

SILVER

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1. Product Identification

Synonyms: Argentum

CAS No.: 7440-22-4

Atomic Weight: 107.868

Chemical Formula: Ag

Product Codes: CHEM-114 and others.

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Silver	7440-22-4	99.9-100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED. MAY CAUSE ALLERGIC REACTION AND BREATHING DIFFICULTIES. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

SAF-T-DATA^(tm) Ratings

Health Rating: 2 - Moderate (Powder); 0 - None (Solid)

Flammability Rating: 3 - Severe (Powder); 0 - None (Solid)

Reactivity Rating: 1 - Slight (Powder); 0 - None (Solid)

Contact Rating: 2 - Moderate (Powder); 0 - None (Solid)

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

Effects of Exposure:

The absorption of silver compounds into the circulation and the subsequent deposition to the reduced silver in various tissues of the body may result in the production of a generalized greyish pigmentation of the skin and mucous membranes, a condition known as argyria. The introduction of fine particles of silver through breaks in the skin produces a local pigmentation at the site of the injury. 1 mg/m³ of silver dust causes skin effects. The condition develops slowly, usually after 2-25 years of exposure. (Sax, Dangerous Properties of Industrial Materials)

Acute Effects:

Inhalation:

May cause irritation to the upper respiratory system, pulmonary edema, pulmonary fibrosis and lung damage.

Ingestion:

May cause gastrointestinal disturbances.

Skin:

May cause irritation.

Eye:

May cause irritation.

Chronic Effects:**Inhalation:**

May cause argyrosis, bronchitis, headache, fatigue, sinusitis, weight loss and kidney injury.

Ingestion:

May cause kidney injury.

Skin:

May cause argyrosis and dermatitis.

Eye:

May cause argyrosis.

Target Organs:

May affect the respiratory system, skin, eyes and kidney.

Carcinogenicity:

NTP: No IARC: No OSHA: No

4. First Aid Measures

Inhalation:

Remove victim to fresh air, keep warm and quiet, give oxygen if breathing is difficult and seek medical attention.

Ingestion:

Give 1-2 glasses of water or milk and induce vomiting. Seek medical attention. Never give anything by mouth or induce vomiting in an unconscious person.

Skin Contact:

Brush material off affected area and flush with running water for 15 minutes. Wash carefully with soap and water. Cleanse wounds thoroughly to remove any particles. If a skin rash occurs, seek medical attention.

Eye Contact:

Flush with large amounts of water for at least 15 minutes, then seek medical attention.

5. Fire Fighting Measures

Flash Point:

N/A

Extinguishing Media:

N/E

Flammable Limits:

Upper: N/A Lower: N/A

Extinguishing Media:

Dry powder or carbon dioxide should be used on surrounding fire. Do not use water on fire where molten metal is present.

Special Fire Fighting Procedures:

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosion Hazards:

Silver dust is considered a moderate fire hazard when exposed to a flame or by chemical reaction with C_2H_2 ; NH_3 ; bromozide, ClF_3 ; ethylenimine; H_2SO_4 ; tartaric acid.

6. Accidental Release Measures

Steps to Be Taken If Spilled or Released:

Wear appropriate respiratory and protective equipment specified in section VIII. For clean-ups involving powder or dust: Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust. Use non-sparking tools.

Waste Disposal Method:

Return accumulated residues, wipes etc. for refining. Send to an approved refiner for reclamation of silver. Should waste disposal be necessary, follow federal, state and local regulations.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Respiratory Protection:

Use a NIOSH approved respirator.

Ventilation:

Use process enclosure, local exhaust ventilation, or other engineering controls to maintain exposure below recommended limits.

Protective Gloves:

Suitable gloves must be worn when handling product.

Eye Protection:

Safety glasses as a minimum.

Other Protective Clothing or Equipment:

Wear disposable protective clothing to facilitate recovery after a spill or when handling material in a manner that could produce dust.

9. Physical and Chemical Properties

Appearance:

Grey powder; silvery solid.

Odor:

Odorless.

Solubility:

Insoluble.

Specific Gravity:

10.5 g/cc

pH:

No information found.

% Volatiles by volume @ 21°C (70°F):

0

Boiling Point:

2212°C

Melting Point:

961.9°C

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable

Conditions to Avoid:

Avoid exposure to excessive heat.

Incompatibility (Material to Avoid):

Acetylene and its compounds, hydrogen peroxide, ammonia, aziridine, bromine azide, bromopropane, carboxylic acids, copper + ethylene glycol, electrolytes + zinc, ethanol + nitric acid, ethylene oxide, ethyl hydroperoxide, ethyleneimine, iodoform, nitric acid, ozonides, permonosulfuric acid, peroxyformic acid, C₂H₂, bromoazide, ClF₃, H₂O₂, oxalic acid, H₂SO₄, tartaric acid.

Hazardous Decomposition Products:

Silver oxides

Hazardous Polymerization:

Will not occur

11. Toxicological Information

Toxicological Data:

OSHA/PEL: 0.01 mg/m³

ACGIH/TLV-TWA: 0.1 mg/m³

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

Not regulated.

16. Other Information

NFPA Ratings: Health: 0 Flammability: 0 Reactivity: 0

Label Hazard Warning:

As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes and clothing.

Label Precautions:

None.

Label First Aid:

Not applicable.

Product Use:

Laboratory Reagent and Consumer Hobby.

Revision Information:

None

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