Trace Sciences International Corp.
40 Vogell Road, Suite 42
Richmond Hill, ON • L4B 3N6 • Canada
Tel: 905-770-1100 • Fax: 905-770-1160
Email: sales@tracesciences.com

Trace Sciences International Inc.
501 Silverside Road, Suite 342
Wilmington, DE • 19809 • USA
Tel: 1-855-483-4977
Website: www.tracesciences.com

# SAFETY DATA SHEET

## Section 1: Identification

| | |
|---|---|
| Product name: | Silver (metal powder) |
| Product use: | For laboratory research purposes. |
| Supplier: | Trace Sciences International<br>40 Vogell Rd Suite 42<br>Richmond Hill, ON L4B 3N6<br>CANADA |
| Telephone: | +1 905-770-1100 |
| Fax: | +1 905-770-1160 |
| Emergency Phone: | CANUTEC +1-613-996-6666 |

## Section 2: Hazard(s) Identification

### 2.1 GHS Classification

Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

### 2.2 GHS Label elements, including precautionary statements

**Pictogram**

**Signal word** Warning

**Hazard statement(s):**

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statement(s):**

P273 Avoid release to the environment.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

## Section 3: Composition/ Information on Ingredients

**Formula** : Ag
**Molecular Weight** : 107.87 g/mol

| Material | CAS-No. | EC-No. | Index-No. | Concentration |
|---|---|---|---|---|
| Silver | 7440-22-4 | 231-131-3 | - | <=100% |

## Section 4: First-Aid Measures

### 4.1 Description of first aid measures

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move person out of dangerous area if safe to do so.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water for at least 15 minutes. Use chemical shower if available. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Remove contacts if possible.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## Section 5: Fire-Fighting Measures

**5.1 Conditions of flammability**
No data available

**5.2 Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.3 Hazardous combustion products**
Hazardous decomposition products formed under fire conditions: Silver/silver oxides

**5.4 Special protective equipment for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**5.5 Further information**
Prevent fire extinguishing water from contaminating surface water or the ground water system.

## Section 6: Accidental Release Measures

**6.1 Personal precautions**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**6.2 Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal.

## Section 7: Handling and Storage

**7.1 Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**7.2 Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Store under inert gas.

## Section 8: Exposure Controls/Personal Protection

### 8.1 Components with workplace control parameters

| Components | CAS-No. | Value | Control parameters | Basis |
|---|---|---|---|---|
| Silver | 7440-22-4 | TWAEV | 0.1 mg/m$^3$ | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| | | TWA | 0.1 mg/m$^3$ | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | | TWA | 0.1 mg/m$^3$ | Canada. British Columbia OEL |
| | | STEL | 0.03 mg/m$^3$ | Canada. British Columbia OEL |
| | | TWA | 0.1 mg/m$^3$ | USA. ACGIH Threshold Limit Values (TLV) |

### 8.2 Personal protective equipment

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Impervious clothing, flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Specific engineering controls**
Use mechanical exhaust or laboratory fume hood to avoid exposure.

## Section 9: Physical and Chemical Properties

**Appearance**

| | |
|---|---|
| Form | Sold |
| Colour | No data available |

**Safety Data**

| | |
|---|---|
| pH | No data available |

| | |
|---|---|
| Melting point/freezing point | 960 °C (1,760 °F) |
| Boiling point | 2,212 °C (4,014 °F) |
| Flash point | No data available |
| Flammability (solid, gas) | The product is not flammable. |
| Ignition temperature | No data available |
| Auto-ignition temperature | No data available |
| Lower explosion limit | No data available |
| Upper explosion limit | No data available |
| Vapour pressure | No data available |
| Density | 10.49 g/cm$^3$ |
| Water solubility | Insoluble |
| Partition coefficient: n-octanol/water | Not applicable for inorganic substances |
| Relative vapour density | No data available |
| Odour | No data available |
| Odour Threshold | No data available |
| Evaporation rate | No data available |

## Section 10: Stability and Reactivity

**10.1 Chemical stability**
Stable under recommended storage conditions

**10.2 Possibility of hazardous reactions**
Risk of explosion with:
Ammonia, ammonium compounds, ethanol, nitric acid, oxalic acid, performic acid, acetylidene

Risk of ignition or formation of inflammable gases or vapours with:
Halogen-halogen compounds, nitric acid, conc. sulfuric acid

Exothermic reaction with:
Azides, ethylene oxide, peroxi compounds, organic substances

**10.3 Conditions to avoid**
No data available

**10.4 Materials to avoid**
No data available

**10.5 Hazardous decomposition products**
See section 5

## Section 11: Toxicological Information

**Acute toxicity**

**Oral**
LD50 Oral - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 401)
Remarks: (ECHA)

**Inhalation**
LC50 Inhalation - Rat - male and female - 4 h - > 5.16 mg/l - dust/mist
(OECD Test Guideline 436)
Remarks: (ECHA)

**Dermal**
LD50 Dermal - Rat - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)
Remarks: (ECHA)

**Other information on acute toxicity**
No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

**Respiratory or skin sensitization**
Guinea pig
Result: negative
(OECD Test Guideline 406)
Remarks: (ECHA)

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
No data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
No data available

**Aspiration hazard**
No data available

**Signs and Symptoms of Exposure**
No data available

**Additional Information**
RTECS: Not available

## Section 12: Ecological Information

**12.1 Toxicity**

| | |
|---|---|
| Toxicity to fish | Semi-static test LC50 - Pimephales promelas (fathead minnow) - 0.0021 mg/l - 96 h<br>Remarks: (ECOTOX Database) |

| | |
|---|---|
| | Flow-through test NOEC - Pimephales promelas (fathead minnow) - 0.00046 mg/l - 34 d<br>Remarks: (ECHA) |
| Toxicity to daphnia and other aquatic invertebrates | Semi-static test LC50 - Daphnia magna (Water flea) - 0.00022 mg/l - 48 h<br>Remarks: (ECHA) |
| | Semi-static test NOEC - Daphnia magna (Water flea) - 0.00016 mg/l - 21 d<br>Remarks: (ECHA) |
| Toxicity to algae | Static test EC50 - Pseudokirchneriella subcapitata (green algae) - 0.000285 mg/l - 72 h<br>(OECD Test Guideline 201)<br>Remarks: (ECHA) |
| | Static test EC10 - Pseudokirchneriella subcapitata (green algae) - 0.000005 mg/l - 72 h<br>(OECD Test Guideline 201)<br>Remarks: (ECHA) |

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
No data available

**12.4 Mobility in soil**
No data available

**12.5 PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**
Discharge into the environment must be avoided.

## Section 13: Disposal Considerations

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
Dispose of as unused product.

## Section 14: Transport Information

**IATA**
UN number: UN3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Silver)

## Section 15: Regulatory Information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

## Section 16: Other Information

**Further information**
Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for his or her particular purpose(s).

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