

Material Safety Data Sheet

Silver Sputtering Target

Report No.: VIH241109001-1
Version: 2.1
Preparation Date: 09/11/2024
Revision Date: 09/11/2024

1. Product and Company information

1.1 Product identifiers

Product Name	Silver
Product No.	4700ST
Formula	Ag
CAS No.	7440-22-4
EC No.	231-131-3

1.2 Relevant identified uses

Identified uses	Laboratory chemicals, Scientific research
Uses advised against	Consulting manufacturers

1.3 Details of the supplier

Company Name	VI HALBLEITERMATERIAL GmbH
Street	Bergener Straße 14.,
City	Hannover
State	Niedersachsen
Zip Code	30625
Country	Germany
Tel	0049 1626484175
Email	info@vimaterial.de

1.4 Emergency telephone

Emergency Phone #	0049 1626484175
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2. Hazards Identification

2.1 GHS Classification

Acute aquatic hazard	None
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Chronic aquatic hazard	None
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2.2 GHS Label elements

Signal Word	None
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2.3 Hazard Statements

	None
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2.4 Precautionary Statements

	None
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3. Composition

Chemical Family	Metal
Additional Names	None

Component	Molecular weight	CAS No.	Concentration
Ag	107.8682 g/mol	7440-22-4	<=100%

4. First Aid Procedures

4.1 Description of first aid procedures

General Treatment	Seek medical attention if symptoms persist.
Inhalation	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Ingestion	Give one to two glasses of water and induce vomiting. Never induce vomiting or give anything by mouth to an unconscious person.
Skin	Wash affected area with mild soap and water. Remove any contaminated clothing.
Eyes	Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

4.2 Most Important acute and delayed symptoms/effects

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Emergency medical treatment and special instructions

1	Based on the symptoms that appear, provide targeted treatment.
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2	Be aware that symptoms may be delayed.
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5. Firefighting Measures

5.1 Extinguishing Media

Suitable extinguishing media	Use sand, or inert dry powder fire extinguishing agents for metal fires
Unsuitable extinguishing media	Do not use water for metal fires

5.2 Special hazards arising from the substance or mixture

1	Silver/Silver oxide
2	Non-flammable
3	Ambient fires may release harmful vapors.

5.3 Special protective equipment and precautions for firefighters

1	Wear self-contained breathing apparatus when extinguishing fire.
2	Fight fire from a safe distance and with adequate protection.
3	Prevent firefighting water from contaminating surface and groundwater systems.

6. Accidental Release Measures

6.1 Personal protection, protective equipment and emergency procedures

1	Wear appropriate respiratory and protective equipment specified in special protection information.
2	Isolate spill area and provide ventilation.

6.2 Environmental Precautions

1	Isolate runoff to prevent environmental pollution.
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6.3 Containment and cleanup methods for chemical spills and disposal materials used

1	Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter.
2	Place in a closed container for disposal.
3	Take care not to raise dust.

7. Handling and Storage

7.1 Handling conditions

1	Handle in a well-ventilated area.
2	Wear appropriate personal protective equipment.
3	Wash thoroughly after handling.

7.2 Storage conditions

1	Keep the container tightly closed.
2	Store in a dry, cool, and well-ventilated area.
3	Keep away from heat, sparks, open flames, and hot surfaces.
4	Store apart from materials and conditions listed in section 10.

8. Exposure Controls and Personal Protection

8.1 Control parameters

Component	ACGIH TLV	OSHA PEL	NIOSH
Ag	TWA: 0.1 mg/m ³	TWA: 0.01 mg/m ³	TWA: 0.01 mg/m ³

8.2 Engineering controls

1	Maintain adequate ventilation.
2	Wash hands after working with substance.
3	Set up emergency evacuation passages and necessary risk relief areas.

8.3 Personal protective equipment

Special Equipment	None
Respiratory Protection	Dust Respirator
Protective Gloves	Rubber gloves
Eye Protection	Safety glasses or goggles
Body Protection	Protective work clothing. Wear close-toed shoes and long sleeves/pants.

9. Physical and Chemical Characteristics

Color	Silver-colored
Molecular weight	107.868 g/mol
Form	Solid
Odor	Odorless
pH	No data available
Boiling Point	2210 °C
Melting Point	961.8 °C
Flash Point	No data available
Evaporation rate	No data available
Flammability	No data available
Vapor pressure	No data available
Density	10.49 g/cm ³
Water Solubility	Insoluble
Viscosity	No data available

10. Stability and reactivity

Reactivity	Oxidizing agents.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No data available.
Conditions to avoid	No data available.
Incompatible Conditions	No data available.
Hazardous Decomposition Products	Silver Oxides, Metal oxide fume.

11. Toxicological Information

11.1 Acute toxicity

Oral	LD50 - rat (female) - > 2 000 mg/kg.
Inhalation	LC50 - rat (male/female) - > 5.16 mg/L air (analytical).
Dermal	LD50 - rat (male/female) - > 2 000 mg/kg.

11.2 Carcinogenicity

IARC	No data available.
NTP	No data available.

OSHA	No data available.
Skin corrosion/irritation	No data available.
Serious eye damage/eye irritation	No data available.
Skin sensitization	No data available.
Respiratory sensitization	No data available.
Reproductive toxicity	No data available.
Specific target organ toxicity - single exposure	No data available.
Specific target organ toxicity - repeated exposure	No data available.
Aspiration hazard	No data available.
Germ cell mutagenicity	No data available.
Reproductive toxicity additional hazard	No data available.

11.3 Other information

12. Ecological Information

12.1 Toxicity

Toxicity to fish	No data available.
Toxicity to daphnia and other aquatic invertebrates	No data available.
Toxicity to algae	No data available.
Toxicity to microorganisms	No data available.

12.2 Persistence and degradability

Persistent retention	No data available.
Degradability	No data available.

12.3 Bioaccumulative potential

Bioaccumulative potential	No data available.
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12.4 Mobility in soil

Mobility in soil	No data available.
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12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	No data available.
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13. Disposal Considerations

Waste material	Please refer to national and local regulations before disposal.
Contaminated packaging	After the packaging is emptied, there may still be residual hazards. Keep away from heat and fire sources and return to the supplier for recycling if possible.
Disposal precautions	Please refer to waste chemicals and contaminated packaging.

14. Transportation Data

14.1 Shipping Labels

Hazardous	Not hazardous for transportation.
Labels	N/A

14.2 ADR/RID

UN number	N/A
UN Proper shipping name	N/A
Transport subsidiary hazard class	N/A
Transport hazard class(es)	N/A
Packaging group	N/A

14.3 IMDG

UN number	N/A
UN Proper shipping name	N/A
Transport subsidiary hazard class	N/A
Transport hazard class(es)	N/A
Packaging group	N/A
Marine Pollutant (Yes/No)	No

14.4 IATA-DGR

UN number	N/A
UN Proper shipping name	N/A

Transport subsidiary hazard class	N/A
Transport hazard class(es)	N/A
Packaging group	N/A

15. Regulatory information

Safety, health and environmental regulations specific for the product in question

Component	EINECS	EC Inventory	TSCA	IECSC	NZIoC	PICCS	KECL	NCI
Ag	√	√	√	√	√	√	√	√

[EINECS]	European Inventory of Existing Commercial Chemical Substances
[EC Inventory]	EC Inventory
[TSCA]	United States Toxic Substances Control Act Inventory
[IECSC]	Chinese Chemical Inventory of Existing Chemical Substances
[NZIoC]	New Zealand Inventory of Chemicals
[PICCS]	Philippines Inventory of Chemicals and Chemical Substances
[KECL]	Korea Existing Chemicals List
[NCI]	Vietnam National Chemical Inventory

Note: “√” Listed
 “x” Not listed

16. Other information

16.1 Revision information

Preparation date	09/11/2024
Revision date	09/11/2024
Revision reason	Creation

16.2 Abbreviations and acronyms

CAS	Chemical Abstracts Service
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
RID	Regulation concerning the International Carriage of Dangerous Goods by Rail
IATA	International Air Transportation Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%

TWA Time Weighted Average

16.3 References

- [1] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- [2] ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- [3] eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- [4] Germany GESTIS-database on hazard substance, website:
<http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- [5] HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- [6] IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- [7] IPCS - The International Chemical Safety Cards (ICSC), website:
<http://www.ilo.org/dyn/icsc/showcard.home>
- [8] ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:
<http://www.phmsa.dot.gov/hazmat/library/erg>

16.4 Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products. For further information please contact info@vimaterial.de.