

## 1. Identification

|                                                               |                                                                                                            |                       |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Product identifier</b>                                     | <b>SILVER SULFATE, REAGENT (ACS)</b>                                                                       |                       |
| <b>Other means of identification</b>                          |                                                                                                            |                       |
| <b>Product code</b>                                           | 618                                                                                                        |                       |
| <b>Recommended use</b>                                        | professional, scientific and technical activities: other professional, scientific and technical activities |                       |
| <b>Recommended restrictions</b>                               | None known.                                                                                                |                       |
| <b>Manufacturer/Importer/Supplier/Distributor information</b> |                                                                                                            |                       |
| <b>Manufacturer</b>                                           |                                                                                                            |                       |
| <b>Company name</b>                                           | GFS Chemicals, Inc.                                                                                        |                       |
| <b>Address</b>                                                | P.O. Box 245<br>Powell, OH 43065<br>United States                                                          |                       |
| <b>Telephone</b>                                              | Phone                                                                                                      | 740-881-5501          |
|                                                               | Toll Free                                                                                                  | 800-858-9682          |
|                                                               | Fax                                                                                                        | 740-881-5989          |
| <b>Website</b>                                                | www.gfschemicals.com                                                                                       |                       |
| <b>E-mail</b>                                                 | service@gfschemicals.com                                                                                   |                       |
| <b>Emergency phone number</b>                                 | Emergency Assistance                                                                                       | Chemtrec 800-424-9300 |

## 2. Hazard(s) identification

|                              |                                                        |                                         |
|------------------------------|--------------------------------------------------------|-----------------------------------------|
| <b>Physical hazards</b>      | Not classified.                                        |                                         |
| <b>Health hazards</b>        | Skin corrosion/irritation                              | Category 1                              |
|                              | Serious eye damage/eye irritation                      | Category 1                              |
|                              | Specific target organ toxicity, single exposure        | Category 3 respiratory tract irritation |
| <b>Environmental hazards</b> | Hazardous to the aquatic environment, acute hazard     | Category 1                              |
|                              | Hazardous to the aquatic environment, long-term hazard | Category 1                              |
| <b>OSHA defined hazards</b>  | Not classified.                                        |                                         |
| <b>Label elements</b>        |                                                        |                                         |



|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Signal word</b>                               | Danger                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Hazard statement</b>                          | Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation. Very toxic to aquatic life.                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Precautionary statement</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Prevention</b>                                | Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.                                                                                                                                                                                                                                                                                                                                                     |
| <b>Response</b>                                  | If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Wash contaminated clothing before reuse. Collect spillage. If eye irritation persists: Get medical advice/attention. If skin irritation occurs: Get medical advice/attention. |
| <b>Storage</b>                                   | Store in a well-ventilated place. Keep container tightly closed. Store locked up.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Disposal</b>                                  | Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.                                                                                                                                                                                                                                                                                                                                                             |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | None known.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Supplemental information</b>                  | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### 3. Composition/information on ingredients

#### Substances

| Chemical name  | Common name and synonyms | CAS number | %   |
|----------------|--------------------------|------------|-----|
| SILVER SULFATE |                          | 10294-26-5 | 100 |

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 4. First-aid measures

|                                                                               |                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b>                                                             | Move to fresh air. For breathing difficulties, oxygen may be necessary.                                                                                                                                                                                                                                           |
| <b>Skin contact</b>                                                           | Remove and isolate contaminated clothing and shoes. Rinse skin with water/shower. Get medical attention if irritation develops and persists. Wash contaminated clothing before reuse.                                                                                                                             |
| <b>Eye contact</b>                                                            | Immediately flush eyes with plenty of water for at least 15 minutes. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Continue rinsing. Get medical attention if irritation develops and persists.                                                                            |
| <b>Ingestion</b>                                                              | Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.                                                                 |
| <b>Indication of immediate medical attention and special treatment needed</b> | Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.      |
| <b>General information</b>                                                    | If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.                                                                                                                         |

### 5. Fire-fighting measures

|                                                                      |                                                                                                                            |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Suitable extinguishing media</b>                                  | Use extinguishing agent suitable for type of surrounding fire. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                                                     |
| <b>Specific hazards arising from the chemical</b>                    | None known.                                                                                                                |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire.                              |
| <b>Fire fighting equipment/instructions</b>                          | Use water spray to cool unopened containers.                                                                               |
| <b>Specific methods</b>                                              | Use standard firefighting procedures and consider the hazards of other involved materials.                                 |
| <b>General fire hazards</b>                                          | No unusual fire or explosion hazards noted.                                                                                |

### 6. Accidental release measures

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Methods and materials for containment and cleaning up</b>               | Refer to attached safety data sheets and/or instructions for use. This product is miscible in water. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Should not be released into the environment. Stop leak if you can do so without risk. Avoid the generation of dusts during clean-up. Clean up in accordance with all applicable regulations. Following product recovery, flush area with water. Sweep up or vacuum up spillage and collect in suitable container for disposal. This material and its container must be disposed of as hazardous waste. For waste disposal, see section 13 of the SDS. Small Dry Spills: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. Save all spills for silver recovery. Send to refiner for silver recovery. |
| <b>Environmental precautions</b>                                           | Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## 7. Handling and storage

### Precautions for safe handling

Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

### Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Protect from light.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Material                        | Type | Value      |
|---------------------------------|------|------------|
| SILVER SULFATE (CAS 10294-26-5) | PEL  | 0.01 mg/m3 |

#### US. ACGIH Threshold Limit Values

| Material                        | Type | Value      |
|---------------------------------|------|------------|
| SILVER SULFATE (CAS 10294-26-5) | TWA  | 0.01 mg/m3 |

#### US. NIOSH: Pocket Guide to Chemical Hazards

| Material                        | Type | Value      | Form  |
|---------------------------------|------|------------|-------|
| SILVER SULFATE (CAS 10294-26-5) | TWA  | 0.01 mg/m3 | Dust. |

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

#### Skin protection

##### Hand protection

Wear appropriate chemical resistant gloves.

##### Other

Wear appropriate chemical resistant clothing.

#### Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Do not breathe dust. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

## 9. Physical and chemical properties

### Appearance

Crystalline.

#### Physical state

Solid.

#### Form

Solid.

#### Color

White.

### Odor

Odorless.

### Odor threshold

Not available.

### pH

Not available.

### Melting point/freezing point

1214.6 °F (657 °C)

### Initial boiling point and boiling range

Not available.

### Flash point

Not available.

### Evaporation rate

Not available.

### Flammability (solid, gas)

Not available.

### Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

|                                                |                   |
|------------------------------------------------|-------------------|
| <b>Flammability limit - upper (%)</b>          | Not available.    |
| <b>Explosive limit - lower (%)</b>             | Not available.    |
| <b>Explosive limit - upper (%)</b>             | Not available.    |
| <b>Vapor pressure</b>                          | Not available.    |
| <b>Vapor density</b>                           | Not available.    |
| <b>Relative density</b>                        | Not available.    |
| <b>Solubility(ies)</b>                         |                   |
| <b>Solubility (water)</b>                      | Slightly soluble  |
| <b>Partition coefficient (n-octanol/water)</b> | Not available.    |
| <b>Auto-ignition temperature</b>               | Not available.    |
| <b>Decomposition temperature</b>               | 1985 °F (1085 °C) |
| <b>Viscosity</b>                               | Not available.    |
| <b>Other information</b>                       |                   |
| <b>Density</b>                                 | 5.50 g/cm3        |
| <b>Molecular formula</b>                       | Ag2SO4            |
| <b>Molecular weight</b>                        | 311.80            |
| <b>Specific gravity</b>                        | 5.5               |

## 10. Stability and reactivity

|                                           |                                                                                                                     |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport.                       |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.                                                                         |
| <b>Possibility of hazardous reactions</b> | Hazardous polymerization does not occur.                                                                            |
| <b>Conditions to avoid</b>                | Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials. Exposure to light. |
| <b>Incompatible materials</b>             | Strong oxidizing agents.                                                                                            |
| <b>Hazardous decomposition products</b>   | Sulfur oxides. May include oxides of silver.                                                                        |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | May cause irritation to the respiratory system. Prolonged inhalation may be harmful. |
| <b>Skin contact</b> | Causes severe skin burns.                                                            |
| <b>Eye contact</b>  | Causes serious eye damage.                                                           |
| <b>Ingestion</b>    | Causes digestive tract burns.                                                        |

**Symptoms related to the physical, chemical and toxicological characteristics** Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

### Information on toxicological effects

|                                                         |                                                                                                                  |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>Acute toxicity</b>                                   | May cause respiratory irritation.                                                                                |
| <b>Skin corrosion/irritation</b>                        | Causes severe skin burns and eye damage.                                                                         |
| <b>Serious eye damage/eye irritation</b>                | Causes serious eye damage.                                                                                       |
| <b>Respiratory or skin sensitization</b>                |                                                                                                                  |
| <b>Respiratory sensitization</b>                        | Not available.                                                                                                   |
| <b>Skin sensitization</b>                               | This product is not expected to cause skin sensitization.                                                        |
| <b>Germ cell mutagenicity</b>                           | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
| <b>Carcinogenicity</b>                                  | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.                                  |
| <b>Reproductive toxicity</b>                            | This product is not expected to cause reproductive or developmental effects.                                     |
| <b>Specific target organ toxicity - single exposure</b> | May cause respiratory irritation.                                                                                |

|                                                               |                                      |
|---------------------------------------------------------------|--------------------------------------|
| <b>Specific target organ toxicity<br/>- repeated exposure</b> | Not classified.                      |
| <b>Aspiration hazard</b>                                      | Not available.                       |
| <b>Chronic effects</b>                                        | Prolonged inhalation may be harmful. |

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

| Product                         |      | Species                               | Test Results                  |
|---------------------------------|------|---------------------------------------|-------------------------------|
| SILVER SULFATE (CAS 10294-26-5) |      |                                       |                               |
| Aquatic                         |      |                                       |                               |
| Crustacea                       | EC50 | Water flea (Ceriodaphnia dubia)       | 0.0045 mg/l, 48 hours         |
|                                 | LC50 | Prawn (Macrobrachium hendersodayanus) | 0.0075 - 0.028 mg/l, 96 hours |

\* Estimates for product may be based on additional component data not shown.

|                                      |                                                                                                                                                                                         |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Persistence and degradability</b> | None known.                                                                                                                                                                             |
| <b>Bioaccumulative potential</b>     | No data available.                                                                                                                                                                      |
| <b>Mobility in soil</b>              | No data available.                                                                                                                                                                      |
| <b>Other adverse effects</b>         | No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. |

## 13. Disposal considerations

|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Disposal instructions</b>                 | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. After recovery of precious metals dispose of in compliance with local regulations. |
| <b>Local disposal regulations</b>            | Dispose in accordance with all applicable regulations.                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Hazardous waste code</b>                  | D011: Waste Silver<br>The waste code should be assigned in discussion between the user, the producer and the waste disposal company.                                                                                                                                                                                                                                                                                        |
| <b>Waste from residues / unused products</b> | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).                                                                                                                                                                                                            |
| <b>Contaminated packaging</b>                | Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.                                                                                                                                                                                                                  |

## 14. Transport information

|                                                                                 |                                   |
|---------------------------------------------------------------------------------|-----------------------------------|
| <b>DOT</b>                                                                      | Not regulated as dangerous goods. |
| <b>IATA</b>                                                                     | Not regulated as dangerous goods. |
| <b>IMDG</b>                                                                     | Not regulated as dangerous goods. |
| <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | Not applicable.                   |

## 15. Regulatory information

|                                                                      |                                                                                                                                                                           |         |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>US federal regulations</b>                                        | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.<br>All components are on the U.S. EPA TSCA Inventory List. |         |
| <b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)</b> | Not regulated.                                                                                                                                                            |         |
| <b>CERCLA Hazardous Substance List (40 CFR 302.4)</b>                |                                                                                                                                                                           |         |
|                                                                      | SILVER SULFATE (CAS 10294-26-5)                                                                                                                                           | Listed. |
| <b>SARA 304 Emergency release notification</b>                       | Not regulated.                                                                                                                                                            |         |

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories**  
Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312** Yes  
**Hazardous chemical**

**SARA 313 (TRI reporting)**

| Chemical name  | CAS number | % by wt. |
|----------------|------------|----------|
| SILVER SULFATE | 10294-26-5 | 100      |

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Not regulated.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Clean Water Act (CWA)** Priority pollutant  
**Section 112(r) (40 CFR** Toxic pollutant  
**68.130)**

**Safe Drinking Water Act** Not regulated.  
**(SDWA)**

**US state regulations****US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)**

Not listed.

**US. Massachusetts RTK - Substance List**

Not regulated.

**US. New Jersey Worker and Community Right-to-Know Act**

SILVER SULFATE (CAS 10294-26-5)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Not listed.

**US. Rhode Island RTK**

Not regulated.

**US. California Proposition 65**

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**International Inventories**

| Country(s) or region        | Inventory name                                                         | On inventory (yes/no)* |
|-----------------------------|------------------------------------------------------------------------|------------------------|
| Australia                   | Australian Inventory of Chemical Substances (AICS)                     | Yes                    |
| Canada                      | Domestic Substances List (DSL)                                         | Yes                    |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | Yes                    |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes                    |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | Yes                    |
| Korea                       | Existing Chemicals List (ECL)                                          | No                     |
| New Zealand                 | New Zealand Inventory                                                  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | Yes                    |

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

**Issue date** December-23-2014

**Version #** 01

Material name: SILVER SULFATE, REAGENT (ACS)

**Disclaimer**

GFS Chemicals cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

**Revision Information**

Product and Company Identification: Physical States  
Hazards Identification: US Hazard Categories  
Composition / Information on Ingredients: Disclosure Overrides  
Physical & Chemical Properties: Multiple Properties  
Regulatory Information: United States