

**MATERIAL SAFETY DATA SHEET
FOR
THORN SMITH LABORATORIES
ANALYZED QUANTITATIVE UNKNOWNNS**

Silver Alloy
Catalog Number 80-1480, 80-1485, 80-1487, 80-1488, 80-1489

Manufacturer: Auric Enterprises, Inc.
d/b/a Thorn Smith Laboratories
Address: 7755 Narrow Gauge Road
Beulah, MI 49617
Phone Number: 231-882-4672
MSDS Number: TSL-032
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SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS - Chemical Name & Common Name
(Hazardous Components 1% or greater; Carcinogens 0.1% or greater)

Silver

Formula: Ag
CAS No.: 7740-22-4
Formula Weight: 107.87
Synonyms: Argentum, Shell Silver
OSHA PEL: 0.01 mg/m³
ACGIH TLV: 0.01 mg/m³
OTHER LIMITS: N/A

Copper

Formula: Cu
CAS No.: 7440-50-8
Formula Weight: 63.54
Synonyms: Bronze powder, copper bronze
OSHA PEL: 1 mg/m³ (mist and dust); 0.01 mg/m³ (fume)
ACGIH TLV: 1 mg/m³ (mist and dust); 0.02 mg/m³ (fume)
OTHER LIMITS: N/A

SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 2212° F (Ag); 2324° F (Cu)

Specific Gravity (H₂O=1): N/A

Vapor Pressure (mm Hg and Temperature): 1 mm @ 1628° (Cu)

Melting Point: 962° C (Ag); 1083° C (Cu)

Vapor Density (Air-1): 10.50 @ 20° (Ag); 8.92 (Cu)

Evaporation Rate (-1): N/A

Solubility in Water: N/A

Water Reactive: No

Appearance and Odor: Soft, ductile, malleable lustrous metal (Ag); distinct reddish metal (Cu).

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method Used: Metal products are not a fire hazard. However, dust generated in grinding operations may present a fire or explosion hazard.

Auto-Ignition Temperature: N/A

Flammability Limits in Air (% by Volume): N/A

LEL: N/A UEL: N/A

Extinguisher Media: Special mixtures of dry chemical suitable for metal fires.

Special Fire Fighting Procedures: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in the positive pressure mode.

Unusual Fire and Explosion Hazards: N/A

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY: Stable Unstable

Conditions to Avoid: No information found.

Incompatibility (Materials to Avoid): Acetylene, ammonia and hydrogen peroxide (Ag); Copper reacts violently with acetylene, ammonium nitrate, bromates, chlorates, iodates, chlorine, ClF₃, ethylene oxide, fluorine, hydrogen peroxide, hydrazic acid, hydrogen sulfide, Pb(N₃)₂, K₂O₂, Na N₃ and Na₂O₂. Copper is incompatible with 1-bromo-2-propyne. Copper fume is incompatible with acetylene gas. Copper dust and mist are incompatible with acetylene gas and magnesium metal.

Hazardous Decomposition Products: N/A

HAZARDOUS POLYMERIZATION: May Occur Will Not Occur

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY:

Inhalation Ingestion Skin Contact Eye Contact Not Hazardous

CARCINOGEN LISTED IN:

NTP OSHA IARC Monograph Not Listed

TOXICITY: An experimental tumorigen. Human systemic skin effects. (Ag)

Poison to humans by ingestion. (Cu)

HEALTH HAZARDS - Acute:

Inhalation: Excessive inhalation of fumes from many metals can produce an acute reaction known as "metal fume fever." Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms) which come on a few hours after large exposures. Long-term effects of metal fume fever have not been noted.

Ingestion: Poison to humans by ingestion. (Cu)

Skin Contact: N/A

Eye Contact: N/A

HEALTH HAZARDS - Chronic:

Inhalation: May localize the argyria in the respiratory tract with chronic bronchitis as the only symptom (Ag). Industrial exposure to copper fumes, dusts or mists results in metal fume fever with atrophic changes in nasal mucous membranes.

Skin Contact: Chronic occupational exposure to silver results in argyria, a permanent pigmentation (gray to purple) to the skin. Localized argyria may occur on the skin from handling metallic silver, from embedded particles or from skin absorption.

Eye Contact: Chronic occupational exposure to silver results in argyria, a permanent pigmentation (gray to purple) to the eyes.

Ingestion: Chronic poisoning results in Wilson's Disease, characterized by a hepatic cirrhosis, brain damage, demyelination, renal disease and copper deposition in the cornea.

Signs and Symptoms of Exposure: No information found.

Medical Conditions Generally Aggravated by Exposure: See Above.

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation, and support if necessary.

Inhalation: If acute overexposure to fumes occurs, move the exposed person from the adverse environment and seek medical attention.

Ingestion: If particles are ingested, give 1 to 2 glasses of water or milk. Induce vomiting only if victim is fully conscious and has not convulsed. All ingestion cases should have immediate medical aid.

Skin Contact: Remove any contaminated clothing. Wipe off excess from skin. Immediately wash skin with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

Acute: Yes Chronic: Yes Flammability: Yes Pressure: No Reactivity: No

Extremely Hazardous Substance: No
CERCLA Hazardous Substance: Yes
SARA 313 Toxic Chemicals: Yes
TSCA Inventory: Yes (Ag); No (Cu)

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (Specify Type): When engineering or administrative controls are not feasible to control overexposure or while they are being instituted, appropriate NIOSH approved respirators should be used and selected according to 29 CFR 1910.134.

Protective Gloves: As needed to protect against physical hazards.

Eye Protection: Wear chemical safety goggles.

VENTILATION TO BE USED: General or local exhaust ventilation to keep fume or dust levels as low as possible.

Local Exhaust Mechanical (General) Special
 Other (Specify)

Other Protective Clothing and Equipment: Wear clean body-covering clothing.

Hygienic Work Practices: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. Keep away from incompatibles.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING & USE/LEAK PROCEDURES

Steps to be taken if material is spilled or released: Wear suitable protective clothing. Clean up using methods which avoid dust generation and the use of water, such as a vacuum. If airborne dust is generated during the clean-up, use an appropriate NIOSH-approved respirator.

Waste Disposal Methods: Dispose in accordance with all applicable local, state, and federal environmental regulations.

Precautions to be taken in handling and storage: Keep in a tightly closed container. Suitable for any general chemical storage area. Store in accordance with all applicable local, state, and federal environmental regulations.

Other precautions and/or special hazards: No information available.

NFPA Rating: Health: **1** Flammability: **0** Reactivity: **0**.

HMIS Rating: No information available.

SECTION 8 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

Domestic (D.O.T.)

Proper Shipping Name: Chemicals, n.o.s. (Non-regulated)

International (T.M.O.)

Proper Shipping Name: Chemicals, n.o.s. (Non-regulated)

AIR (I.C.A.O.)

Proper Shipping Name: Chemicals, n.o.s. (Non-regulated)

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