

Material Safety Data Sheet

Identity: Silver

Formula: Ag

SECTION I - GENERAL INFORMATION

Manufacturer: [Stanford Advanced Materials](#) (SAM)

The information below is believed to be accurate and represents the best information available to SAM. However, SAM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Molecular weight: 107.86

CAS #	OSHA PEL	ACGIH TLV	%
7440-22-4	.01mg/m ³	.1mg/m ³	100

SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Physical States: Solid

Boiling Point: 2212.00 °C

Specific Gravity (H₂O=1): 10.5 at 20.0 °C

Melting Point: 961.90 °C

Vapor Pressure (vs. air or mmHg): 0

Evaporation Rate: N/A

Vapor Density (vs. air=1): N/A

Solubility in water: Insoluble

Percent Volatile: N/A

Appearance and odor: White-metallic powder, no odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

Flash Point: N/A

Method Used: N/A

Explosive Limits: LEL: N/A

UEL: N/A

Extinguishing Media:

Use class D or other metal extinguishing agents DO NOT USE Water

Special Fire Fighting Procedures:

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire and Explosion Hazards:

Flammable in the form of dust when exposed to flame or by chemical reaction with C₂H₂, NH₃, bromazide, ClF₃, ethyleneimine, H₂O₂, oxalic acid, H₂SO₄, and tartic acid

SECTION V - REACTIVITY DATA

Stability: Stable

Conditions to Avoid (stability): None

Incompatibility: 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, peromonosulfuric acid, peroformic acid, C₂H₂, Bromoazide, ClF₃, H₂O₂, oxalic acid, H₂SO₄, and tartaric acid

Hazardous Decomposition or Byproducts: Silver oxide

Hazardous Polymerization: Will not occur

Conditions to avoid (hazardous polymerization): None

SECTION VI - HEALTH HAZARD DATA

Routes of entry: Inhalation? Yes Skin? No Eyes? No Ingestion? Yes Other? No

Signs and Symptoms of Overexposure:

Inhalation: May cause a red, dry throat, and coughing

Ingestion May cause abdominal distress, nausea and vomiting

Skin: May cause redness, itching, burning and bluish-grey skin

Eye: May cause redness, burning, itching, and watering

Health Hazards (Acute and Chronic):

The absorption of silver compounds into the circulation and the subsequent deposition to the reduced solver in various tissues may result in the production of a generalized pigmentation of the skin and mucous membranes. 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, eighth edition)

Inhalation:

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

Chronic: May cause bronchitis, headache, fatigue, sinusitis, weight loss and kidney injury

Ingestion:

Acute: May cause gastrointestinal disturbances

Chronic: May cause kidney damage

Skin:

Acute: May cause irritation

Chronic: May cause dermatitis

Eye:

Acute: May cause irritation

Chronic: May cause skin discoloration

Target Organs: Skin, eyes, respiratory system and kidneys

Medical Conditions Aggravated by Exposure: None

Carcinogenicity: NTP? No

IARC Monographs? No

OSHA Regulated? No

Emergency and First Aid Procedures:

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

Ingestion: Give 1-2 glasses of milk or water and induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person

Skin: Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist

Eye: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken in case material is released or spilled:

Wear appropriate respiratory and protective equipment specified in section VIII. 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.

Waste disposal method:

Dispose of in accordance with state, local, and federal regulations.

Hazard Label Information:

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

SECTION VIII - CONTROL MEASURES

Protective Equipment Summary (Hazard Label Information):

NIOSH approved respirator, impervious rubber gloves, safety glasses, clothes to prevent contact.

Ventilation:

Use process enclosures, local exhaust or other engineering controls to manage airborne levels below recommended exposure limits

Work/Hygienic/Maintenance 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 or smoking. Do not blow dust off clothing or skin with compressed air.