

Safety Data Sheet FAWSDS-16

Revision Date: 04-25-2018



1) IDENTIFICATION

Product Identifier	Silver Plating
Other Means of Identification	
SDS Number	FAWSDS-16
Recommended Use and Restrictions on Use	
Recommended Use	None Known
Restrictions on Use	None Known
Manufacturer/Importer/Supplier/Distributor Information	
Manufacturer/Supplier	Fisk Alloy, Inc. PO Box 26 10 Thomas Road Hawthorne, NJ 07507, USA
General Assistance	Call Fisk Alloy: 973 825 8500
Email	info@fiskalloy.com
Contact Person	None Known
Emergency Telephone	For all transportation accidents, call Chemtrec at 800 424 9300

2) HAZARD(S) IDENTIFICATION

OSHA/HCS Status

This material is not classified by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of Substance or Mixture

Physical Hazards	Not Classified
Health Hazards	Not Classified
Environment Hazards	Not Classified

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GHS Labeling Elements No Labeling Applicable

Signal Word Not Applicable

Hazard Statements Not Applicable

Hazards Not Otherwise Classified (HNOC)

Metallic product which poses little or no immediate hazard in solid form. Exposure to the elements listed in Section 3 by inhalation, ingestion, and skin contact can occur during routine handling, material transfer, chemical processing or further processing. If this material is converted or becomes part of a solid shape, exposure can occur when melting, casting, gross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing or otherwise heating or abrading the surface of this material in a manner which generates particulate. Exposure may also occur during repair or maintenance activities on contaminated equipment such as: furnace rebuilding, maintenance or repair of air cleaning equipment, structural renovation, welding, etc. Particulate depositing on hands, gloves, and clothing, can be transferred to the breathing zone and inhaled during normal hand to face motions such as rubbing of the nose or eyes, sneezing, coughing, etc.

3) COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE NAME	CAS NUMBER	PERCENT
Silver	7440-22-4	100

4) FIRST AID MEASURES

Inhalation

When symptoms occur: go into open air and ventilate suspected area. Keep at rest and in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact

Cool skin rapidly with cold water after contact with molten product. Removal of solidified molten material from skin requires medical assistance. Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash with plenty of soap and water. Wash contaminated clothing before reuse. Obtain medical attention if irritation persists.

Eye Contact

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Removal of solidified molten material from the eyes requires medical assistance. Immediately rinse with water for a prolonged period (at least 15 minutes) while holding the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion

Ingestion is unlikely due to physical state. Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms/Effects, Acute and Delayed

Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

Skin Contact: May cause an allergic skin reaction. Dust from physical alteration of this product causes skin irritation. Causes severe skin burns. Contact with fumes or metal powder will irritate skin. Contact with hot, molten metal will cause thermal burns. Dust may cause irritation in skin folds or by contact in combination with tight clothing. Mechanical damage via flying particles and chipped slag is possible.

Eye Contact: Dust may cause mechanical irritation to eyes, nose, throat, and lungs.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Long-term exposure to silver at high concentrations can produce a condition called argyria, which is a bluish-gray pigmentation of the skin and other body tissues. This effect is not known to be associated with any toxic effects.

Indication of Immediate Medical Attention and Special Treatment Needed

In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

5) FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam.

Unsuitable Extinguishing Media

Do not use a heavy water stream. Use of heavy stream of water may spread fire. Do not use water when molten material is involved, may react violently or explosively on contact with water.

Specific Hazards Arising from the Chemical

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In molten state: reacts violently with water (moisture). Dust may cause an ignitable and/or an explosive atmosphere.

Special Protective Equipment and Precautions for Firefighters

Precautionary Measures Fire: Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Exercise caution when fighting any chemical fire.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

6) ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not handle until all safety precautions have been read and understood. Do not breathe vapors from molten product. Avoid all eye and skin contact and do not breathe dust, fumes, and vapors.

For Non-Emergency Personnel: Use appropriate personal protection equipment (PPE). Evacuate unnecessary personnel.

For Emergency Personnel: Equip cleanup crew with proper protection. Ventilate area. Protective clothing, gloves, and a respirator are recommended for persons responding to an accidental release, especially of molten silver metal.

Environmental Precautions

Silver metal has relatively low bioavailability and is not considered to pose immediate ecological risks. Prevent entry to sewers and public waters.

Methods and Materials for Containment and Clean Up

Contain and collect as any solid. Clear up spills immediately and dispose of waste safely. For particulates and dust: Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use PPE described in Section 8. Vacuum must be fitted with HEPA filter to prevent release of particulates during clean-up.

7) HANDLING AND STORAGE

Precautions for Safe Handling

May generate flammable/explosive dusts or turnings when brushed, machined or ground. Use care during processing to minimize generation of dust. Where excessive dust may result, use approved respiratory protection equipment. Heating of product can release toxic or irritating fumes; ensure proper ventilation

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is employed, proper precautions are enforced, and applicable regulations are followed. Inhalation of fumes may cause metal fume fever.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store silver in a secure, covered area away from incompatible materials. Store in a dry, cool and well-ventilated place.

Incompatible Materials: Strong acids, strong bases and strong oxidizers. Alkalis. Metal oxides. Water, humidity. Corrosive substances in contact with metals may produce flammable hydrogen gas.

8) EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

COUNTRY	TYPE	SILVER Value (mg/m ³)
Belgium	TWA	0.1(a), 0.01(b)
Brazil	TWA	—
Canada-Alberta	TWA	0.1(a), 0.01(b)
Canada-British Columbia	TWA STEL	0.01(c) 0.03(c)
Canada-Ontario	TWA	0.1(d), 0.01(b)
Canada-Quebec	TWA	0.1(a), 0.01(b)
China	TWA	—
Denmark	TWA	0.01(b)
France	TWA	0.1(a), 0.01(b)
Germany	TWA	0.1(a), 0.01(e)
Hong Kong	TWA	0.1(a), 0.01(b)
India	TWA	—
Italy	TWA	0.1(a)

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Japan	TWA	0.01(c)
Korea	TWA	0.1(a), 0.01(b)
Malaysia	TWA	0.1(a)
Mexico	TWA	0.1(c,d), 0.01(b)
Poland	TWA	0.05(d), 0.01(b)
Portugal	TWA	—
Russia	TWA	—
Singapore	TWA	0.1(a), 0.01(b)
Sweden	TWA	0.1(a), 0.01(b)
Taiwan, R. O. C.	TWA	0.01(b,d)
United Kingdom	TWA	0.1(a), 0.01(b)
USA ACGIH	TWA	0.1(d), 0.01(b)
USA OSHA	TWA	0.01(a,b)
USA NIOSH	TWA	0.01(a,b)

a-metal, **b**-soluble compounds, as Ag, **c**-silver and compounds (as Ag), **d**-metal, dust and fume, **e**-silver compounds, inorganic.

Appropriate Engineering Controls

Use local exhaust or general dilution ventilation or other suppression methods to maintain dust levels below exposure limits. Power equipment should be equipped with proper dust collection devices. Ensure all national/local regulations are observed.

Individual Protection Measures, Such as Personal Protective Equipment



Respiratory Protection

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Respiratory protection not normally needed. Where silver dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use a NIOSH-approved half-face or full-face respirator equipped with High Efficiency Particulate (HEPA) filter cartridges.

Hand Protection

Wear chemically resistant protective gloves. If material is hot, wear thermally resistant protective gloves.

Eye Protection

Chemical goggles or safety glasses.

Other Protection

Chemically resistant materials and fabrics. With molten material wear thermally protective clothing. If generating a dust, wash thoroughly after handling, especially before eating, drinking, or smoking. Wash contaminated clothing before reuse. Use adequate local or general ventilation to maintain the concentration of silver fumes in the working environment well below recommended occupational exposure limits. Gloves and coveralls or other work clothing are recommended to prevent prolonged or repeated direct skin contact when silver is processed.

General Hygiene Considerations

Do not eat, drink, or smoke while using this product in dust form.

9) PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Silver Metallic
Physical State	Solid
Form	Solid
Color	Metallic Silver
Odor	None
Odor Threshold	Not Available
pH	Not Applicable
Melting Point	1763°F
Boiling Point	No Data
Flash Point	Not Applicable
Evaporation Rate	Not Applicable

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Flammability	Not Applicable
Lower Explosive Limit	Not Applicable
Upper Explosive Limit	Not Applicable
Vapor Pressure	Not Applicable
Vapor Density	Not Applicable
Relative Density (Specific Gravity)	Not available
Solubility (Water 20°C)	Negligible
Partition Coefficient (N-Octanol/Water)	Unknown
Auto-Ignition Temperature	Not Applicable
Decomposition Temperature	Not Applicable
Viscosity (cps)	Not Applicable
Others	
Molecular Weight	Not Applicable (Mixture)
Volatiles	Not Applicable
Specific Gravity (g/cc)	10.5
Bulk Density (g/cc)	10.5

10) STABILITY AND REACTIVITY

Reactivity

Hazardous reactions will not occur under normal conditions. Ozone, sulphur, and hydrogen sulphide blacken silver. Most silver salts are light sensitive.

Chemical Stability

Stable under recommended storage conditions and stable in solid form.

Possibility of Hazardous Reactions

Hazardous polymerization will not occur.

Conditions to Avoid

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No data available.

Incompatible Materials

Silver reacts with acetylene, acetylene compounds and ammonia to form explosive and shock sensitive compounds. Contact with strong hydrogen peroxide solutions will cause violent decomposition of the peroxide, releasing oxygen gas and increasing the fire and explosion potential. Silver is incompatible with bromine azide, chlorine trifluoride, ethyleneimine, oxalic and tartaric acids and with nitric acid in the presence of ethanol.

Hazardous Decomposition Products

High temperature operations such as oxy-acetylene cutting, electric arc welding or overheating a molten bath will generate silver oxide fume. The particle size of metal fumes is largely within the respirable size range, which increases the likelihood of inhalation and deposition of the fume within the body.

11) TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation: Inhalation of silver fume or dust may be irritating to mucous membranes and the upper respiratory tract. Extremely high exposures to silver oxide fume have caused lung damage with pulmonary edema.

Ingestion: Ingestion of silver compounds may cause irritation of the stomach. However, ingestion is not a typical route of occupational exposure.

Skin Contact: Direct contact may cause mild local skin irritation. There have been limited reports of allergic contact dermatitis following exposure to powdered silver, silver solutions, and dental amalgams.

Eye Contact: Direct contact may cause mild local eye irritation.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics:

No information available.

Delayed and Immediate Effects and Chronic Effects from Short- and Long-Term Exposure

In massive form, no hazard exists. If physically altered to present slivers, ribbons, dusts or fumes from molten material:

Chronic Symptoms: Prolonged exposure to silver dust may cause a bluish or grayish pigmentation to the skin, eyes and mucous membranes. This occurs slowly and may take years to develop. Once present, it does not go away and, in the most severe cases, may be quite disfiguring but is not considered to be a toxic effect. Silver is not listed as a human carcinogen by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the American Conference of Governmental Industrial Hygienists (ACGIH) or the European Union (EU).

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Numerical Measures of Toxicity

COMPONENT	TEST	SPECIES	TEST RESULT
Silver (CAS#7440-22-4)	Oral LD ₅₀	Rat	> 5000 mg/kg
	Dermal LD ₅₀	Rat	> 2000 mg/kg (Rat)
	Inhalation LC ₅₀	—	—

Skin Corrosion/Irritation

Not Classified

Serious Eye Damage/Eye Irritation

Not Classified

Respiratory or Skin Sensitization

Respiratory Sensitization

Not Classified

Skin Sensitization

Not Classified

Germ Cell Mutagenicity

Not Classified. This product is not known or reported to be mutagenic.

Carcinogenicity

Not Classified. This product is not known or reported to be carcinogen.

Reproductive Toxicity

Not Classified. This product is not known or reported to cause reproductive or developmental effects.

Specific Target Organ Toxicity — Single Exposure

Not Classified

Specific Target Organ Toxicity — Repeated Exposure

Not Classified

Aspiration Hazard

Not Classified

12) ECOLOGICAL INFORMATION

Ecotoxicity

No Information Available

Numerical Measures of Toxicity

No Data Available

Persistence and Degradability

No Data Available

Bioaccumulative Potential

No Data Available

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Mobility in Soil

No Data Available

Other Adverse Effects

No known significant effects or critical hazards.

13) DISPOSAL CONSIDERATIONS

Disposal Instructions

Dispose of in accordance with local regulations. Do not contaminate ponds, waterways or ditches with chemical or used containers. In view of the economic value of silver metal, every effort should be made to recover and reuse all spilled material.

Contaminated Packaging

None Known

14) TRANSPORT INFORMATION

In Accordance with DOT

Not regulated for transport

In Accordance with IMDG

Not regulated for transport

In Accordance with IATA

Not regulated for transport

15) REGULATORY INFORMATION

US Federal Regulations

This product is a "Non-Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Substance is on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Substance is not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Substance is not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

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Silver (CAS#7440-22-4)

Listed

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories

Immediate Hazard	No
Delayed Hazard	No
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

SARA 302/304 Extremely Hazardous Substance

Substance is not listed.

SARA 311/312 Hazardous Chemical

No

SARA 313 (TRI Reporting)

SUBSTANCE NAME	CAS NUMBER	% BY WEIGHT
Silver	7440-22-4	100

Other Federal Regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Substance is not listed.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Substance is not listed.

Safe Drinking Water Act (SDWA): Substance is not listed.

US State Regulations

US. Massachusetts Worker and Community Right-to-Know Act:

Silver (CAS#7440-22-4)

US. New Jersey Worker and Community Right-to-Know Act:

Silver (CAS#7440-22-4)

US. Pennsylvania Worker and Community Right-to-Know Law:

Silver (CAS#7440-22-4)

US. California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT):

Substance is not listed.

Canada Regulations

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This substance has not been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR).

International Inventories

COUNTRY(S) OR REGION	INVENTORY NAME	ON INVENTORY (YES/NO)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemical List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
US & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

* A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s). A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16) ADDITIONAL INFORMATION

Issue Date —

Revision Date 4/25/2018

Version # —

References

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ACGIH: American Conference of Governmental Industrial Hygienists

NIOSH: The National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DOT: Department of Transportation

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

LD₅₀: Lethal Dose, 50 Percent

LC₅₀: Lethal Concentration, 50 Percent

EC₅₀: Effective Concentration of Substance That Causes 50% of Maximum Response

TWA: Time-Weighted Average

STEL: Short Term Exposure Limit

Disclaimer

The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.