

Silver

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Manufacturer / Supplier:

ESPI Metals

1050 Benson Way, Ashland, OR 97520

Toll Free (800) 638-2581 * Fax (541) 488-8313

E-Mail: sales@espimetals.com

Product Name: Silver

Formula: Ag

CAS Number: 7440-22-4

II. HAZARDOUS INGREDIENTS

Hazardous Component: Silver

Percent (%): 0-100

OSHA / PEL: 0.01 mg/m³

ACGIH / TLV-TWA: 0.1 mg/m³

HMIS Ratings (Powder):

Health: 2

Flammability: 3

Reactivity: 1

HMIS Ratings (Solid):

Health: 0

Flammability: 0

Reactivity: 0

III. PHYSICAL DATA

Boiling Point: 2212 °C

Melting Point: 961.9 °C

Specific Gravity: 10.5 g/cc

Solubility in H₂O: Insoluble

Appearance and Odor: Silver white solid or powder, no odor.

IV. FIRE AND EXPLOSION HAZARDS DATA

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 C₂H₂; NH₃; bromozide, ClF₃; ethylenimine; H₂SO₄; tartaric acid.

V. HEALTH HAZARD INFORMATION

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

EMERGENCY AND FIRST AID PROCEDURES:

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: 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.

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

VI. REACTIVITY DATA

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, peroxformic acid, C_2H_2 , bromoazide, ClF_3 , H_2O_2 , oxalic acid, H_2SO_4 tartaric acid.

Hazardous Decomposition Products: Silver oxides

Hazardous Polymerization: Will not occur

VII. SPILL OR LEAK PROCEDURES

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.

VIII. SPECIAL PROTECTION INFORMATION

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.

IX. SPECIAL PRECAUTIONS

Precautions to Be Taken in Handling and Storage: Wash thoroughly after handling. Keep container tightly closed. Protect silver from tarnishing (sulphur containing atmosphere). Inhalation of dust should be avoided. Take necessary precautions to minimize dust. Dusty situations should be controlled in accordance with accepted ventilation.

Work Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

TSCA Listed: Yes

DOT Regulations:

Solid Forms:

Hazard Class: None

Powders:

Hazard Class: 4.1

Identification Number: 3089

Packing Group: III

Proper Shipping Name: Metal powder, flammable, n.o.s. (silver powder)

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

Issued by: S. Dierks

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