

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Tin(IV) oxide
Chemical Formula	SnO ₂
Molecular Weight	150.71 g/mol
CAS No.	18282-10-5
EINECS No.	242-159-0
Synonym	Stannic oxide
Supplier Address*	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

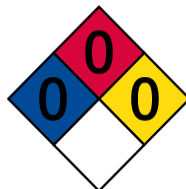
2. HAZARDOUS IDENTIFICATION

Emergency Overview:

OSHA Hazards:	Target Organ Effect
Target Organs:	Lungs
GHS:	Not a dangerous substance

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 0



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Physical Hazard = 0

HEALTH HAZARD	0
FLAMMABILITY	0
PHYSICAL HAZARD	0

Potential Health Effects:

Inhalation May be harmful if inhaled; may cause respiratory tract irritation
Skin May be harmful if absorbed through skin; may cause skin irritation
Eyes May cause eye irritation
Ingestion May be harmful if swallowed

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name: Tin(IV) oxide
CAS No.: 18282-10-5
Chemical Formula: SnO₂
Molecular Weight: 150.71 g/mol

4. FIRST AID MEASURES

General Advice Move out of dangerous area.
Inhalation Exposure If breathed in, move person into fresh air. If not breathing, give artificial respiration.
Dermal Exposure Wash off with soap and plenty of water.
Eye Exposure Flush eyes with water as a precaution.
Oral Exposure Never give anything by mouth to an unconscious person. Rinse mouth with water.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Firefighting

Protective Equipment Wear self-contained breathing apparatus for firefighting if necessary.
Hazardous Combustion Products Hazardous decomposition products formed under fire conditions: tin/tin oxides

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Avoid dust formation. Avoid breathing vapors, mist or gas.
Environmental Precautions Do not let product enter drains.
Methods for Cleaning Up Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.
Storage Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component s	CAS No.	Value	Control Parameters	Basis
Tin (IV) oxide	18282-10-5	TWA	2 mg/m ³	USA / NIOSH-recommended exposure limits
Remarks	Also see specific listing for Tin(II) oxide (as Sn).			
		TWA	2 mg/m ³	USA / Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants USA / ACGIH Threshold Limit Values (TLV)
	Eye & upper respiratory tract irritation, headache, pneumoconiosis, nausea (varies)			
		TWA	2 mg/m ³	USA / OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

Personal Protective Equipment

Respiratory Protection

Respiratory protection is not required. Where protection from nuisance levels of dusts is desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand Protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Immersion Protection

Material: Nitrile rubber
 Minimum layer thickness: 0.11 mm
 Break-through time: > 480 min
 Material tested: Dermatril® (Aldrich Z677272, Size M)

Splash Protection

Material: Nitrile rubber
 Minimum layer thickness: 0.11 mm
 Break-through time: > 30 min
 Material tested: Dermatril® (Aldrich Z677272, Size M)
 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE-approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist familiar with the specific situation of anticipated use. It should not be construed as offering an approval for any specific use scenario.

Eye Protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene Measures

General industrial hygiene practice
Components with workplace control parameters

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	Powder
Color	White

Safety Data

pH:	N/A	Melting Point:	1630 °C (2966 °F)
Flash Point:	N/A	Ignition Temperature:	N/A
Lower Explosion Limit:	N/A	Upper Explosion Limit:	N/A
Density:	6.95 g/mL at 25 °C (77 °F)	Water Solubility:	Insoluble
Odor:	N/A	Partition Coefficient n-octanol/Water:	N/A
Relative Vapor Density:	N/A	Evaporation Rate:	N/A
Boiling Point:	1800-1900 °C (3272-3452 °F)		

10. STABILITY AND REACTIVITY

<i>Chemical Stability</i>	Stable under recommended storage conditions
<i>Possibility of Hazardous Reactions</i>	No data available
<i>Conditions to Avoid</i>	No data available
<i>Materials to Avoid</i>	Strong oxidizing agents, strong acids, magnesium, aluminum, potassium, sodium/sodium oxides
<i>Hazardous Decomposition Products</i>	Hazardous decomposition products formed under fire conditions: tin/tin oxides. Other decomposition products: No data available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<i>Oral LD50 (rat)</i>	> 20,000 mg/kg
<i>Inhalation LC50</i>	No data available
<i>Dermal LD50</i>	No data available
<i>Other Information</i>	No data available
<i>Skin Corrosion/Irritation</i>	No data available
<i>Serious Eye Damage/ Eye Irritation</i>	No data available
<i>Respiratory or Skin Sensitization</i>	No data available
<i>Germ Cell Mutagenicity</i>	No data available

Carcinogenicity

<i>IARC</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.
<i>ACGIH</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
<i>NTP</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<i>Reproductive Toxicity</i>	No data available
<i>Teratogenicity</i>	No data available
<i>Specific Target Organ Toxicity / Single Exposure (Globally Harmonized System)</i>	No data available
<i>Specific Target Organ Toxicity / Repeated Exposure (Globally Harmonized System)</i>	No data available
<i>Aspiration Hazard</i>	No data available
<i>Signs and Symptoms of Exposure</i>	Inorganic tin salts are poorly absorbed into the body. When parenterally administered, tin salts are highly toxic. Tin oxide inhaled as a dust or fume leads to a benign pneumoconiosis with no sign of interference with pulmonary function. Deposited dust appears nodular with the particles being mostly extracellular. No necrosis, foreign-body giant-cell reaction or collagen formation has been seen. Tin salts that have gained access to the bloodstream are highly toxic and produce neurologic damage and paralysis. With most common tin salts, the toxicity profile is complicated by hydrolysis in body fluids, producing unphysiologic pH values. The reported symptoms of hyperemia, vascular changes with bleeding in the central nervous system, liver, heart, and other organs, may be due to tin itself or to the unphysiological pH changes. Ingestion produces vomiting due to the gastric irritation from the activity and astringency of tin compounds. Injection of inorganic tin salts produces diarrhea, muscle paralysis and twitching.
<i>Synergistic Effects</i>	No data available
<i>Additional Information</i>	RTECS: XQ4000000

12. ECOLOGICAL INFORMATION

<i>Toxicity</i>	No data available
<i>Persistence and Degradability</i>	No data available
<i>Bioaccumulative Potential</i>	No data available
<i>Mobility in Soil</i>	No data available
<i>PBT and vPvB Assessment</i>	No data available
<i>Other Adverse Effects</i>	No data available

13. DISPOSAL CONSIDERATIONS

<i>Product</i>	Offer surplus and non-recyclable solutions to a licensed disposal company.
<i>Contaminated packaging</i>	Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards	Target Organ Effect
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	Chronic Health Hazard
Massachusetts Right to Know Components	Tin(IV) oxide / CAS No. 18282-10-5 / Revision Date 2007-03-01
Pennsylvania Right to Know Components	Tin(IV) oxide / CAS No. 18282-10-5 / Revision Date 2007-03-01
New Jersey Right to Know Components	Tin(IV) oxide / CAS No. 18282-10-5 / Revision Date 2007-03-01
California Prop. 65 Components	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

<i>Prepared By</i>	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
<i>Issuing Date</i>	December 17, 2014
<i>Revision Date</i>	July 29, 2021
<i>Revision Number</i>	2
<i>Revision Note</i>	Required review and update

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)

EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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