

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

Name of chemical (Product name)	Tin Product
Company name	Materion Advanced Materials Germany GmbH
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Emergency telephone number	49.60.23.91.82.0
Reference number	G16

2. Hazards identification**GHS classification**

The product is not classified according to GHS.

GHS label elements

Symbols	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	None.
Response	None.
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 None.

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 and/or powder), a potential health hazard could exist and risk management measures must be taken to minimize risk.

3. Composition/information on ingredients

Substance or mixture Substance

Components	CAS Number	Gazette notification		Concentration (%)
		ENCS no.	ISHL no.	
Tin Product	7440-31-5			100

Synonym(s) TIN, ELEMENTAL

Chemical formula Sn (7440-31-5)

4. First aid measures

If inhaled	Call a physician if symptoms develop or persist.
If on skin	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.
If in eyes	Flush thoroughly with water. If irritation occurs, get medical assistance.
If swallowed	If swallowed: Immediately call a poison center/doctor.
Most important symptoms/effects, acute and delayed	None known.
Protection of first-aid responders	If you feel unwell, seek medical advice (show the label where possible).

5. Fire-fighting measures

Extinguishing media	Powder. Dry sand. Use methods for the surrounding fire.
Extinguishing media to avoid	Use fire-extinguishing media appropriate for surrounding materials.
Specific hazards	This product is not flammable.
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 measures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Environmental precautions	Collect spillage.
Methods or materials for containment and cleaning up	Collect spillage. For waste disposal, see section 13 of the SDS.

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. Use personal protection recommended in Section 8 of the SDS.
Contact avoidance measures	Strong oxidizing agents. Acids. Chlorine. For further information, please refer to section 10 of the SDS.
Storage	
Safe storage conditions	Store away from incompatible materials (see Section 10 of the SDS).
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

Occupational exposure limits

US. ACGIH Threshold Limit Values

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

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	Wear safety glasses with side shields (or goggles).
Skin and body protection	Use personal protective equipment as required.

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)
Boiling point, initial boiling point, and boiling range	Not applicable.
Flash point	Not applicable.

Combustion characteristics (solid, gas) None known.

Upper/lower flammability or explosive limits

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.

Vapor pressure Not applicable.

Vapor density Not applicable.

Evaporation rate Not applicable.

Specific gravity Not applicable.

Solubility(ies)

Solubility (water) Insoluble

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

Auto-ignition temperature Not applicable.

Decomposition temperature Not applicable.

Viscosity (Coefficient of viscosity) Not applicable.

Other information

Density 7.26 g/cm³ estimated

Dynamic viscosity Not applicable.

Dynamic viscosity temp Not applicable.

Explosive properties Not explosive.

Kinematic viscosity Not applicable.

Molecular formula Sn

Molecular weight 118.69 g/mol

Oxidizing properties Not oxidizing.

Relative density Not applicable.

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

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	The product is not classified as environmentally hazardous.
Persistence and degradability	The product is not expected to be biodegradable.
Bioaccumulation	No data available.
Mobility in soil	The product is insoluble in water.
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

Dispose in accordance with all applicable regulations.

Residual waste	Dispose of in accordance with local regulations.
Contaminated packaging	Refer to manufacturer/supplier for information on recovery/recycling.
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

Labeling substances

TIN (POWDER)

TIN AND TIN COMPOUNDS

Poisonous and Deleterious Substances Control Act

Specified poisonous substances

Not regulated.

Poisonous substances

Not regulated.

Deleterious substances

Not regulated.

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

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)

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