

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**Product Identifier**

Perihalan Produk: **Silver**  
Product Description: **Silver**  
Synonyms: Argentum.  
CAS No: 7440-22-4  
Molecular Formula: Ag

**Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use: Laboratory chemicals.  
Uses advised against: No Information available

Company: Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd  
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CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

**SECTION 2: HAZARDS IDENTIFICATION**

**Classification of the substance or mixture**

**Label Elements**

**Hazard Statements**

**Storage**

P403 - Store in a well-ventilated place

**Disposal**

P501 - Dispose of contents/ container to an approved waste disposal plant

**Other Hazards**

This product does not contain any known or suspected endocrine disruptors

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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS No    | Weight % |
|-----------|-----------|----------|
| Silver    | 7440-22-4 | 100      |

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

**Ingestion** Do NOT induce vomiting. Get medical attention.

**Inhalation** Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.

**Self-Protection of the First Aider** No special precautions required.

### Most important symptoms and effects, both acute and delayed

No information available.

### Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Chemical foam.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### Special hazards arising from the substance or mixture

Non-combustible.

### **Hazardous Combustion Products**

None under normal use conditions.

### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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## Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation. Use personal protective equipment as required.

## Environmental precautions

Do not flush into surface water or sanitary sewer system.

## Methods and Material for Containment and Cleaning Up

Sweep up and shovel into suitable containers for disposal.

## Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation.

### Conditions for Safe Storage, Including any Incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

### Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

| Component | Malaysia | ACGIH TLV                  | OSHA PEL   |
|-----------|----------|----------------------------|--|
| Silver    |          | TWA: 0.1 mg/m <sup>3</sup> | (Vacated) TWA: 0.01 mg/m <sup>3</sup><br>TWA: 0.01 mg/m <sup>3</sup> |

| Component | European Union                  | The United Kingdom  | Germany   |
|-----------|---------------------------------|---|---|
| Silver    | TWA: 0.1 mg/m <sup>3</sup> (8h) | STEL: 0.3 mg/m <sup>3</sup> 15 min<br>TWA: 0.1 mg/m <sup>3</sup> 8 hr | TWA: 0.1 mg/m <sup>3</sup> (8 Stunden). AGW<br>- exposure factor 8<br>TWA: 0.1 mg/m <sup>3</sup> (8 Stunden). MAK<br>Höhepunkt: 0.8 mg/m <sup>3</sup> |

### Exposure Controls

#### Engineering Measures

None under normal use conditions.

### Personal protective equipment

#### Eye Protection

Wear safety glasses with side shields (or goggles)

#### Hand Protection

Protective gloves

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.  
(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g.

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sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

## Respiratory Protection

### Recommended Filter type:

No protective equipment is needed under normal use conditions

Particle filter

## Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

## Environmental exposure controls

Prevent product from entering drains Do not allow material to contaminate ground water system Local authorities should be advised if significant spillages cannot be contained

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|   |                          |                                   |
|---|--------------------------|-----------------------------------|
| Appearance                              | Silver                   |                                   |
| Physical State                          | Solid                    |                                   |
| Odor                                    | Odorless                 |                                   |
| Odor Threshold                          | No data available        |                                   |
| pH                                      | No information available |                                   |
| Melting Point/Range                     | 961 °C / 1761.8 °F       |                                   |
| Softening Point                         | No data available        |                                   |
| Boiling Point/Range                     | 2212 °C / 4013.6 °F      |                                   |
| Flash Point                             | No information available | Method - No information available |
| Evaporation Rate                        | Not applicable           | Solid                             |
| Flammability (solid,gas)                | No information available |                                   |
| Explosion Limits                        | No data available        |                                   |
| Vapor Pressure                          | No data available        |                                   |
| Vapor Density                           | Not applicable           | Solid                             |
| Specific Gravity / Density              | 10.5                     |                                   |
| Bulk Density                            | No data available        |                                   |
| Water Solubility                        | Insoluble                |                                   |
| Solubility in other solvents            | No information available |                                   |
| Partition Coefficient (n-octanol/water) |                          |                                   |
| Autoignition Temperature                | No data available        |                                   |
| Decomposition Temperature               | No data available        |                                   |
| Viscosity                               | Not applicable           | Solid                             |
| Explosive Properties                    | No information available |                                   |
| Oxidizing Properties                    | No information available |                                   |
| Molecular Formula                       | Ag                       |                                   |
| Molecular Weight                        | 107.87                   |                                   |

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## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

Air sensitive.

### Possibility of Hazardous Reactions

**Hazardous Polymerization** No information available.  
**Hazardous Reactions** No information available.

### Conditions to Avoid

Exposure to air. Incompatible products.

### Incompatible Materials

Acids. Strong acids. Strong bases. Ammonia. oxygen.

### Hazardous Decomposition Products

None under normal use conditions.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

**Product Information** No acute toxicity information is available for this product

#### **(a) acute toxicity;**

**Oral** Based on available data, the classification criteria are not met  
**Dermal** No data available  
**Inhalation** No data available

| Component | LD50 Oral            | LD50 Dermal               | LC50 Inhalation              |
|-----------|----------------------|---------------------------|------------------------------|
| Silver    | > 2000 mg/kg ( Rat ) | LD50 > 2000 mg/kg ( rat ) | LC50 > 5.16 mg/L ( Rat ) 4 h |

**(b) skin corrosion/irritation;** No data available

**(c) serious eye damage/irritation;** No data available

#### **(d) respiratory or skin sensitization;**

**Respiratory** No data available  
**Skin** No data available

**(e) germ cell mutagenicity;** No data available

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(f) carcinogenicity; No data available  
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Not applicable  
Solid

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed No information available.

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity effects Contains a substance which is: Very toxic to aquatic organisms. The product contains following substances which are hazardous for the environment.

| Component | Freshwater Fish   | Water Flea                                       | Freshwater Algae | Microtox |
|-----------|---|--|------------------|----------|
| Silver    | LC50: = 0.064 mg/L, 96h static (Lepomis macrochirus)<br>LC50: = 0.0062 mg/L, 96h flow-through (Oncorhynchus mykiss)<br>LC50: 0.00155 - 0.00293 mg/L, 96h static (Pimephales promelas) | EC50: = 0.00024 mg/L, 48h Static (Daphnia magna) |                  |          |

### Persistence and degradability

Persistence Insoluble in water.  
Degradability Not relevant for inorganic substances.  
Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulative potential May have some potential to bioaccumulate

Mobility in soil Spillage unlikely to penetrate soil. Is not likely mobile in the environment due its low water solubility.

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

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Other adverse effects No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

**Waste from Residues/Unused Products** Dispose of in accordance with local regulations

**Contaminated Packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal

**Other Information** Do not flush to sewer

## SECTION 14: TRANSPORT INFORMATION

IMDG/IMO Not regulated

Road and Rail Transport Not regulated

IATA Not regulated

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

**International Inventories** X = listed

| Component | EINECS    | TSCA | DSL | PICCS | ENCS | ISHL | IECSC | AICS | KECL     |
|-----------|-----------|------|-----|-------|------|------|-------|------|----------|
| Silver    | 231-131-3 | X    | X   | X     | X    |      | X     | X    | KE-31261 |

National Regulations

**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

Legend

**CAS** - Chemical Abstracts Service

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

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**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**IECSC** - Chinese Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances

**ENCS** - Japanese Existing and New Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances  
**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit  
**ACGIH** - American Conference of Governmental Industrial Hygienists  
**RPE** - Respiratory Protective Equipment  
**LC50** - Lethal Concentration 50%  
**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average  
**IARC** - International Agency for Research on Cancer  
**LD50** - Lethal Dose 50%  
**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**OECD** - Organisation for Economic Co-operation and Development  
**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**MARPOL** - International Convention for the Prevention of Pollution from Ships  
**ATE** - Acute Toxicity Estimate  
**VOC** - (Volatile Organic Compound)

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>  
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Revision Date** 22-Mar-2025  
**Revision Summary** Not applicable.

**In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**