

Monodispersed Silver Nanoparticles	Pricing >
Silver Anodes	Pricing >
Silver Balls	Pricing >
Silver Band	Pricing >
Silver Bars	Pricing >
Silver Blocks	Pricing >
Silver Chunk	Pricing >
Silver Coil	Pricing >
Silver Concentrate	Pricing >
Silver Crucibles	Pricing >
Silver Cubes	Pricing >
Silver Cylinder	Pricing >
Silver Disc	Pricing >
Silver Flake	Pricing >
Silver Flange	Pricing >
Silver Foam	Pricing >
Silver Foil	Pricing >
Silver Gauze	Pricing >
Silver Granules	Pricing >
Silver Honeycomb	Pricing >
Silver Ingot	Pricing >
Silver Ink	Pricing >
Silver Inquarts	Pricing >
Silver Insulated Wire	Pricing >
Silver Lump	Pricing >
Silver Mesh	Pricing >
Silver Metal	Pricing >
Silver Microfoil	Pricing >
Silver Microleaf	Pricing >
Silver Nanocubes	Pricing >

Silver Nanoparticle Dispersion	Pricing >
Silver Nanoparticle Ink	Pricing >
Silver Nanoparticles	Pricing >
Silver Nanoplates	Pricing >
Silver Nanoprisms	Pricing >
Silver Nanorods	Pricing >
Silver Nanospheres	Pricing >
Silver Nanostars	Pricing >
Silver Nanotubes	Pricing >
Silver Nanowire Dispersion	Pricing >
Silver Nanowire Film	Pricing >
Silver Nanowires	Pricing >
Silver Needles	Pricing >
Silver Particles	Pricing >
Silver Parts	Pricing >
Silver Paste	Pricing >
Silver Pellets	Pricing >
Silver Pieces	Pricing >
Silver Plate	Pricing >
Silver Powder	Pricing >
Silver Puck	Pricing >
Silver Ribbon	Pricing >
Silver Rings	Pricing >
Silver Rod	Pricing >
Silver Rotatable Sputtering Target	Pricing >
Silver Samples	Pricing >
Silver Shavings	Pricing >
Silver Sheet	Pricing >
Silver Shot	Pricing >
Silver Single Crystal	Pricing >
Silver Sleeves	Pricing >
Silver Slugs	Pricing >
Silver Specimen	Pricing >
Silver Spheres	Pricing >

Silver Sponge	Pricing >
Silver Spring	Pricing >
Silver Sputtering Target	Pricing >
Silver Strip	Pricing >
Silver Tape	Pricing >
Silver Tube	Pricing >
Silver Wafer	Pricing >
Silver Wire	Pricing >
Silver Wool	Pricing >
Ultra Thin Silver Nanoscale Foil	Pricing >

Linear Formula	Ag
Pubchem CID	23954
MDL Number	MFCD00003397
EC No.	231-131-3
IUPAC Name	silver
Beilstein/Reaxys No.	N/A
SMILES	[Ag]
Inchl Identifier	InChI=1S/Ag
Inchl Key	BQCADISMDOOEFD-UHFFFAOYSA-N

Signal Word	N/A
Hazard Statements	N/A
Hazard Codes	N/A
Precautionary Statements	P273-P391-P501a
Flash Point	Not applicable
Risk Codes	N/A
Safety Statements	N/A
RTECS Number	N/A
Transport Information	NONH
WGK Germany	3

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SAFETY DATA SHEET

Date Accessed: 04/25/2024

Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifiers: All applicable American Elements product codes for CAS #7440-22-4

Relevant identified uses of the substance:
Scientific research and development

Supplier details:
American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:
Domestic, North America +1 800-424-9300
International +1 703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

The substance is not classified as hazardous to health or the environment according to the CLP regulation.
Classification according to Directive 67/548/EEC or Directive 1999/45/EC

N/A

Information concerning particular hazards for human and environment:

No data available

Hazards not otherwise classified

No data available

Label elements

Labelling according to Regulation (EC) No 1272/2008

N/A

Hazard pictograms

N/A

Signal word

N/A

Hazard statements

N/A

WHMIS classification

Not controlled

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH

FIRE

REACTIVITY

0

0

0
Health (acute effects) = 0
Flammability = 0
Physical Hazard = 0
Other hazards
Results of PBT and vPvB assessment
PBT: N/A
vPvB: N/A

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances
CAS No. / Substance Name:
7440-22-4 Silver
Identification number(s):
EC number: 231-131-3

SECTION 4. FIRST AID MEASURES

Description of first aid measures
General information
No special measures required.
If inhaled:
Seek medical treatment in case of complaints.
In case of skin contact:
Generally the product does not irritate the skin.
In case of eye contact:
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
If swallowed:
If symptoms persist consult doctor.
Information for doctor
Most important symptoms and effects, both acute and delayed
No data available
Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media
Suitable extinguishing agents
Special powder for metal fires. Do not use water.
For safety reasons unsuitable extinguishing agents
Water
Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:

Silver oxides
Advice for firefighters
Protective equipment:
No special measures required.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Not required.
Environmental precautions:
Do not allow material to be released to the environment without official permits.
Do not allow product to enter drains, sewage systems, or other water courses.
Do not allow material to penetrate the ground or soil.
Methods and materials for containment and cleanup:
Pick up mechanically.
Prevention of secondary hazards:
No special measures required.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7. HANDLING AND STORAGE

Handling
Precautions for safe handling
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Information about protection against explosions and fires:
No special measures required.
Conditions for safe storage, including any incompatibilities
Requirements to be met by storerooms and receptacles:
No special requirements.
Information about storage in one common storage facility:
Do not store together with acids.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well-sealed containers.
Specific end use(s)
No data available

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional information about design of technical systems:

No further data; see section 7.

Control parameters

Components with limit values that require monitoring at the workplace:

7440-22-4 Silver (100.0%)

PEL (USA) Long-term value: 0.01 mg/m³ metal and soluble compounds (as Ag)

REL (USA) Long-term value: 0.01 mg/m³

TLV (USA) Long-term value: 0.1 mg/m³ metal: dust and fume

EL (Canada) Short-term value: 0.03 mg/m³

Long-term value: 0.01 mg/m³ as Ag

EV (Canada) Long-term value: 0.1 * 0.01 ** mg/m³

*metal; **water-soluble compounds (as silver)

Additional information: No data

Exposure controls

Personal protective equipment

Follow typical protective and hygienic practices for handling chemicals.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Not required.

Protection of hands: Not required.

Penetration time of glove material (in minutes)

No data available

Eye protection: Safety glasses

Body protection: Protective work clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance:

Form: Solid in various forms

Color: Silver-colored

Odor: Characteristic

Odor threshold: No data available.

pH: N/A

Melting point/Melting range: 961.8 °C (1763 °F)

Boiling point/Boiling range: 2210 °C (4010 °F)

Sublimation temperature / start: No data available

Flammability (solid, gas): No data available.

Ignition temperature: No data available

Decomposition temperature: No data available

Autoignition: No data available.
Danger of explosion: No data available.
Explosion limits:
Lower: No data available
Upper: No data available
Vapor pressure: N/A

Density at 20 °C (68 °F): 10.5 g/cm³ (87.623 lbs/gal)
Relative density: No data available.
Vapor density: N/A
Evaporation rate: N/A
Solubility in Water (H₂O): No data available
Partition coefficient (n-octanol/water): No data available.
Viscosity:
Dynamic: N/A
Kinematic: N/A
Other information
No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity
No data available
Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
No dangerous reactions known
Conditions to avoid
No data available
Incompatible materials:
Acids
Hazardous decomposition products:
Silver oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity:
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion:
Powder: irritant effect
Eye irritation or corrosion:
Powder: irritant effect

Sensitization: No sensitizing effects known.
Germ cell mutagenicity: No effects known.
Carcinogenicity:
EPA-D: Not classifiable as to human carcinogenicity:
inadequate human and animal evidence of
carcinogenicity or no data are available.
The Registry of Toxic Effects of Chemical Substances
(RTECS) contains tumorigenic and/or carcinogenic
and/or neoplastic data for this substance.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated
exposure: No effects known.
Specific target organ system toxicity - single
exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity:
The Registry of Toxic Effects of Chemical Substances
(RTECS) contains multiple dose toxicity data for this
substance.
Additional toxicological information:
To the best of our knowledge the acute and chronic
toxicity of this substance is not fully known

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Aquatic toxicity:
No data available
Persistence and degradability
No data available
Bioaccumulative potential
No data available
Mobility in soil
No data available
Additional ecological information:
Do not allow material to be released to the
environment without official permits.
Do not allow undiluted product or large quantities to
reach groundwater, water courses, or sewage
systems.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
PBT: N/A
vPvB: N/A
Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Recommendation
Consult official regulations to ensure proper disposal.
Uncleaned packagings:
Recommendation:
Disposal must be made according to official
regulations.

SECTION 14. TRANSPORT INFORMATION

UN-Number
DOT, ADN, IMDG, IATA
N/A
UN proper shipping name
DOT, ADN, IMDG, IATA
N/A
Transport hazard class(es)
DOT, ADR, ADN, IMDG, IATA
Class
N/A
Packing group
DOT, IMDG, IATA
N/A
Environmental hazards:
N/A
Special precautions for user
N/A
Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code
N/A
Transport/Additional information:
DOT
Marine Pollutant (DOT):
No

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental
regulations/legislation specific for the substance or
mixture
National regulations
All components of this product are listed in the U.S.
Environmental Protection Agency Toxic Substances
Control Act Chemical substance Inventory.
All components of this product are listed on the
Canadian Domestic Substances List (DSL).
SARA Section 313 (specific toxic chemical listings)
7440-22-4 Silver
California Proposition 65
Prop 65 - Chemicals known to cause cancer
Substance is not listed.

Prop 65 - Developmental toxicity
Substance is not listed.
Prop 65 - Developmental toxicity, female
Substance is not listed.
Prop 65 - Developmental toxicity, male
Substance is not listed.
Information about limitation of use:
For use only by technically qualified individuals.
Other regulations, limitations and prohibitive
regulations
Substance of Very High Concern (SVHC) according to
the REACH Regulations (EC) No. 1907/2006.
Substance is not listed.
The conditions of restrictions according to Article 67
and Annex XVII of the Regulation (EC) No 1907/2006
(REACH) for the manufacturing, placing on the market
and use must be observed.
Substance is not listed.
Annex XIV of the REACH Regulations (requiring
Authorisation for use)
Substance is not listed.

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.
