



# MATERIAL SAFETY DATA SHEET

**MATERION**

## 1. Chemical product and company identification

**A. Product name** Zinc Tin Antimony Targets

**Other means of identification**

**SDS number** G25

### B. Recommended use and Limitations on use

**Recommended use** Manufacture of computer, electronic and optical products, electrical equipment  
Scientific research and development  
Other: Manufacture of medical and defense equipment

**Limitations on use** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)  
Consumer uses: Private households (= general public = consumers)

### C. Supplier information

**Company name** Materion Electronic Materials  
**Address** 6070 Parkland Boulevard  
Mayfield Heights Ohio 44124  
United States

**Telephone** 1.216.383.4019

**Email** Materion-PS@materion.com

**Contact person** Product Stewardship Director

**Emergency telephone number** See Section 16.

**Importer**

**Company name** See above.

**Contact person** Product Stewardship Director

## 2. Hazards identification

### A. Hazard category/Classification

**Physical hazards** Not classified.

**Health hazards** Not classified.

**Environmental hazards** Not classified.

### B. Warning label items including precautionary statement

• **Pictogram** None.

• **Signal word** None.

• **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.

#### • Precautionary statement

**Prevention** Observe good industrial hygiene practices.

**Response** Wash hands after handling.

**Storage** Store away from incompatible materials.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)** None known.

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

### 3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Zinc		7440-66-6	KE-35518	50 - 99
Tin		7440-31-5	KE-33838	0 - 50
Antimony		7440-36-0	KE-01834	1 - 5

### 4. First aid measures

A. In case of eye contact	Rinse with water. Get medical attention if irritation develops and persists.
B. In case of skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
C. In case of inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
D. In case of swallowing	Rinse mouth. Get medical attention if symptoms occur.
E. Note to physician	Treat symptomatically.
Most important symptoms/effects, acute and delayed	None known.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

### 5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media	
Suitable extinguishing media	Powder. Dry sand.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
B. Specific hazards arising from the chemical (example: hazardous combustion products)	During fire, gases hazardous to health may be formed.
C. Specific methods of fire-fighting	
Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures	Move containers from fire area if you can do so without risk.
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

A. Personal precautions, protective equipment and emergency measures	Keep unnecessary personnel away.
B. Environmental precautions	Avoid discharge into drains, water courses or onto the ground.
C. Methods and materials for containment and cleaning up	Stop the flow of material, if this is without risk. The product is insoluble in water.

### 7. Handling and storage

A. Precautions for safe handling	Observe good industrial hygiene practices.
B. Conditions for safe storage (including any incompatibilities)	Not available.

### 8. Exposure controls/personal protection

#### A. Exposure limit values, biological limit values, etc

Korea. Exposure Limits for Chemicals and Physical Agents, Occupational Safety and Health Act "K-OSHA" Article 106

Material	Type	Value
Zinc Tin Antimony Targets	TWA	0.05 mg/m3

Korea. Exposure Limits for Chemicals and Physical Agents, Occupational Safety and Health Act "K-OSHA" Article 106

Components	Type	Value
Antimony (CAS 7440-36-0)	TWA	0.5 mg/m <sup>3</sup>
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>

US. ACGIH Threshold Limit Values (TLV)

Components	Type	Value	Form
Antimony (CAS 7440-36-0)	TWA	0.5 mg/m <sup>3</sup>	
Tin (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>	Inhalable fraction.

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>B. Appropriate engineering controls</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.
<b>C. Personal protective equipment</b>	
• Respiratory protection	Not available.
• Eye protection	If contact is likely, safety glasses with side shields are recommended.
• Hand protection	Wear gloves to prevent metal cuts and skin abrasions during handling.
• Body protection	Wear suitable protective clothing.
<b>Hygiene measures</b>	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.

## 9. Physical and chemical properties

<b>A. Appearance</b>	
Physical state	Solid.
Form	Solid.
Color	Grey
<b>B. Odor</b>	None.
<b>C. Odor threshold</b>	Not applicable.
<b>D. pH</b>	Not applicable.
<b>E. Melting point/freezing point</b>	
Melting point	449.42 °F (231.9 °C) estimated
Freezing point	Not applicable.
<b>F. Boiling point, initial boiling point, and boiling range</b>	Not applicable.
<b>G. Flash point</b>	Not applicable.
<b>H. Evaporation rate</b>	Not applicable.
<b>I. Flammability (solid, gas)</b>	None known.
<b>J. Upper/lower limit on flammability or explosive limits</b>	
Explosive limit - lower (%)	Not applicable.
	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
<b>K. Vapor pressure</b>	Not applicable.
<b>L. Solubility</b>	
Solubility (water)	Insoluble.

M. Vapor density	Not applicable.
N. Specific gravity	Not applicable.
O. n-octanol/water partition coefficient	Not applicable.
P. Auto-ignition temperature	Not applicable.
Q. Decomposition temperature	Not applicable.
R. Viscosity	Not applicable.
S. Molecular weight	Not available.

#### Other data

Density	7.16 g/cm <sup>3</sup> estimated
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

## 10. Stability and reactivity

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

### A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.

**B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)** Contact with incompatible materials.

**C. Incompatible materials** Acids. Strong oxidizing agents. Chlorine.

**D. Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

### A. Information on likely routes of exposure

• Respiratory organs	No adverse effects due to inhalation are expected.
• Skin	No adverse effects due to skin contact are expected.
• Eyes	Not likely, due to the form of the product.
• Mouth	Expected to be a low ingestion hazard.

### B. Information on health hazards

• Acute toxicity (list all possible routes of exposure)	Not known.
• Corrosivity or irritation to the skin	Not available.
• Serious eye damage/eye irritation	Not likely, due to the form of the product.
• Respiratory sensitization	Not a respiratory sensitizer.
• Skin sensitization	Not available.
• Carcinogenic properties /Carcinogenicity	Not available.
• Mutagenic properties /Mutagenicity	Not available.
• Reproductive toxicity	Not available.
• Specific target organ toxicity - single exposure	Not classified.
• Specific target organ toxicity - repeated exposure	Not classified.
• Aspiration hazard	Not an aspiration hazard.

## 12. Ecological information

A. Ecotoxicity		The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.	
Product		Species	Test Results
Zinc Tin Antimony Targets			
Aquatic			
Acute			
Crustacea	EC50	Daphnia	1.4141 mg/l, 48 hours estimated
Fish	LC50	Fish	0.2479 mg/l, 96 hours estimated
Components		Species	Test Results
Zinc (CAS 7440-66-6)			
Aquatic			
Acute			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.41 mg/l, 96 hours
Hazardous to the aquatic environment, acute hazard		The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.	
B. Persistence/degradability		No data is available on the degradability of any ingredients in the mixture.	
C. Bioaccumulative potential		No data available.	
D. Mobility in soil		The product is immiscible with water and will spread on the water surface.	
E. Other adverse 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

<b>A. Method of disposal</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
<b>B. Disposal considerations (including disposal of contaminated containers or 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>Waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

## 14. Transport information

<b>National regulations</b>	
<b>KSSTDG</b>	
<b>A. UN number</b>	Not regulated as dangerous goods.
<b>B. UN proper shipping name</b>	Not regulated as dangerous goods.
<b>C. Transport hazard class(es)</b>	
Class	Not assigned.
Subsidiary risk	-
<b>D. Packing group</b>	-
<b>E. Environmental hazards</b>	
Marine pollutant	No.
EmS	Not assigned.
<b>F. Special precautions for user</b>	Not assigned.
<b>International regulations</b>	
<b>IATA</b>	
<b>A. UN number</b>	Not regulated as dangerous goods.
<b>B. UN proper shipping name</b>	Not regulated as dangerous goods.
<b>C. Transport hazard class(es)</b>	
Class	Not assigned.
Subsidiary risk	-
<b>D. Packing group</b>	-
<b>E. Environmental hazards</b>	No.

F. Special precautions for user Not assigned.

#### IMDG

A. UN number Not regulated as dangerous goods.

B. UN proper shipping name Not regulated as dangerous goods.

C. Transport hazard class(es)

Class Not assigned.

Subsidiary risk -

D. Packing group -

E. Environmental hazards

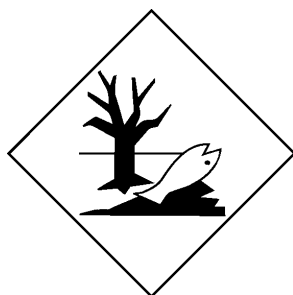
Marine pollutant No.

EmS Not assigned.

F. Special precautions for user Not assigned.

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

Marine pollutant



## 15. Regulatory information

### A. Restrictions under the Industrial Safety and Health Law

#### Harmful Substances Prohibited from Manufacturing

Not regulated.

#### Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

#### Controlled Hazardous Substances

Tin (CAS 7440-31-5)

Zinc (CAS 7440-66-6)

Antimony (CAS 7440-36-0)

#### Harmful Substances Requiring Special Medical Examination

Antimony (CAS 7440-36-0)

Tin (CAS 7440-31-5)

#### Workplace Environmental Monitoring Harmful Materials

Antimony (CAS 7440-36-0)

Tin (CAS 7440-31-5)

#### Occupational Exposure Limit

Antimony (CAS 7440-36-0)

Tin (CAS 7440-31-5)

### B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

#### Accidental Release Prevention Substances

Not regulated.

#### Act on the Registration and Evaluation of Chemicals

##### Banned Toxic Chemicals

Not regulated.

##### Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

## Restricted Chemical Substances

Not regulated.

## Toxic Chemicals

Not regulated.

## C. Restrictions under the Dangerous Substance Safety Management Act

## D. Restrictions under the Wastes Control Act

### Halogenated Materials in Waste Organic Solvents

Not regulated.

### Hazardous Substances

Not regulated.

## E. Restrictions under other foreign or domestic laws

### Clean Air Conservation Act

#### Air Pollutants

Antimony (CAS 7440-36-0)

Tin (CAS 7440-31-5)

Zinc (CAS 7440-66-6)

**Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended**

Not listed.

#### Specific Air Pollutants

Not regulated.

## Further information

This material safety data sheet was prepared in accordance with Ministry of Employment and Labor Notice No 2020-130.

## Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	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

### A. Source of information

ACGIH  
EPA: AQUIRE database  
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)  
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
Korea. GHS Labeling Requirements. Standards for Classification and Labeling of Chemical Substances and Material Safety Data Sheets (MSDS), as amended  
Korea. KOSHA GHS Classifications List (Korea Occupational Safety & Health Agency)  
Korea. NEMA GHS Classification List (National Emergency Management Agency GHS Guidance for Classification and Labeling for Dangerous Goods)  
Toxic Release Inventory (TRI) Chemicals (MOE Public Notice No. 2002-166, Nov. 8, 2002), as amended

### B. Issue date

10-21-2019

### C. Number of revisions and date of most recent revision

08-06-2024 (03 revision)

### D. Other

Not available.

### 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**

This document has undergone significant changes and should be reviewed in its entirety.