

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Silver, Enriched Silver
Chemical Formula	Ag
Molecular Weight	107.87 amu
CAS No.	7440-22-4
SARA 313	Yes
RTECS No.	VW3500000
Synonyms	Argentum, Shell silver
Supplier Address*	ISO FLEX USA PO Box 29475 San Francisco CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISO FLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview:

OSHA Hazards:	No known OSHA hazards
GHS:	Not a dangerous substance or mixture, according to the Globally Harmonized System.

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 1



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Physical Hazard = 1

HEALTH HAZARD	0
FLAMMABILITY	0
PHYSICAL HAZARD	1

Potential Health Effects

<i>Skin Contact</i>	May cause skin irritation
<i>Skin Absorption</i>	May be harmful if absorbed through the skin
<i>Eye Contact</i>	May cause eye irritation
<i>Inhalation</i>	May be harmful if inhaled; material may be irritating to mucous membranes and upper respiratory tract
<i>Ingestion</i>	May be harmful if swallowed

For additional information on toxicity, please refer to Section 10.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Silver
CAS No.:	7440-22-4
Chemical Formula:	Ag
Molecular Weight:	107.87 amu

4. FIRST AID MEASURES

<i>Oral Exposure</i>	If swallowed, wash out mouth with water provided person is conscious. Call a physician.
<i>Inhalation Exposure</i>	If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
<i>Dermal Exposure</i>	In case of contact, immediately wash skin with soap and copious amounts of water.
<i>Eye Exposure</i>	In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

5. FIREFIGHTING MEASURES

<i>Explosion</i>	Dust Potential: This material, like most materials in powder form, is capable of creating a dust explosion.
<i>Flash Point</i>	N/A
<i>Autoignition Temperature</i>	N/A
<i>Flammability</i>	N/A
<i>Suitable Extinguishing Media</i>	Sand or dry powder-type agents specially designed for metal powder fires

Firefighting

<i>Protective Equipment</i>	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
<i>Specific Hazard(s)</i>	Emits toxic fumes under fire conditions

6. ACCIDENTAL RELEASE MEASURES

<i>Personal Precautions</i>	Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.
<i>Environmental Precautions</i>	Do not let product enter drains.
<i>Methods for Cleaning Up</i>	Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

<i>Handling</i>	Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.
<i>Storage</i>	Keep container closed. Keep away from heat, sparks, and open flame. Store under nitrogen. Air-sensitive.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls Safety shower and eye bath. Mechanical exhaust required.

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.1 mg/m ³ (METAL)
USA	MSHA Standard-air	TWA	0.01 mg/m ³
USA	OSHA. PEL 8H	TWA	0.01 mg(AG)/m ³
New Zealand	OEL		
USA	NIOSH	TWA	0.01 mg/m ³

Personal Protective Equipment

<i>Respiratory</i>	Wear dust mask
<i>Hand</i>	Protective gloves
<i>Eye</i>	Chemical safety goggles
<i>General Hygiene</i>	Wash thoroughly after handling

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

<i>Physical State</i>	Solid
<i>Form</i>	Powder
<i>Color</i>	Grey

Safety Data

Molecular Weight:	107.87 amu	Solubility:	N/A
pH:	N/A	BP/BP Range:	N/A
MP/MP Range:	962 °C	Freezing Point:	N/A
Vapor Pressure:	N/A	Vapor Density:	N/A
Saturated Vapor Concentration:	N/A	SG/Density:	N/A

Bulk Density:	N/A	Odor Threshold:	N/A
Volatile%:	N/A	VOC Content:	N/A
Water Content:	N/A	Solvent Content:	N/A
Evaporation Rate:	N/A	Viscosity:	N/A
Surface Tension:	N/A	Partition Coefficient:	N/A
Decomposition Temperature:	N/A	Flash Point:	N/A
Explosion Limits:	N/A	Flammability:	N/A
Autoignition Temperature:	N/A	Refractive Index:	N/A
Optical Rotation:	N/A	Miscellaneous Data:	N/A

N/A = not available

10. STABILITY AND REACTIVITY

<i>Stable</i>	Stable
<i>Conditions to Avoid</i>	Air
<i>Materials to Avoid</i>	Oxygen, strong acids, strong bases
<i>Hazardous Decomposition</i>	Silver/silver oxides
<i>Products</i>	
<i>Hazardous Polymerization</i>	Will not occur

11. TOXICOLOGICAL INFORMATION

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). To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Acute Toxicity

Oral LD50 LD50 Oral - Rat - Male - > 5,000 mg/kg

Inhalation LC50 No data available

Dermal LD50 No data available

Other Information on Acute Toxicity No data available

Skin Corrosion/Irritation No data available

Serious Eye No data available

*Damage/Eye Irritation
Respiratory or Skin
Sensitization* No data available

Germ Cell Mutagenicity No data available

Carcinogenicity

Carcinogenicity - Rat - Unreported

Tumorigenic Tumors at site of application

Carcinogenicity classification not possible from current data

IARC No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

<i>NTP</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<i>OSHA</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<i>Reproductive Toxicity</i>	No data available
<i>Teratogenicity</i>	No data available
<i>Specific Target Organ Toxicity / Single Exposure (Globally Harmonized System)</i>	No data available
<i>Specific Target Organ Toxicity / Repeated Exposure (Globally Harmonized System)</i>	No data available
<i>Aspiration Hazard</i>	No data available
<i>Synergistic Effects</i>	No data available
<i>Additional Information</i>	RTECS: Not available

12. ECOLOGICAL INFORMATION

<i>Toxicity</i>	No data available
<i>Persistence and Degradability</i>	No data available
<i>Bioaccumulative Potential</i>	No data available
<i>Mobility in Soil</i>	No data available
<i>PBT and vPvB Assessment</i>	No data available
<i>Other Adverse Effects</i>	No data available

Silver metal is relatively insoluble, and therefore poses minimal ecological risks. However, its processing, use or extended exposure in aquatic and terrestrial environments may result in conversion of the metal to more bioavailable forms. In particular, silver compounds can be highly toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

<i>Product</i>	Material in the elemental state should be recovered for reuse or recycling. Observe all federal, state, and local environmental regulations.
<i>Contaminated Packaging</i>	Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT

<i>Proper Shipping Name</i>	None
<i>Non-Hazardous for Transport</i>	This substance is considered to be non-hazardous for transport.

IATA

<i>Non-Hazardous for Air Transport</i>	Non-hazardous for air transport
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15. REGULATORY INFORMATION

OSHA Hazards

No known OSHA hazards

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components	The following components are subject to reporting levels established by SARA Title III, Section 313: Silver / CAS No. 7440-22-4 / Revision Date 1993-04-24.
SARA 311/312 Hazards	No SARA 311/312 hazards
Massachusetts Right to Know Components	Silver / CAS No. 7440-22-4 / Revision Date 1993-04-24
Pennsylvania Right to Know Components	Silver / CAS No. 7440-22-4 / Revision Date 1993-04-24
New Jersey Right to Know Components	Silver / CAS No. 7440-22-4 / Revision Date 1993-04-24
California Prop. 65 Components	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

<i>Prepared By</i>	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
<i>Issuing Date</i>	January 12, 2014
<i>Revision Date</i>	July 29, 2021
<i>Revision Number</i>	2
<i>Revision Note</i>	Required review and update

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)

EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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