

**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Tin(II) oxide

Product Number : 244643  
Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

**2. HAZARDS IDENTIFICATION****Emergency Overview****OSHA Hazards**

No known OSHA hazards

Not a dangerous substance or mixture according to the Globally Harmonised System (GHS).

**HMIS Classification****Health hazard:** 0**Flammability:** 0**Physical hazards:** 0**NFPA Rating****Health hazard:** 0**Fire:** 0**Reactivity 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**

Formula : OSn  
Molecular Weight : 134.71 g/mol

Component	Concentration
<b>Tin monoxide</b>	
CAS-No. 21651-19-4	-
EC-No. 244-499-5	

**4. FIRST AID MEASURES**

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

**In case of skin contact**

Wash off with soap and plenty of water.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

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.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting 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 and materials for containment and cleaning up**

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**7. HANDLING AND STORAGE****Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. Keep in a dry place.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Tin monoxide	21651-19-4	TWA	2 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
Remarks	Also see specific listing for Tin(IV) oxide (as Sn).			
		TWA	2 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	2 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Eye & Upper Respiratory Tract irritation Headache Pneumoconiosis Nausea varies			
		TWA	2 mg/m <sup>3</sup>	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 are 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.

### 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 work-place. 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	powder
Colour	no data available

### Safety data

pH	no data available
Melting point/freezing point	no data available
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

Air

**Materials to avoid**

Strong oxidizing agents, Strong acids

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Tin/tin oxides

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

no data available

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: 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.

NTP: 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.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

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 blood stream 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. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: XQ3700000

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**12. ECOLOGICAL INFORMATION****Toxicity**

no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

no data available

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**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

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**15. REGULATORY INFORMATION****OSHA Hazards**

No known OSHA hazards

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: 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**

No SARA Hazards

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

Tin monoxide

CAS-No.  
21651-19-4Revision Date  
2007-03-01**New Jersey Right To Know Components**

Tin monoxide

CAS-No.  
21651-19-4Revision Date  
2007-03-01**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Further information**

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