



# CHEMICAL PRODUCT SAFETY DATA SHEET

Prepared in accordance with GB/T 16483 and GB/T 17519.

**MATERION**

Product name: Silver Gallium Gold Alloys

Issue date: 10-18-2023

Version #: 01

SDS No: W53

## SECTION 1 Chemical product and company identification

<b>Chinese name of chemical</b>	<b>NEEDED - CHINESE NAME OR TRADE NAME WITH CHINESE USER DESCRIPTOR.</b>	
<b>English name of chemical</b>	<b>Silver Gallium Gold Alloys</b>	
<b>Manufacturer/Supplier</b>	Materion Electronic Materials	
<b>Address</b>	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States	
<b>Contact person</b>	Theodore Knudson	
<b>Telephone</b>	EH&S	1.216.383.4019
<b>e-mail</b>	ehs@materion.com	
<b>Emergency telephone number</b>	See Section 16.	
<b>Issue date</b>	10-18-2023	
<b>SDS No</b>	W53	

## SECTION 2 Hazards identification

<b>Emergency overview</b>	Fatal in contact with skin. Causes severe skin burns and eye damage. Dangerous for the environment if discharged into watercourses. The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.	
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### GHS hazard categories

<b>Physical hazards</b>	Not classified.	
<b>Health hazards</b>	Acute toxicity, dermal	Category 2
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long-term hazard	Category 1

### Label elements

#### Pictograms



#### Signal word

Danger

#### Hazard statement

The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

**Precautionary statement****Prevention**

P262	Do not get in eyes, on skin, or on clothing.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P391	Collect spillage.

**Safety storage**

P405	Store locked up.
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**Disposal**

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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**Physical and chemical hazards**

The product is stable and non-reactive under normal conditions of use, storage and transport. No unusual fire or explosion hazards noted.

**Health hazards**

Fatal in contact with skin. Causes serious eye damage. Causes severe skin burns. Causes digestive tract burns. May cause irritation to the respiratory system. Prolonged inhalation may be harmful.

**Environmental hazards**

Very toxic to aquatic life with long lasting effects.

**Supplemental information**

For further information, please contact the Product Stewardship Department at +1.216.383.4019.

**SECTION 3 Composition/information on ingredients**

Substance/mixture	Mixture	
Chemical name	Concentration (%)	CAS Number
银色 Silver	80 - 99	7440-22-4
镓 Gallium	1 - 10	7440-55-3
金色 Gold	0 - 10	7440-57-5

**SECTION 4 First aid measures**

<b>Inhalation</b>	Move to fresh air. Call a physician if symptoms develop or persist.
<b>Skin contact</b>	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
<b>Most important symptoms and health effects</b>	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

<b>Personal protection for first-aid responders</b>	Take off immediately all contaminated clothing. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Discard any shoes or clothing items that cannot be decontaminated.
<b>Notes to physician</b>	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

## SECTION 5 Fire-fighting measures

<b>Extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Extinguishing media to avoid</b>	None.
<b>Specific hazards</b>	During fire, gases hazardous to health may be formed.
<b>Special fire fighting procedures</b>	Use water spray to cool unopened containers.
<b>Protection of fire-fighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
<b>For emergency responders</b>	Keep unnecessary personnel away. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. Use personal protection recommended in Section 8 of the SDS.

<b>Environmental precautions</b>	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
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<b>Clean-up methods and materials and containment measures</b>	Prevent entry into waterways, sewer, basements or confined areas.  Large Spills: Stop the flow of material, if this is without risk. Following product recovery, flush area with water.  Small Spills: Clean surface thoroughly to remove residual contamination.  Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
<b>Prevention of secondary hazards</b>	Not available.

## SECTION 7 Handling and storage

<b>Handling</b>	Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.
<b>Storage</b>	Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

## SECTION 8 Exposure controls/personal protection

### Exposure limits

No exposure limits noted for ingredient(s).

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Monitoring methods</b>	Follow standard monitoring procedures.
<b>Engineering measures</b>	Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

**Personal protective equipment**

<b>Respiratory protection</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Hand protection</b>	Wear appropriate chemical resistant gloves.
<b>Eye protection</b>	Wear safety glasses with side shields (or goggles) and a face shield. Face shield is recommended.
<b>Skin and body protection</b>	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

**Hygiene measures**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**SECTION 9 Physical and chemical properties****Appearance**

<b>Physical state</b>	Solid.
<b>Form</b>	Solid.
<b>Color</b>	Not available.
<b>Odor</b>	None.
<b>Odor threshold</b>	Not applicable.
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	85.6 °F (29.78 °C) estimated
<b>Boiling point, initial boiling point, and boiling range</b>	3632 °F (2000 °C) estimated
<b>Flash point</b>	Not applicable.
<b>Explosive limit - lower (%)</b>	Not applicable.
<b>Explosive limit - lower (%) temperature</b>	Not applicable.
<b>Explosive limit - upper (%)</b>	Not applicable.
<b>Explosive limit - upper (%) temperature</b>	Not applicable.
<b>Vapor pressure</b>	-0.01 hPa estimated
<b>Vapor density</b>	Not applicable.
<b>Relative density</b>	Not applicable.
<b>Density</b>	10.85 g/cm <sup>3</sup> estimated
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Insoluble
<b>Partition coefficient (n-octanol/water)</b>	Not applicable.
<b>Auto-ignition temperature</b>	Not applicable
<b>Decomposition temperature</b>	Not applicable.
<b>Evaporation rate</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Not flammable
<b>Other data</b>	
<b>Explosive properties</b>	Not explosive.
<b>Kinematic viscosity</b>	Not applicable.
<b>Oxidizing properties</b>	Not oxidizing.
<b>Particle size</b>	Not applicable.
<b>Specific gravity</b>	10.85 estimated
<b>Viscosity</b>	Not applicable.

**SECTION 10 Stability and reactivity**

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Stability</b>	Material is stable under normal conditions.

<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	Ammonia. Chlorine.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## SECTION 11 Toxicological information

<b>Acute toxicity</b>	Fatal in contact with skin.
<b>Routes of exposure</b>	Inhalation. Ingestion. Skin contact. Eye contact.
<b>Symptoms</b>	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
<b>Skin corrosion/irritation</b>	Causes severe skin burns and eye damage.
<b>Serious eye damage/eye irritation</b>	Causes serious eye damage.
<b>Respiratory or skin sensitization</b>	
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitizer</b>	This product is not expected to cause skin sensitization.
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Carcinogenicity</b>	Not available.
<b>Toxic to reproduction</b>	This product is not expected to cause reproductive or developmental effects.
<b>Specific target organ toxicity following single exposure</b>	Not classified.
<b>Specific target organ toxicity following repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.
<b>Chronic effects</b>	Prolonged inhalation may be harmful.

## SECTION 12 Ecological information

### Ecotoxicological data

Product	Species	Test Results
Silver Gallium Gold Alloys		
<b>Aquatic</b>		
Crustacea	EC50 Daphnia	0.0054 mg/l, 48 hours
Fish	LC50 Fish	3.0103 mg/l, 96 hours
<i>Acute</i>		
Fish	LC50 Fish	0.0019 mg/l, 96 hours estimated
<b>Components</b>	<b>Species</b>	<b>Test Results</b>
Silver (CAS 7440-22-4)		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50 Fathead minnow ( <i>Pimephales promelas</i> )	0.0019 - 0.003 mg/l, 96 hours
<b>Ecotoxicity</b>	Very toxic to aquatic life with long lasting effects.	
<b>Persistence and degradability</b>	No data is available on the degradability of any ingredients in the mixture.	
<b>Bioaccumulation</b>	No data available.	
<b>Mobility in soil</b>	No data available for this product.	
<b>Other hazardous effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	

## SECTION 13 Disposal considerations

<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>Local disposal regulations</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

## SECTION 14 Transport information

### CNDG

<b>UN number</b>	UN3077
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	No.
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

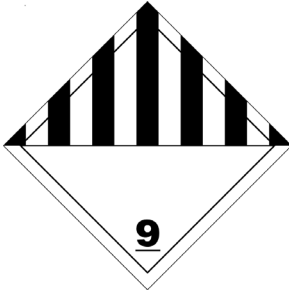
### IATA

<b>UN number</b>	UN3077
<b>UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Silver)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	No.
<b>ERG Code</b>	9L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed with restrictions.
<b>Cargo aircraft only</b>	Allowed with restrictions.

### IMDG

<b>UN number</b>	UN3077
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver) (Silver)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-A, S-F
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
Silver	

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

**CNDG; IATA; IMDG**

**General information** IMDG Regulated Marine Pollutant.

**SECTION 15 Regulatory information****Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

Not regulated.

**Regulations on the Control over Safety of Dangerous Chemicals****Catalog of Hazardous Chemicals**

Gallium (CAS 7440-55-3)

**Provision on the Environmental Administration of New Chemical Substances****China Inventory of Existing Chemical Substances**

Country(s) or region	Inventory name	On inventory (yes/no)*
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

\*A "Yes" indicates that all components of this product comply 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).

**Other regulations**

This safety data sheet conforms to the following laws, regulations and standards:  
 Measures for the Safe Use of Chemicals in Workplaces  
 General Rules for Preparation of Precautionary Labels for Chemicals (GB15258-2009 )  
 Regulations on Labor Protection in Workplaces Where Toxic Products Are Used  
 Packing Symbol of Dangerous Goods(GB190-2009)  
 Regulations on the Control over Safety of Dangerous Chemicals  
 Safety Data Sheet for Chemical Products - Content and Order of Sections (GB/T 16483-2008)  
 Packing - Pictorial Marking for Handling of Goods (GB/T191-2008)

**International regulations****Stockholm Convention**

Not applicable.

**Rotterdam Convention**

Not applicable.

**Montreal Protocol**

Not applicable.

**Kyoto protocol**

Not applicable.

**Basel Convention**

Not applicable.

**SECTION 16 Other information****References**

EPA: AQUIRE database  
 GB6944-2012: Classification and Code of Dangerous Goods.  
 GB12268-2012: List of Dangerous Goods.  
 NLM: Hazardous Substances Data Base  
 US. IARC Monographs on Occupational Exposures to Chemical Agents

**Further information**

Transportation Emergency  
Call Chemtrec at:  
US: 800.424.9300  
International: 703.741.5970  
Spain: 900.868.538  
Switzerland: 0800.564.402  
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059  
South Korea Toll-free Number – 080-880-0468

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**Revision information**

Product and Company Identification: Product and Company Identification  
Composition / Information on Ingredients: Ingredients  
GHS: Classification