



# SAFETY DATA SHEET

**MATERION**

## 1. Identification

<b>Product identifier</b>	<b>Tin Product</b>
<b>Other means of identification</b>	
<b>SDS number</b>	G16
<b>CAS number</b>	7440-31-5
<b>Synonyms</b>	TIN, ELEMENTAL
<b>Recommended use</b>	Manufacture of computer, electronic and optical products, electrical equipment Scientific research and development Other: Manufacture of medical and defense equipment
<b>Recommended restrictions</b>	Professional uses: Public domain (administration, education, entertainment, services, craftsmen) Consumer uses: Private households (= general public = consumers)

## Manufacturer/Importer/Supplier/Distributor information

### Manufacturer

<b>Company name</b>	Materion Advanced Materials Germany GmbH
<b>Address</b>	Borsigstrasse 10 Germany
<b>Telephone</b>	49.60.23.91.82.0
<b>Website</b>	www.materion.com
<b>E-mail</b>	Materion.Germany@materion.com
<b>Contact person</b>	Hermann Schmiing
<b>Emergency phone number</b>	49.60.23.91.82.0
<b>Supplier</b>	See above.

## 2. Hazard(s) identification

<b>Physical hazards</b>	Not classified.
<b>Health hazards</b>	Not classified.
<b>Environmental hazards</b>	Not classified.

### Label elements

<b>Hazard symbol</b>	None.
<b>Signal word</b>	None.
<b>Hazard statement</b>	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

<b>Prevention</b>	Observe good industrial hygiene practices.
<b>Response</b>	None.
<b>Storage</b>	Store away from incompatible materials.
<b>Disposal</b>	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

<b>Chemical name</b>	<b>Common name and synonyms</b>	<b>CAS number</b>	<b>%</b>
Tin, Elemental	TIN, ELEMENTAL	7440-31-5	100

## 4. First-aid measures

<b>Inhalation</b>	Call a physician if symptoms develop or persist.
<b>Skin contact</b>	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.

<b>Eye contact</b>	Flush thoroughly with water. If irritation occurs, get medical assistance.
<b>Ingestion</b>	If swallowed: Immediately call a poison center/doctor.
<b>Most important symptoms/effects, acute and delayed</b>	None known.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically.
<b>General information</b>	If you feel unwell, seek medical advice (show the label where possible).

## 5. Fire-fighting measures

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

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Wear appropriate personal protective equipment. For personal protection, see section 8 of the SDS.
<b>Methods and materials for containment and cleaning up</b>	Collect spillage. For waste disposal, see section 13 of the SDS.
<b>Environmental precautions</b>	Collect spillage.

## 7. Handling and storage

<b>Precautions for safe handling</b>	Observe good industrial hygiene practices.
<b>Conditions for safe storage, including any incompatibilities</b>	Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. ACGIH Threshold Limit Values

Material	Type	Value
Tin, Elemental (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>

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

Material	Type	Value
Tin, Elemental (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>

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

Material	Type	Value
Tin, Elemental (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>

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

Material	Type	Value
Tin, Elemental (CAS 7440-31-5)	TWA	2 mg/m <sup>3</sup>

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

Material	Type	Value
Tin, Elemental (CAS 7440-31-5)	TWA	2 mg/m3

**Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)**

Material	Type	Value
Tin, Elemental (CAS 7440-31-5)	TWA	2 mg/m3

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Control parameters**

Follow standard monitoring procedures.

**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.

<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not applicable.
<b>Viscosity</b>	Not applicable.
<b>Other information</b>	
<b>Density</b>	7.26 g/cm <sup>3</sup> estimated
<b>Dynamic viscosity</b>	Not applicable.
<b>Dynamic viscosity temperature</b>	Not applicable.
<b>Explosive properties</b>	Not explosive.
<b>Kinematic viscosity</b>	Not applicable.
<b>Molecular formula</b>	Sn
<b>Molecular weight</b>	118.69 g/mol
<b>Oxidizing properties</b>	Not oxidizing.
<b>Surface tension</b>	Not applicable.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid</b>	Contact with incompatible materials.
<b>Incompatible materials</b>	Acids. Chlorine.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Not likely, due to the form of the product.
<b>Skin contact</b>	Not likely, due to the form of the product.
<b>Eye contact</b>	Not likely, due to the form of the product.
<b>Ingestion</b>	Expected to be a low ingestion hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**      None known.

### Information on toxicological effects

<b>Acute toxicity</b>	Not available.
<b>Skin corrosion/irritation</b>	Not relevant, due to the form of the product.
<b>Serious eye damage/eye irritation</b>	Not likely, due to the form of the product.

### Respiratory or skin sensitization

<b>Respiratory sensitization</b>	Not a respiratory sensitizer.
<b>Skin sensitization</b>	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

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous.
<b>Persistence and degradability</b>	The product is not expected to be biodegradable.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	No data available.
<b>Other adverse effects</b>	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>Disposal instructions</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations.
<b>Contaminated packaging</b>	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

Australia

#### Inventory name

Australian Inventory of Chemical Substances (AICS)

#### On inventory (yes/no)\*

Yes

Canada

Domestic Substances List (DSL)

Yes

Canada

Non-Domestic Substances List (NDSL)

No

China

Inventory of Existing Chemical Substances in China (IECSC)

Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
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
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

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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).

**Further information** HMIS® is a registered trade and service mark of the NPCA.

## References

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