



SAFETY DATA SHEET

MATERION

1. Identification

Product identifier	Tin Product
Other means of identification	
SDS number	G16
CAS number	7440-31-5
Synonyms	TIN, ELEMENTAL
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

Manufacturer

Company name	Materion Advanced Materials	
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States	
Telephone	EH&S	1.216.383.4019
Website	www.materion.com	
E-mail	ehs@materion.com	
Contact person	Theodore Knudson	
Emergency phone number	See Section 16.	
Supplier	See above.	

2. Hazard identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.

Label elements

Hazard symbol	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	None.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards None known.

Supplemental information None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Tin Product	TIN, ELEMENTAL	7440-31-5	100

4. First-aid measures

Inhalation	Call a physician if symptoms develop or persist.
Skin contact	Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work.
Eye contact	Flush thoroughly with water. If irritation occurs, get medical assistance.
Ingestion	If swallowed: Immediately call a poison center/doctor.
Most important symptoms/effects, acute and delayed	None known.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	If you feel unwell, seek medical advice (show the label where possible).

5. Fire-fighting measures

Suitable extinguishing media	Powder. Dry sand. Use methods for the surrounding fire.
Unsuitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Specific hazards arising from the chemical	This product is not flammable.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Collect spillage.
Environmental precautions	Collect spillage.

7. Handling and storage

Precautions for safe handling	Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Not available.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

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

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Material	Type	Value
Tin Product (CAS 7440-31-5)	TWA	2 mg/m ³

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Material	Type	Value
Tin Product (CAS 7440-31-5)	TWA	2 mg/m ³

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

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

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Material	Type	Value
Tin Product (CAS 7440-31-5)	TWA	2 mg/m ³

Canada. Quebec OELs. (Ministry of Labor - Regulation respecting occupational health and safety)

Material	Type	Value
Tin Product (CAS 7440-31-5)	TWA	2 mg/m ³

Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21)

Material	Type	Value
Tin Product (CAS 7440-31-5)	15 minute	4 mg/m ³
	8 hour	2 mg/m ³

Biological limit values	No biological exposure limits noted for the ingredient(s).
Exposure guidelines	This material does not have established exposure limits.
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. Ensure adequate ventilation, especially in confined areas. General ventilation normally adequate.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear gloves to prevent metal cuts and skin abrasions during handling.
Other	Use personal protective equipment as required.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Solid.
Color	Silver-white.
Odor	None.
Odor threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	449.42 °F (231.9 °C)

Initial boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability (solid, gas)	None known.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	Not applicable.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not applicable.
Viscosity	Not applicable.
Other information	
Density	7.26 g/cm ³ estimated
Dynamic viscosity	Not applicable.
Dynamic viscosity temperature	Not applicable.
Explosive properties	Not explosive.
Kinematic viscosity	Not applicable.
Molecular formula	Sn
Molecular weight	118.69 g/mol
Oxidizing properties	Not oxidizing.
Surface tension	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

Information on likely routes of exposure

Inhalation	Not likely, due to the form of the product.
Skin contact	Not likely, due to the form of the product.
Eye contact	Not likely, due to the form of the product.

Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	None known.
Information on toxicological effects	
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.
Chronic effects	No data recorded.
Further information	This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous.
Persistence and degradability	The product is not expected to be biodegradable.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
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

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Refer to manufacturer/supplier for information on recovery/recycling.

14. Transport information

TDG	Not regulated as dangerous goods.
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.

15. Regulatory information

Canadian regulations

Controlled Drugs and Substances Act

Not regulated.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Not listed.

Precursor Control Regulations

Not regulated.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto protocol

Not applicable.

Montreal 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)	Yes
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

Issue date	12-10-2018
Revision date	07-12-2021
Version #	03
Further information	Transportation Emergency Call Chemtrec at: International: 703.741.5970 Spain: 900.868.538 Switzerland: 0800.564.402

References

ACGIH
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)
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)
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)
GOST 30333-2007 Chemical production safety passport. General requirements.
GOST 31340-2013 Labeling of chemicals. General requirements.
GOST 32419-2013 Classification of chemical products. General requirements.
GOST 32424-2013 Classification of chemicals for environmental hazards. General principles.
GOST 12.1.007-76 Occupational safety standard system. Noxious substances. Classification and general safety requirements.
GOST 12.1.044-89. Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of substances and materials. Nomenclature of indices and methods of their determination.
GOST 19433-88. Dangerous goods. Classification and marking.
GOST 12.1.004-91. Occupational safety standards system. Fire safety. General requirements.

Disclaimer

This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

Information for this safety data sheet was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the mandatory requirements of WHMIS. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this form. If user requires independent information on ingredients in this or any other material, we recommend contact with the Canadian Centre for Occupational Health and Safety (CCOHS) in Hamilton, Ontario (1-800-263-8466) or CSST in Montreal, Quebec (514-873-3990).