### Section 1. Chemical Product and Company Identification

<table>
<thead>
<tr>
<th>Common Name/Trade Name</th>
<th>Silver metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248</td>
</tr>
<tr>
<td>Commercial Name(s)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Synonym</td>
<td>Silver foil; Silver, granular; Silver shot; Silver metal wool</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Silver</td>
</tr>
<tr>
<td>Chemical Family</td>
<td>Element. (Inert material.)</td>
</tr>
<tr>
<td>Chemical Formula</td>
<td>Ag</td>
</tr>
<tr>
<td>Supplier</td>
<td>SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248</td>
</tr>
</tbody>
</table>

**Chemical Formula:**

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS #</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
<th>CEIL (mg/m³)</th>
<th>% by Weight</th>
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</thead>
<tbody>
<tr>
<td>1) Silver metal</td>
<td>7440-22-4</td>
<td>0.01</td>
<td></td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

### Section 2. Composition and Information on Ingredients

**Toxicological Data on Ingredients**

*Silver metal:*
  - ORAL (LD50): Acute: 100 mg/kg [Mouse]. >2000 mg/kg [Rat].

### Section 3. Hazards Identification

#### Potential Acute Health Effects
- Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

#### Potential Chronic Health Effects
- CARCINOGENIC EFFECTS: Not available.
- MUTAGENIC EFFECTS: Not available.
- TERATOGENIC EFFECTS: Not available.
- DEVELOPMENTAL TOXICITY: Not available.
- Repeated or prolonged exposure is not known to aggravate medical condition.
Section 4. First Aid Measures

**Eye Contact**
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

**Skin Contact**
Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

**Serious Skin Contact**
Not available.

**Inhalation**
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation**
Not available.

**Ingestion**
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion**
Not available.

Section 5. Fire and Explosion Data

**Flammability of the Product**
Non-flammable.

**Auto-Ignition Temperature**
Not available.

**Flash Points**
Not available.

**Flammable Limits**
Not available.

**Products of Combustion**
Some metallic oxides.

**Fire Hazards in Presence of Various Substances**
Not available.

**Explosion Hazards in Presence of Various Substances**
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions**
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards**
Not available.

**Special Remarks on Explosion Hazards**
Contact of metallic silver or soluble silver compounds with acetylene may cause formation of silver acetylide that is sensitive to shock.

Section 6. Accidental Release Measures

**Small Spill**
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

**Large Spill**
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
Section 7. Handling and Storage

Precautions

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids.

Storage

Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Safety glasses. Lab coat. Gloves (impervious).

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits

TWA: 0.1 (mg/m³) from ACGIH (TLV) [United States]
TWA: 0.01 (mg/m³) from OSHA (PEL) [United States]
TWA: 0.01 from NIOSH
TWA: 0.1 (mg/m³) [Australia]
TWA: 0.1 (mg/m³) [United Kingdom (UK)]

Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance Solid. (Metal solid. Lustrous solid.)

Molecular Weight 107.87 g/mole

pH (1% soln/water) Not applicable.

Boiling Point 2212°C (4013.6°F)

Melting Point 961°C (1761.8°F)

Critical Temperature Not available.

Specific Gravity 10.49 (Water = 1)

Vapor Pressure Not applicable.

Vapor Density Not available.

Volatility Not available.

Odor Threshold Not available.

Water/Oil Dist. Coeff. Not available.

Ionicity (in Water) Not available.

Dispersion Properties Not available.

Solubility Insoluble in cold water, hot water. Insoluble in alkali. Soluble in Nitric acid, hot Sulfuric acid.

Section 10. Stability and Reactivity Data

Stability The product is stable.

Instability Temperature Not available.

Conditions of Instability Heat, dust generation, incompatible materials

Incompatibility with various substances Reactive with oxidizing agents, acids.
**Silver metal**

Corrosivity

Non-corrosive in presence of glass.

Special Remarks on Reactivity

Incompatible with oxalic acid, tartaric acid, acetylene compounds, aziridine, 3-bromopropyne, carboxylic acids, copper + ethylene glycol, electrolytes + zinc; ethylene oxide; ethyl hydroperoxide, iodoform, azonides, peroxomonsulfuric acid, peroxymonosulfuric acid, ammonia, hydrogen peroxide, bromoazide, chlorine, trifluoride, ethyleneimine

Readily reacts with dilute nitric acid, hot concentrated sulfuric acid

Special Remarks on Corrosivity

Not available.

Polymerization

Will not occur.

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**Section 11. Toxicological Information**

**Routes of Entry**

Inhalation. Ingestion.

**Toxicity to Animals**

Acute oral toxicity (LD50): 100 mg/kg [Mouse]. >2000 mg/kg [Rat]

**Chronic Effects on Humans**

Not available.

**Other Toxic Effects on Humans**

Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals**

Lethal Dose (LD) [Mouse] = >10000 mg/kg

**Special Remarks on Chronic Effects on Humans**

Not available.

**Special Remarks on Other Toxic Effects on Humans**

Acute Potential Health Effects:

Skin: The material in wool form may cause skin irritation by mechanical action. The material in granular form may cause skin irritation by mechanical action. It may be imbedded in the skin following dermal exposure. The material in shot or foil form is not expected to cause skin irritation.

Eyes: The material in granular form may cause eye irritation by mechanical action if smaller particles become airborne. It it becomes airborne, it may be deposited into the eyes forming permanent blue-grey stains in the eyes. The material in foil, shot form, or wool form is not an eye irritation hazard and will not cause eye irritation.

Inhalation: The material in granular form may cause respiratory tract irritation by mechanical action if smaller particles become airborne. If the material in granular form becomes airborne, it may be deposited into the lungs following inhalation. A silver "tattoo" of nasal mucosa may also occur. It may cause pulmonary edema. The material in foil or shot form does not pose an inhalation hazard.

Ingestion: Can cause gastrointestinal distress, abdominal pain, vomiting rigidity, convulsions, dizziness, gait disorders. Material in foil form is not expected to be an ingestion hazard since it unlikely to be ingested.

Chronic Potential Health Effects:

Chronic exposure to silver in the granular form may cause Argyria, a gray-blue pigmentation of the skin or organs due to accumulation of impregnated metallic silver powder or granules. Repeated or prolonged ingestion may also cause kidney damage.

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**Section 12. Ecological Information**

**Ecotoxicity**

Not available.

**BOD5 and COD**

Not available.

**Products of Biodegradation**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation**

The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation**

Not available.
### Section 13. Disposal Considerations

**Waste Disposal**  
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14. Transport Information

**DOT Classification**  
Not a DOT controlled material (United States).

**Identification**  
Not applicable.

**Special Provisions for Transport**  
Not applicable.

**DOT (Pictograms)**

### Section 15. Other Regulatory Information and Pictograms

**Federal and State Regulations**
- New York release reporting list: Silver metal
- Pennsylvania RTK: Silver metal
- Minnesota: Silver metal
- Michigan critical material: Silver metal
- Massachusetts RTK: Silver metal
- New Jersey: Silver metal
- New Jersey spill list: Silver metal
- Louisiana spill reporting: Silver metal
- California Director’s List of Hazardous Substances: Silver metal
- TSCA 8(b) inventory: Silver metal
- SARA 313 toxic chemical notification and release reporting: Silver metal
- CERCLA: Hazardous substances.: Silver metal: 1000 lbs. (453.6 kg)

**California Proposition 65 Warnings**
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

**Other Regulations**
- EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 231-131-3).
- Canada: Listed on Canadian Domestic Substance List (DSL).
- China: Listed on National Inventory.
- Japan: Not listed on National Inventory (ENCS).
- Korea: Listed on National Inventory (KECI).
- Philippines: Listed on National Inventory (PICCS).
- Australia: Listed on AICS.

**Other Classifications**
- WHMIS (Canada): Not controlled under WHMIS (Canada).
- DSCL (EEC): This product is not classified according to the EU regulations.

**HMIS (U.S.A.)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Hazard</td>
<td>1</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protec.</td>
<td>B</td>
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</tbody>
</table>

**WHMIS (Canada) (Pictograms)**

[Image of WHMIS (Canada) pictograms]

**Warnings**
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.
- California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

### Continued on Next Page
Section 16. Other Information

MSDS Code S3350

References Not available.

Other Special Considerations Not available.

Validated by Sonia Owen on 6/28/2013.
Verified by Sonia Owen.

CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.