

SAFETY DATA SHEET

Section 1: Identification

Product name: Silver nitrate
Product use: For laboratory research purposes.
Supplier: Trace Sciences International
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Richmond Hill, ON L4B 3N6
CANADA
Telephone: +1 905-770-1100
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Section 2: Hazard(s) Identification

2.1 GHS Classification

Oxidizing solids (Category 2), H272
Corrosive to Metals (Category 1), H290
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Reproductive toxicity (Category 1B), H360
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

Danger

Hazard statement(s):

H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H360 May damage fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects

Precautionary statement(s):

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials.
P234 Keep only in original packaging.
P260 Do not breathe dust.
P264 Wash 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): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

| | |
|------------------------------|--|
| P305 + P351 + P338 + P310 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. |
| P308 + P313 P363 | IF exposed or concerned: Get medical advice/ attention. Wash contaminated clothing before reuse. |
| P370 + P378 | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |
| P390 | Absorb spillage to prevent material damage. |
| P391 | Collect spillage. |
| P405 | Store locked up. |
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

Section 3: Composition/ Information on Ingredients

Formula : AgNO₃
Molecular Weight : 169.87 g/mol

| Material | CAS-No. | EC-No. | Index-No. | Concentration |
|----------------|-----------|-----------|--------------|---------------|
| Silver nitrate | 7761-88-8 | 231-853-9 | 047-001-00-2 | <=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: Nitrogen oxides (NO_x), Silver/silver oxides

5.4 Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.5 Further information

Use water spray to cool unopened containers.

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. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.

7.2 Conditions for safe storage

No metal containers.

Light sensitive.

Keep container tightly closed in a dry and well-ventilated place.

Section 8: Exposure Controls/Personal Protection

8.1 Components with workplace control parameters

| Components | CAS-No. | Value | Control parameters | Basis |
|----------------|-----------|-------|------------------------|---|
| Silver nitrate | 7761-88-8 | TWA | 0.01 mg/m ³ | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | | TWAEV | 0.01 mg/m ³ | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| | | TWA | 0.01 mg/m ³ | Canada. British Columbia OEL |
| | | STEL | 0.03 mg/m ³ | Canada. British Columbia OEL |
| | | TWA | 0.01 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 | Solid |
| Colour | Colourless |

Safety Data

| | |
|--|--|
| pH | No data available |
| Melting point/freezing point | 212 °C (414 °F) |
| Boiling point | 440 °C (824 °F) - Decomposes on heating. |
| Flash point | No data available |
| Flammability (solid, gas) | No data available |
| 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 | 4.350 g/cm ³ |
| Water solubility | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Relative vapour density | No data available |
| Odour | odourless |
| Odour Threshold | No data available |
| Evaporation rate | No data available |

Section 10: Stability and Reactivity

10.1 Chemical stability

Stable under recommended storage conditions. Decomposes on exposure to light.

10.2 Possibility of hazardous reactions

No data available

10.3 Conditions to avoid

Light.

10.4 Materials to avoid

Strong reducing agents, alcohols, ammonia, magnesium, strong bases, aluminum, mild steel, metals

10.5 Hazardous decomposition products

See section 5

Section 11: Toxicological Information

Acute toxicity

Oral

No data available

Inhalation

No data available

Dermal

No data available

Other information on acute toxicity

No data available

Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE)
Result: Causes severe burns. - 3 - 60 min
(OECD Test Guideline 431)

Serious eye damage/eye irritation

Eyes - Rabbit
Result: Causes serious eye damage.
Remarks: (ECHA)
Remarks: Risk of permanent damage due to staining of the cornea.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Micronucleus test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 476
 Result: Positive results were obtained in some in vitro tests.

Test Type: Micronucleus test
 Species: Rat
 Application Route: Gavage
 Method: OECD Test Guideline 474
 Result: Positive results were obtained in some in vivo tests.

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

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver). Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 52 Days - NOAEL (No observed adverse effect level) - >= 250 mg/kg

RTECS: VW4725000

Section 12: Ecological Information

12.1 Toxicity

| | |
|---|--|
| Toxicity to fish | Semi-static test LC50 - Pimephales promelas (fathead minnow) - 0.0012 mg/l - 96 h (US-EPA) |
| Toxicity to daphnia and other aquatic invertebrates | Semi-static test LC50 - Daphnia magna (Water flea) - 0.00022 mg/l - 48 h Remarks: (ECHA) |
| Toxicity to algae | Static test ErC50 - Raphidocelis subcapitata (freshwater green alga) - 0.00252 mg/l - 72 h (OECD Test Guideline 201) |
| | Static test EC10 - Raphidocelis subcapitata (freshwater green alga) - 0.00046 mg/l - 72 h (OECD Test Guideline 201) |
| Toxicity to fish (Chronic toxicity) | Flow-through test NOEC - Pimephales promelas (fathead minnow) - 0.000351 mg/l - 34 d |

Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) Semi-static test EC10 - Daphnia magna (Water flea) - 0.0027 mg/l - 21 d
Remarks: (ECHA)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Bioaccumulation: Cyprinus carpio (Carp) - 41 d at 20 °C (Silver nitrate)

Bioconcentration factor (BCF): 70

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

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

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. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

Section 14: Transport Information

IATA

UN number: UN1493 Class: 5.1 Packing group: II
Proper shipping name: Silver nitrate

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

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