



## MATERION

### 1. Chemical and company identification

Name of chemical (Product name)	Cu/Na <sub>2</sub> SeO <sub>3</sub> Targets	
Supplier's company name, address and phone number		
Company name	Materion Advanced Materials	
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States	
Contact person	Theodore Knudson	
Telephone	EH&S	1.216.383.4019
e-mail address	ehs@materion.com	
Emergency telephone number	See Section 16.	
Reference number	G11	

### 2. Hazards identification

#### GHS classification

Physical hazards	The product is not classified according to GHS.	
Health hazards	Acute toxicity, oral	Category 2
	Acute toxicity, inhalation	Category 3
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1
	Germ cell mutagenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 1 (digestive system)
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 2 (blood, central nervous system, kidney, liver)
Environmental hazards	Short-term (acute) hazardous to the aquatic environment	Category 2
	Long-term (chronic) hazardous to the aquatic environment	Category 2

#### GHS label elements

##### Pictograms



##### Signal words

Danger

##### Hazard statement

Fatal if swallowed. 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.

<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Other hazards which do not result in classification</b>	None known.
<b>Supplemental information</b>	For further information, please contact the Product Stewardship Department at +1.216.383.4019.
<b>Main symptoms and emergency overview</b>	
<b>Main symptoms</b>	Irritation of eyes. May cause respiratory irritation. May cause an allergic skin reaction.
<b>Emergency overview</b>	Toxic if inhaled. Toxic if swallowed. Causes serious eye irritation. May cause an allergic skin reaction. Occupational exposure to the substance or mixture may cause adverse health effects.

### 3. Composition/information on ingredients

<b>Substance or mixture</b>	Mixture			
		<b>Gazette notification</b>		
<b>Chemical name or generic name</b>	<b>CAS Number</b>	<b>ENCS no.</b>	<b>ISHL no.</b>	<b>Concentration (%)</b>
Copper	7440-50-8			76 - 95
Sodium Selenite (Na <sub>2</sub> SeO <sub>3</sub> )	10102-18-8	(1)-507	(1)-507	24
Synonym(s): DISODIUM SELENITE DISODIUM SELENIUM TRIOXIDE				
<b>Chemical formula</b>	Cu (7440-50-8), H <sub>2</sub> O <sub>3</sub> -Se.2Na (10102-18-8)			

### 4. First aid measures

<b>If inhaled</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
<b>If on skin</b>	Wash off with soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
<b>If in eyes</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
<b>If swallowed</b>	Rinse mouth. If swallowed, seek medical advice immediately and show this container or label.
<b>Most important symptoms/effects, acute and delayed</b>	Irritation of eyes. May cause respiratory irritation. May cause an allergic skin reaction.
<b>Protection of first-aid responders</b>	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.
<b>Notes to physician</b>	Provide general supportive measures and treat symptomatically.

### 5. Fire-fighting measures

<b>Extinguishing media</b>	Water spray. Foam. Powder. Dry sand. Carbon dioxide (CO <sub>2</sub> ).
<b>Extinguishing media to avoid</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<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.

### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Ensure adequate ventilation.
<b>Environmental precautions</b>	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases.
<b>Methods and materials for containment and cleaning up</b>	Collect spillage.

## 7. Handling and storage

### Handling

**Technical measures (e.g. Local and general ventilation)** Provide adequate ventilation.

**Safe handling advice**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not taste or swallow. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

**Hygiene measures**

Observe any medical surveillance requirements. 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.

### Storage

**Safe storage conditions** Store locked up.

**Safe packaging materials** Store in original tightly closed container.

## 8. Exposure controls/personal protection

**Control parameters** Follow standard monitoring procedures.

### Occupational exposure limits

Japan. OELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits)

Components	Type	Value
Sodium Selenite (Na <sub>2</sub> SeO <sub>3</sub> ) (CAS 10102-18-8)	TWA	0.1 mg/m <sup>3</sup>

US. ACGIH Threshold Limit Values

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

### Engineering measures

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. Provide eyewash station. Eye wash fountain and emergency showers are recommended.

### Personal protective equipment

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Hand protection** Wear gloves to prevent metal cuts and skin abrasions during handling.

**Eye protection** Wear safety glasses with side shields (or goggles).

**Skin and body protection** Wear suitable protective clothing.

## 9. Physical and chemical properties

<b>Physical state</b>	Solid.
<b>Form</b>	Solid.
<b>Color</b>	Copper
<b>Odor</b>	None.
<b>Odor threshold</b>	Not applicable.
<b>Melting point/freezing point</b>	1981.4 °F (1083 °C) / Not applicable.
<b>Boiling point, initial boiling point, and boiling range</b>	Not applicable.
<b>Combustibility</b>	None known.

**Lower and upper explosion limit / flammability limit**

Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.

Flash point Not applicable.

Auto-ignition temperature Not applicable.

Decomposition temperature Not applicable.

pH Not applicable.

Kinematic viscosity Not available.

**Solubility(ies)**

Solubility (water) Insoluble.

Partition coefficient (n-octanol/water) (log value) Not applicable.

Vapor pressure Not applicable.

**Density and/or relative density**

Density 7.76 g/cm<sup>3</sup> estimated

Relative density Not applicable.

Vapor density Not applicable.

Particle characteristics Not available.

**Other information**

Evaporation rate Not applicable.

Explosive limit Not applicable.

Explosive properties Not explosive.

Oxidizing properties Not oxidizing.

Specific gravity 7.76 estimated

Viscosity (Coefficient of viscosity) Not applicable.

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical 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**

**Acute toxicity** Fatal if swallowed.

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes eye irritation.

**Respiratory or skin sensitization**

**Japan Society for Occupational Health: Skin sensitizer**

Copper (CAS 7440-50-8)

2 Probable skin sensitizer.

<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	Suspected of causing genetic defects.
<b>Carcinogenicity</b>	

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Sodium Selenite (Na<sub>2</sub>SeO<sub>3</sub>) (CAS 10102-18-8) 3 Not classifiable as to carcinogenicity to humans.

<b>Reproductive toxicity</b>	Suspected of damaging fertility or the unborn child.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not an aspiration hazard.

**12. Ecological information**

**Ecotoxicological data**

Product	Species		Test Results
Cu/Na <sub>2</sub> SeO <sub>3</sub> Targets			
<b>Aquatic</b>			
<i>Acute</i>			
Crustacea	EC50	Daphnia	100.1019 mg/l, 48 hours estimated
Fish	LC50	Fish	0.0341 mg/l, 96 hours estimated
Components	Species		Test Results

Copper (CAS 7440-50-8)

**Aquatic**

*Acute*

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<sub>2</sub>SeO<sub>3</sub>) (CAS 10102-18-8)

**Aquatic**

*Acute*

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

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

**Persistence and degradability**

**Bioaccumulation** No data available.

**Mobility in soil** No data available for this product.

**Hazardous to the ozone layer** No data available.

**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**

**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**

Contract with a disposal operator licensed by the Law on Disposal and Cleaning. 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. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

**14. Transport information****IATA**

<b>UN number</b>	2630
<b>UN proper shipping name</b>	Selenates or Selenites
<b>Transport hazard class(es)</b>	
<b>Class</b>	6.1(PGI, II)
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	6.1
<b>Packing group</b>	I
<b>Environmental hazards</b>	No.
<b>Special precautions for user</b>	Not available.

**IMDG**

<b>UN number</b>	2630
<b>UN proper shipping name</b>	Selenates or Selenites
<b>Transport hazard class(es)</b>	
<b>Class</b>	6.1(PGI, II)
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	6.1
<b>Packing group</b>	I
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No.
<b>EmS</b>	F-A, S-A
<b>Special precautions for user</b>	Not available.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.
<b>General information</b>	IMDG Regulated Marine Pollutant.

**IATA; IMDG**

**National regulations** Follow regulation in section 15 for domestic transportation.

**Emergency Response Guide Number** 171

**15. Regulatory information****Industrial Safety and Health Act**

<b>Notifiable substances</b>		
COPPER AND COPPER COMPOUNDS	Table 9 Ordinance No. 379	76 - 95 %
SELENIUM AND SELENIUM COMPOUNDS	Table 9 Ordinance No. 333	5.0 - 24 %
<b>Labeling substances</b>		
COPPER (POWDER)		76 - 95 %
COPPER AND COPPER COMPOUNDS		76 - 95 %

**Poisonous and Deleterious Substances Control Act**

**Specified poisonous substances**  
Not regulated.

**Poisonous substances**

Not regulated.

**Deleterious substances**

Not regulated.

**Act on the Regulation of Manufacture and Evaluation of Chemical Substances**

**Class I specified chemical substances**

Not regulated.

**Class II specified chemical substances**

Not regulated.

**Monitoring chemical substances**

Not regulated.

**Priority Assessment Chemical Substances (PACs)**

Not regulated.

**Reporting Exempted Substances**

Not regulated.

**Law concerning Pollutant Release and Transfer Register**

**Specified class 1 substances (substance name, ordinance number and content)**

Not regulated.

**Class 1 substances (substance name, ordinance number and content)**

SELENIUM AND ITS COMPOUNDS                      Ordinance No. 242    24 %                      (Sodium Selenite (Na<sub>2</sub>SeO<sub>3</sub>))

**Class 2 substances (substance name, ordinance number and content)**

Not regulated.

**Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule**                      Toxic substances

**Air Law, Enforcement Rule**                      Toxic substances

**Explosives Control Act**

Not regulated.

**Waste Management and Public Cleansing Act**

DUST CONTAINING SELENIUM AND ITS COMPOUNDS  
SLUDGE, SPENT ACID, AND WASTE ALKALI CONTAINING SELENIUM AND ITS COMPOUNDS

**Water Pollution Control Act**

COPPER  
SELENIUM AND ITS COMPOUNDS (TOTAL SE)

**Sewage Act**

COPPER AND ITS COMPOUNDS (AS CU)                      3 MG/L  
SELENIUM AND ITS COMPOUNDS (AS SE)                      0.1 MG/L

**16. Other information**

**Bibliography**

HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
National Toxicology Program (NTP) Report on Carcinogens  
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits  
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012  
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"  
JIS Z 7253:2012 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)

**Further information**

Transportation Emergency  
Call Chemtrec at:  
International: 703.741.5970  
Spain: 900.868.538  
Switzerland: 0800.564.402

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**Other information**

Revised information in Section 16.