available.

Decomposition Temperature:Not available.

Solubility: soluble in water.

Specific Gravity/Density:1.1

Molecular Formula:mixture

Molecular Weight:Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, metals, excess heat, combustible materials, organic materials, oxidizers, amines, bases.

Incompatibilities with Other Materials: Sulfuric acid is incompatible with acetic Anhydride, Acetone Cyanhydrin, Acetone + Nitric Acid, Acetone + Potassium Dichromate, Acetonitrile, Acrolein, Acrylonitrile, Alcohols + Hydrogen Peroxide, Allyl Alcohol, Allyl Chloride, 2-Aminoethanol, Ammonium Hydroxide, Ammonium Triperchromate, Aniline, Bromates + Metals, Bromine Pentafluoride, n-Butyraldehyde, Carbides, Cesium Acetylene Carbide, Chlorates, Chlorine Trifluoride, Chlorosulfonic Acid, Cuprous Nitride, Diisobutylene, Epichlorohydrin, Ethylene Cyanohydrin, Ethylene Diamine, Ethylene Glycol, Ethylenimine, Fulminates, Other Acids, Iodine Heptafluoride, Metals, Isoprene, Lithium Silicide, Mercuric Nitride, Mesityl Oxide, P-Nitrotoluene, Pentasilver Trihydroxydiaminophosphate, Perchlorates, Permanganates + Benzene, Phosphorus, Phosphorus Isocyanate, Picrates, Potassium t-Butoxide, Potassium Chlorate, Permanganates, beta-Propiolactone, Propylene Oxide, Pyridine, Rubidium Acetylene Carbide and Sodium.

Hazardous Decomposition Products: Oxides of sulfur.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 7732-18-5: ZC0110000

CAS# 7664-93-9: WS5600000

CAS# 13590-82-4: WS6960000

LD50/LC50:

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

CAS# 7664-93-9:

Draize test, rabbit, eye: 250 ug Severe;
Inhalation, mouse: LC50 = 320 mg/m³/2H;
Inhalation, mouse: LC50 = 320 mg/m³;
Inhalation, rat: LC50 = 510 mg/m³/2H;
Inhalation, rat: LC50 = 510 mg/m³;
Oral, rat: LD50 = 2140 mg/kg;

CAS# 13590-82-4:

Carcinogenicity:

CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 7664-93-9:

- **ACGIH:** A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)
- **California:** carcinogen, initial date 3/14/03 (listed as Strong inorganic acid mists containing sulfuric acid).
- **NTP:** Known carcinogen (listed as Strong inorganic acid mists containing s).
- **IARC:** Group 1 carcinogen

CAS# 13590-82-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Workers exposed to industrial sulfuric acid mist showed a statistical increase in laryngeal cancer. This data suggests a possible relationship between carcinogenesis and inhalation of sulfuric acid mist.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Sulfuric acid is harmful to aquatic life in very low concentrations. It may be dangerous if it enters water intakes. The aquatic toxicity for bluegill in fresh water was 24.5 ppm/24 hr, which was lethal.

Environmental: No information available.

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	Canada TDG
Shipping Name:	SULFURIC ACID	No information available.
Hazard Class:	8	
UN Number:	UN2796	
Packing Group:	II	

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 7732-18-5 is listed on the TSCA inventory.

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

CAS# 13590-82-4 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.

CERCLA Hazardous Substances and corresponding RQs

CAS# 7664-93-9: 1000 lb final RO; 454 kg final RO

SARA Section 302 Extremely Hazardous Substances

CAS# 7664-93-9: 1000 lb TPQ

SARA Codes

CAS # 7664-93-9: immediate, delayed, reactive.

CAS # 13590-82-4: immediate, fire.

Section 313

This material contains Sulfuric acid (CAS# 7664-93-9, 4.8%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

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:

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# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7664-93-9 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 13590-82-4 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

WARNING: This product contains Sulfuric acid, listed as 'Strong inorganic acid mists contain', a chemical known to the state of California to cause cancer.

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:**

XI

Risk Phrases:

R 36/38 Irritating to eyes and skin.

Safety Phrases:

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

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# 7732-18-5: No information available.

CAS# 7664-93-9: 2

CAS# 13590-82-4: No information available.

Canada - DSL/NDSL

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 7664-93-9 is listed on Canada's DSL List.

CAS# 13590-82-4 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 7664-93-9 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997

Revision #4 Date: 3/22/2006

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.