

**MATERION****1. Chemical and company identification**

Name of chemical (Product name) Gold Tin 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 G17

2. Hazards identification**GHS classification**

The product is not classified according to GHS.

GHS label elements

Pictograms None.

Signal words 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 contents/container in accordance with local/regional/national/international regulations.

Other hazards which do not result in classification None known.

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

Main symptoms and emergency overview

Emergency overview The products are classified as articles and, as such, do not present a physical or health hazard in the present form. If the products are processed or handled in ways that generate particles (dust, fume, particles or powder) and/or chemical compounds, a potential health hazard could exist and risk management measures must be taken to minimize risk.

3. Composition/information on ingredients

Substance or mixture Mixture

Components	CAS Number	Gazette notification		Concentration (%)
		ENCS no.	ISHL no.	
Gold	7440-57-5			50 - 95
Tin	7440-31-5			5 - 50

Chemical formula Au (7440-57-5), Sn (7440-31-5)

4. First aid measures

If inhaled Call a physician if symptoms develop or persist.

If on skin Get medical attention if irritation develops and persists.

If in eyes Get medical attention if irritation develops and persists.

If swallowed Get medical advice/attention if you feel unwell.

Most important symptoms/effects, acute and delayed	None known.
Protection of first-aid responders	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Extinguishing media	Powder. Dry sand. Use methods for the surrounding fire.
Extinguishing media to avoid	None known.
Specific hazards	This product is not flammable.
Special fire fighting procedures	Use standard firefighting procedures and consider the hazards of other involved materials.
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, protective equipment and emergency procedures	Keep unnecessary personnel away.
Environmental precautions	Collect spillage.
Methods and materials for containment and cleaning up	Collect spillage.

7. Handling and storage

Handling	
Technical measures (e.g. Local and general ventilation)	Provide adequate ventilation.
Safe handling advice	Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Contact avoidance measures	Strong oxidizing agents. Acids. Chlorine.
Hygiene measures	Use good industrial hygiene practices in handling this material.
Storage	
Safe storage conditions	Not available.
Safe packaging materials	No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product.

8. Exposure controls/personal protection

Control parameters	Not available.
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Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Tin (CAS 7440-31-5)	TWA	2 mg/m ³	Inhalable fraction.

Exposure guidelines	This material does not have established exposure limits.
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.
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	Not available.
Skin and body protection	Use personal protective equipment as required.

9. Physical and chemical properties

Physical state	Solid.
Form	Solid.
Color	Yellowish
Odor	None.
Odor threshold	Not applicable.
Melting point/freezing point	518 - 1832 °F (270 - 1000 °C) / Not applicable.
Boiling point, initial boiling point, and boiling range	Not applicable.
Combustibility	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	10.50 - 17.90 g/cm ³
Relative density	Not applicable.
Vapor density	Not applicable.
Particle characteristics	Not available.
Other information	
Evaporation rate	Not applicable.
Oxidizing properties	Not oxidizing.
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	Acids. Chlorine.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Acute toxicity	Not available.
Skin corrosion/irritation	Not relevant, due to the form of the product.
Serious eye damage/eye irritation	Not likely, due to the form of the product.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified.
Reproductive toxicity	Not classified.
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

Ecotoxicity	Not available.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation	No data available.
Mobility in soil	The product is immiscible with water and will spread on the water surface.
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.
Contaminated packaging	No special precautions.
Local disposal regulations	Dispose of contents/container in accordance with local/regional/national/international regulations.

14. Transport information

IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.
National regulations	Follow regulation in section 15 for domestic transportation.

15. Regulatory information

Industrial Safety and Health Act		
Notifiable substances		
TIN AND TIN COMPOUNDS	Table 9 Ordinance No. 322	5.0 - 50 %
Labeling substances		
TIN (POWDER)		5.0 - 50 %
TIN AND TIN COMPOUNDS		5.0 - 50 %
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)

Not regulated.

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

Not regulated.

Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule

Not regulated.

Air Law, Enforcement Rule

Not regulated.

Explosives Control Act

Not regulated.

16. Other information**Bibliography**

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
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.