



SAFETY DATA SHEET

MATERION

1. Product and company identification

Name of the chemical	Copper Gallium with Sodium Selenite	
Other means of identification		
SDS number	G14	
Recommended use of the chemical and restrictions on use		
Recommended use	Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment	
Recommended restrictions	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)	
Manufacturer/Importer/Supplier/ Distributor information	Materion Advanced Materials	
Address	6070 Parkland Boulevard Mayfield Heights OH 44124 United States	
Telephone	EH&S	1.216.383.4019
E-mail	ehs@materion.com	
Contact person	Theodore Knudson	
Emergency telephone number	See Section 16.	

2. Hazards identification

Hazard classification		
Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 2
	Acute toxicity, inhalation	Category 3
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements

Symbols



Signal word

Danger

Hazard statement

May be corrosive to metals. Fatal if swallowed. May cause an allergic skin reaction. Causes serious eye damage. Toxic if inhaled. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response

IF SWALLOWED: Rinse mouth. Immediately obtain medical assistance. IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately get medical assistance. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. Collect spillage.

Storage

Store locked up.

Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Other hazards	None known.
Supplemental information	For further information, please contact the Product Stewardship Department at +1.216.383.4019.

3. Composition/information on ingredients

Mixture

Chemical name	CAS Number	Concentration (%)
Copper	7440-50-8	75 - 90
Gallium	7440-55-3	10 - 20
Sodium Selenite (Na ₂ SeO ₃)	10102-18-8	5 - 10

4. First aid measures

First aid measures for different exposure routes

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If swallowed, seek medical advice immediately and show this container or label.
Most important symptoms and effects	May cause an allergic skin reaction. Prolonged exposure may cause chronic effects.
Personal protection for first-aid responders	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Notes to physician	Provide general supportive measures and treat symptomatically.

5. Fire-fighting measures

Extinguishing media	Water spray. Foam. Powder. Dry sand. Carbon dioxide (CO ₂).
Extinguishing media to avoid	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards during fire fighting	None known.
Special fire fighting procedures	Use water spray to cool unopened containers.
Protection of fire-fighters	Wear suitable protective equipment.
General fire hazards	No unusual fire or explosion hazards noted.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions	Keep unnecessary personnel away. Ensure adequate ventilation.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases.
Spill cleanup methods	Collect spillage.

7. Handling and storage

Handling	Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Storage	Store locked up.

8. Exposure controls/personal protection

Exposure limits

OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Components	Type	Value	Form
Copper (CAS 7440-50-8)	STEL	2 mg/m ³	Dust and mist.
		0.6 mg/m ³	Fume.
	TWA	1 mg/m ³	Dust and mist.
		0.2 mg/m ³	Fume.

OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)

Components	Type	Value	Form
Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8)	TWA	0.2 mg/m ³	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Copper (CAS 7440-50-8)	TWA	1 mg/m ³	Dust and mist.
Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8)	TWA	0.2 mg/m ³	Fume.

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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.
Individual protection measures, such as personal protective equipment	
Eye/face protection	If contact is likely, safety glasses with side shields are recommended.
Skin protection	
Hand protection	Wear gloves to prevent metal cuts and skin abrasions during handling.
Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties**Appearance**

Physical state	Solid.
Form	Solid.
Color	Brass.
Odor	None.
Odor threshold	Not applicable.
Melting point/freezing point	Undetermined. / Not applicable.
pH	Not applicable.
Boiling point, initial boiling point, and boiling range	Not applicable.
Flammability (solid, gas)	None known.
Flash point	Not applicable.
Decomposition temperature	Not applicable.
Auto-ignition temperature	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - lower (%) temperature	Not applicable.
Flammability limit - upper (%)	Not applicable.

Flammability limit - upper (%) temperature	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Density	7.96 g/cm ³ estimated
Solubility(ies)	
Solubility (water)	Non-metallic component can partially dissolve.
Partition coefficient (n-octanol/water)	Not applicable.
Evaporation rate	Not applicable.
Other data	
Explosive limit	Not applicable.
Explosivity	Not applicable.
Oxidizing properties	Not oxidizing.
Viscosity	Not applicable.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Fatal if swallowed.

Symptoms May cause an allergic skin reaction.

Information on toxicological effects

Acute toxicity	Fatal if swallowed.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium Selenite (Na₂SeO₃) (CAS 10102-18-8)

3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	This product is not expected 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 an aspiration hazard.
Chronic effects	May cause damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Based on available data, the classification criteria are not met for hazardous to the aquatic environment, acute hazard.

Product	Species		Test Results
Copper Gallium with Sodium Selenite			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Daphnia	240.2444 mg/l, 48 hours estimated
Fish	LC50	Fish	0.036 mg/l, 96 hours estimated
Components	Species		Test Results
Copper (CAS 7440-50-8)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Blue crab (<i>Callinectes sapidus</i>)	0.0031 mg/l
Fish	LC50	Fathead minnow (<i>Pimephales promelas</i>)	0.0219 - 0.0446 mg/l, 96 hours
Sodium Selenite (Na ₂ SeO ₃) (CAS 10102-18-8)			
Aquatic			
<i>Acute</i>			
Crustacea	EC50	Water flea (<i>Daphnia magna</i>)	1.1 mg/l, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (<i>Oncorhynchus mykiss</i>)	1.8 mg/l, 96 hours

Persistence and degradability

Bioaccumulation	No data available.
Mobility in soil	No data available for this product.
Other hazardous effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	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.
Residual waste	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).
Contaminated packaging	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.
Local disposal regulations	Dispose in accordance with all applicable regulations.

14. Transport information

IATA

UN number	UN2630
UN proper shipping name	Selenates or Selenites

Transport hazard class(es)
Class 6.1(PGI, II)
Subsidiary risk -
Label(s) 6.1
Packing group I
Environmental hazards No.
Special precautions for user Not available.

IMDG

UN number UN2630
UN proper shipping name Selenates or Selenites
Transport hazard class(es)
Class 6.1(PGI, II)
Subsidiary risk -
Label(s) 6.1
Packing group I
Environmental hazards
Marine pollutant No.
EmS F-A, S-A
Special precautions for user Not available.

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

IATA; IMDG



General information IMDG Regulated Marine Pollutant.

15. Regulatory information

Applicable regulations This material safety data sheet was prepared in accordance with the Regulation of Labeling and Hazard Communication of Hazardous Chemicals.

Methods and Facilities Standards for the Storage, Clearance and Disposal of Industrial Waste

Copper (CAS 7440-50-8) Listed.

Priority Management Chemical List (Regulations on Handling Priority Managed Chemicals), as amended

Gallium (CAS 7440-55-3)

Toxic Chemical Substances (TCS) List (EPA Toxic Substances Notice No. 0960095331E, Tables 1-3, Dec. 17, 2007, as amended)

Not listed.

Standards on Workplace Atmosphere of Dangerous and Hazardous Materials

Copper (CAS 7440-50-8) Listed.

Sodium Selenite (Na₂SeO₃) (CAS 10102-18-8) Listed.

GHS Classification List: GHS implementation phase 1, 2 and 3 (CLA No. 0980145063, 0990146707, and 1020146801)

Gallium (CAS 7440-55-3)

Sodium Selenite (Na₂SeO₃) (CAS 10102-18-8)

Rules on Road Transportation Safety

Regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Montreal Protocol

Not applicable.

Kyoto protocol

Not applicable.

Basel Convention

Not applicable.

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 Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	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).

16. Other information**References**

ACGIH
 EPA: ACQUIRE database
 NLM: Hazardous Substances Data Base
 US. IARC Monographs on Occupational Exposures to Chemical Agents
 Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
 Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)
 Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)
 Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)
 Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)

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Prepared by

Not available.