Silver Sulfate-Sulfuric Acid Solution

Safety Data Sheet

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SECTION 1: Identification

1.1. Identification

Product form : Mixtures

Product name : Silver Sulfate-Sulfuric Acid Solution

Product code : LC22760

Other means of identification : Silver Sulfate-Sulfuric Acid for COD

1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only.

Recommended use : Laboratory chemicals

Restrictions on use : Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin corrosion/irritation Category 1A	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Hazardous to the aquatic environment - Acute Hazard Category 1	H400	Very toxic to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 3	H412	Harmful to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage
H400 - Very toxic to aquatic life

Precautionary statements (GHS-US) : P260 - Do not breathe mist.
P264 - Wash exposed skin thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a poison center or doctor/physician.
P363 - Wash contaminated clothing before reuse.
P391 - Collect spillage.
P405 - Store locked up.

P501 - Dispose of contents/container to comply with local, state and federal regulations
If inhaled: Remove person to fresh air and keep comfortable for breathing

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Sulfuric Acid	(CAS-No.) 7664-93-9	98.99	Skin Corr. 1A, H314 Eye Dam. 1, H318
Silver Sulfate	(CAS-No.) 10294-26-5	1.01	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Causes severe skin burns and eye damage.

Symptoms/effects after eye contact : Causes serious eye damage.

4.3. Immediate medical attention and special treatment, if necessary

Obtain medical assistance.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Reactivity : Thermal decomposition generates : Corrosive vapors.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Protective goggles. Gloves. Face-shield. Protective clothing.

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist. Avoid contact during pregnancy/while nursing.

Hygiene measures : Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep only in the original container in a cool, well ventilated place away from : incompatible materials, metals. Keep container closed when not in use.

Incompatible products : Strong oxidizers. Strong acids. combustible materials.

Incompatible materials : Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Sulfuric Acid (7664-93-9)		
ACGIH	ACGIH TWA (mg/m³)	0.2 mg/m³ (Thoracic fraction)
OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³
IDLH	US IDLH (mg/m³)	15 mg/m³
NIOSH	NIOSH REL (TWA) (mg/m³)	1 mg/m³

Silver Sulfate (10294-26-5)		
ACGIH	ACGIH TWA (mg/m³)	0.01 mg/m³ as Ag
OSHA	OSHA PEL (TWA) (mg/m³)	0.01 mg/m³ as Ag
IDLH	US IDLH (mg/m³)	10 mg/m³ as Ag
NIOSH	NIOSH REL (TWA) (mg/m³)	0.01 mg/m³ as Ag

8.2. Appropriate engineering controls

Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Chemical resistant apron. Face shield. Gloves. Protective clothing. Safety glasses.



Hand protection:

Wear protective gloves.

Eye protection:

Chemical goggles or face shield

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Respiratory protection not required in normal conditions

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Color	:	Colorless
Odor	:	characteristic
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Non flammable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reacts violently with water.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong bases.

10.6. Hazardous decomposition products

Sulfur compounds. Thermal decomposition generates : Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact

Acute toxicity : Not classified

Sulfuric Acid (7664-93-9)	
LD50 oral rat	2140 mg/kg body weight (Rat, Experimental value)
ATE US (oral)	2140 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Sulfuric Acid (7664-93-9)	
Additional information	Strong inorganic acid mists containing sulfuric acid are carcinogenic to humans
National Toxicology Program (NTP) Status	2 - Known Human Carcinogens

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

Symptoms/effects after eye contact : Causes serious eye damage.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Sulfuric Acid (7664-93-9)	
LC50 fish 1	42 mg/l (96 h, Gambusia affinis)
EC50 Daphnia 1	29 mg/l (24 h, Daphnia magna)

Silver Sulfate (10294-26-5)	
EC50 Daphnia 1	0.004 mg/l

12.2. Persistence and degradability

Silver Sulfate-Sulfuric Acid Solution	
Persistence and degradability	May cause long-term adverse effects in the environment.

Sulfuric Acid (7664-93-9)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Silver Sulfate (10294-26-5)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Silver Sulfate-Sulfuric Acid Solution	
Bioaccumulative potential	Not established.

Sulfuric Acid (7664-93-9)	
Log Pow	-2.2 (Estimated value)
Bioaccumulative potential	Not bioaccumulative.

Silver Sulfate (10294-26-5)	
BCF fish 1	2.5 Oncorhynchus mykiss- 8 d at 25℃
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1830 Sulfuric acid (with more than 51 percent acid), 8, II

UN-No.(DOT) : UN1830

Proper Shipping Name (DOT) : Sulfuric acid
with more than 51 percent acid

Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 8 - Corrosive



Dangerous for the environment : Yes

Marine pollutant : Yes



DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Special Provisions (49 CFR 172.102)	:	A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging. A7 - Steel packaging must be corrosion-resistant or have protection against corrosion. B3 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks and DOT 57 portable tanks are not authorized. B83 - Bottom outlets are prohibited on tank car tanks transporting sulfuric acid in concentrations over 65.25 percent. B84 - Packaging must be protected with non-metallic linings impervious to the lading or have a suitable corrosion allowance for sulfuric acid or spent sulfuric acid in concentration up to 65.25 percent. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized. N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material. T8 - 4 178.274(d)(2) Normal..... Prohibited TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. TP12 - This material is considered highly corrosive to steel.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	30 L
DOT Vessel Stowage Location	:	C - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	:	14 - For metal drums, stowage permitted under deck on cargo vessels
Other information	:	No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Silver Sulfate-Sulfuric Acid Solution	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Sulfuric Acid	CAS-No. 7664-93-9	98.99%

Sulfuric Acid (7664-93-9)	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb
SARA Section 311/312 Hazard Classes	Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation

Silver Sulfate (10294-26-5)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

15.2. International regulations

CANADA

No additional information available

Silver Sulfate (10294-26-5)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
No additional information available

National regulations

Sulfuric Acid (7664-93-9)
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)

Silver Sulfate (10294-26-5)
Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 03/12/2018

Other information : None.

Full text of H-phrases: see section 16:

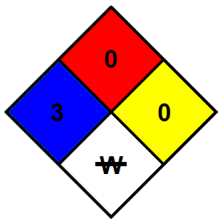
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.

NFPA specific hazard : W - Materials that react violently or explosively with water.



Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : H

H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

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