

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Name of the substance	Tin oxide (SnO ₂)
Identification number	242-159-0 (EC number)
Synonyms	Tin oxide (SnO ₂) * Tin dioxide * Stannic oxide
Document number	2BY
Materion Code	2BY
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Revision date	15-January-2018
Supersedes date	14-July-2015

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Not available.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet**Supplier**

Company name	Materion Advanced Chemicals Inc.
Address	407 N. 13th Street 1316 W. St. Paul Avenue Milwaukee, WI 53233 United States
Division	Milwaukee
Telephone	414.212.0257
e-mail	advancedmaterials@materion.com
Contact person	Noreen Atkinson

1.4. Emergency telephone number**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture**

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary Exposure to powder or dusts may be irritating to eyes, nose and throat.

2.2. Label elements**Label according to Regulation (EC) No. 1272/2008 as amended**

Contains:	Tin oxide
Hazard pictograms	None.
Signal word	None.
Hazard statements	The substance does not meet the criteria for classification.

Precautionary statements

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.

Supplemental label information None.

2.3. Other hazards None known.

SECTION 3: Composition/information on ingredients**3.1. Substances**

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Tin oxide	90 - 100	18282-10-5 242-159-0	-	-	#
Classification: -					

List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

SECTION 4: First aid measures

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Get medical attention if irritation develops and persists.

Eye contact Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed Dusts may irritate the respiratory tract, skin and eyes.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).

Unsuitable extinguishing media None known.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear suitable protective equipment.

Special firefighting procedures Use water spray to cool unopened containers.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. For personal protection, see section 8 of the SDS.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid discharge into drains, water courses or onto the ground. No special environmental precautions required.

6.3. Methods and material for containment and cleaning up

The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk. Collect dust using a vacuum cleaner equipped with HEPA filter.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Avoid the generation of dusts during clean-up. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Practice good housekeeping.

7.2. Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Material	Type	Value	Form
Tin oxide (CAS 18282-10-5)	MAK	2 mg/m ³	Inhalable fraction.
	STEL	4 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m ³

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m ³

Czech Republic. OELs. Government Decree 361

Material	Type	Value
Tin oxide (CAS 18282-10-5)	Ceiling	4 mg/m ³
	TWA	2 mg/m ³

Denmark. Exposure Limit Values

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TLV	2 mg/m ³

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m ³

Finland. Workplace Exposure Limits

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m ³

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Material	Type	Value	Form
Tin oxide (CAS 18282-10-5)	AGW	2 mg/m ³	Inhalable fraction.

Greece. OELs (Decree No. 90/1999, as amended)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m ³

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Material	Type	Value
Tin oxide (CAS 18282-10-5)	STEL	8 mg/m ³
	TWA	2 mg/m ³

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Ireland. Occupational Exposure Limits

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TLV	2 mg/m3

Poland. MACs. Regulation regarding maximum permissible concentrations and intensities of harmful factors in the work environment, Annex 1

Material	Type	Value	Form
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3	Inhalable fraction.

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Material	Type	Value
Tin oxide (CAS 18282-10-5)	STEL	4 mg/m3
	TWA	2 mg/m3

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Spain. Occupational Exposure Limits

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Material	Type	Value	Form
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m3	Inhalable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Material	Type	Value	Form
Tin oxide (CAS 18282-10-5)	STEL	4 mg/m3	Inhalable dust.
	TWA	2 mg/m3	Inhalable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Material	Type	Value
Tin oxide (CAS 18282-10-5)	STEL	4 mg/m ³
	TWA	2 mg/m ³

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Material	Type	Value
Tin oxide (CAS 18282-10-5)	TWA	2 mg/m ³

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

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls

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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits.

Individual protection measures, such as personal protective equipment

General information Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

- Other Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Respiratory protection Wear respirator with dust filter.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

Hygiene measures 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.

Environmental exposure controls Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Appearance	Powder.
Physical state	Solid.
Form	Powder.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	1630 °C (2966 °F)
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapour pressure < 0,0000001 kPa at 25 °C

Vapour density Not available.

Relative density Not available.

Solubility(ies)

Solubility (water) Insoluble

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

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

Explosive properties Not explosive.

Oxidising properties Not oxidising.

9.2. Other information

Density 6,95 g/cm³

Heat of combustion (NFPA 30B) 0 kJ/g

Molecular formula O₂-Sn

Molecular weight 150,71 g/mol

Specific gravity 6,95

SECTION 10: Stability and reactivity

10.1. Reactivity Not available.

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous reactions No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid Contact with incompatible materials.

10.5. Incompatible materials Chlorine.

10.6. Hazardous decomposition products No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation Dust may irritate respiratory system. Prolonged inhalation may be harmful.

Skin contact Due to lack of data the classification is not possible. Dust or powder may irritate the skin.

Eye contact Dust may irritate the eyes.

Ingestion Due to lack of data the classification is not possible.

Symptoms Dusts may irritate the respiratory tract, skin and eyes.

11.1. Information on toxicological effects

Acute toxicity No data available.

Skin corrosion/irritation Due to partial or complete lack of data the classification is not possible.

Serious eye damage/eye irritation Due to partial or complete lack of data the classification is not possible.

Respiratory sensitisation Due to partial or complete lack of data the classification is not possible.

Skin sensitisation Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity Due to partial or complete lack of data the classification is not possible.

Carcinogenicity Due to partial or complete lack of data the classification is not possible.

Hungary. 26/2000 Eüm Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)

Not listed.

Reproductive toxicity Due to partial or complete lack of data the classification is not possible.

Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	This product has no known adverse effect on human health.

SECTION 12: Ecological information

12.1. Toxicity	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.
12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	No data available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	Not available.
12.6. 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.
12.7. Additional information	

Estonia Dangerous substances in groundwater Data

Tin oxide (CAS 18282-10-5)	Tin (Sn) 150 UG/L Tin (Sn) 3 UG/L
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Estonia Dangerous substances in soil Data

Tin oxide (CAS 18282-10-5)	Tin (Sn) 10 mg/kg Tin (Sn) 300 mg/kg Tin (Sn) 50 mg/kg
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	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.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. - 14.6.: Not regulated as dangerous goods.

RID

14.1. - 14.6.: Not regulated as dangerous goods.

ADN

14.1. - 14.6.: Not regulated as dangerous goods.

IATA

14.1. - 14.6.: Not regulated as dangerous goods.

IMDG

14.1. - 14.6.: Not regulated as dangerous goods.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations

Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

Information on evaluation method leading to the classification of mixture

Not applicable.

Disclaimer

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