

## SAFETY DATA SHEET

Version 6.4  
Revision Date 07/23/2022  
Print Date 10/08/2022

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

Product name : Tin(II) oxide

Product Number : 244643  
Brand : Aldrich  
CAS-No. : 21651-19-4

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

Identified uses : Laboratory chemicals, Synthesis of substances

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

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302  
Eye irritation (Category 2A), H319  
Skin sensitization (Category 1), H317  
Specific target organ toxicity - repeated exposure (Category 1), H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal Word

Danger

|                            |  |
|----------------------------|--|
| Hazard statement(s)        |  |
| H302                       | Harmful if swallowed.  |
| H317                       | May cause an allergic skin reaction.   |
| H319                       | Causes serious eye irritation.   |
| H372                       | Causes damage to organs through prolonged or repeated exposure.  |
| Precautionary statement(s) |  |
| P260                       | Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.   |
| P264                       | Wash skin thoroughly after handling.   |
| P270                       | Do not eat, drink or smoke when using this product.  |
| P272                       | Contaminated work clothing must not be allowed out of the workplace.   |
| P280                       | Wear protective gloves/ eye protection/ face protection.   |
| P301 + P312 + P330         | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  |
| P302 + P352                | IF ON SKIN: Wash with plenty of soap and water.  |
| P305 + P351 + P338         | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P314                       | Get medical advice/ attention if you feel unwell.  |
| P333 + P313                | If skin irritation or rash occurs: Get medical advice/ attention.  |
| P337 + P313                | If eye irritation persists: Get medical advice/ attention.   |
| P363                       | Wash contaminated clothing before reuse.   |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.  |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                |
|------------------|----------------|
| Formula          | : OSn          |
| Molecular weight | : 134.71 g/mol |
| CAS-No.          | : 21651-19-4   |
| EC-No.           | : 244-499-5    |

| Component            | Classification   | Concentration |
|----------------------|--|---------------|
| <b>Tin(2+) oxide</b> |  |               |
|                      | Acute Tox. 4; Eye Irrit. 2A; Skin Sens. 1; STOT RE 1; H302, H319, H317, H372 | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

**If inhaled**

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

**In case of skin contact**

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

**4.3 Indication of any immediate medical attention and special treatment needed**

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

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

**5.2 Special hazards arising from the substance or mixture**

Tin/tin oxides  
Not combustible.

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

No data available

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

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. **Advice on safe handling**

Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

#### Advice on protection against fire and explosion

Provide appropriate exhaust ventilation at places where dust is formed.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

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

Air sensitive. Keep in a dry place.

#### Storage class

Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

| Component     | CAS-No.    | Value | Control parameters  | Basis   |
|---------------|------------|-------|---------------------|---|
| Tin(2+) oxide | 21651-19-4 | TWA   | 2 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits  |
|               |            | 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)   |
|               |            | PEL   | 2 mg/m <sup>3</sup> | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## Personal protective equipment

### Eye/face protection

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

### Skin 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.

### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|   |                                    |
|---|------------------------------------|
| a) Appearance                                   | Form: powder<br>Color: black       |
| b) Odor   | odorless                           |
| c) Odor Threshold                               | No data available                  |
| d) pH   | No data available                  |
| e) Melting point/freezing point                 | Melting point: 1,080 °C (1,976 °F) |
| f) Initial boiling point and boiling range      | No data available                  |
| g) Flash point                                  | ( )Not applicable                  |
| h) Evaporation rate                             | No data available                  |
| i) Flammability (solid, gas)                    | No data available                  |
| j) Upper/lower flammability or explosive limits | No data available                  |
| k) Vapor pressure                               | No data available                  |
| l) Vapor density                                | No data available                  |

|   |   |
|---|---|
| m) Density                                | 6.45 g/cm <sup>3</sup>                  |
| Relative density                          | No data available                       |
| n) Water solubility                       | ca.0.1 g/l at 25 °C (77 °F) - insoluble |
| o) Partition coefficient: n-octanol/water | Not applicable for inorganic substances |
| p) Autoignition temperature               | No data available                       |
| q) Decomposition temperature              | No data available                       |
| r) Viscosity                              | No data available                       |
| s) Explosive properties                   | No data available                       |
| t) Oxidizing properties                   | none                                    |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Air

### 10.5 Incompatible materials

Strong oxidizing agents, Strong acids

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male - 1,910.1 mg/kg  
(OECD Test Guideline 423)

LD50 Oral - Mouse - 775 mg/kg

Remarks: (RTECS)

Inhalation: No data available

Dermal: No data available

#### Skin corrosion/irritation

No data available

**Serious eye damage/eye irritation**

Causes serious eye irritation. (ECHA)

**Respiratory or skin sensitization**

Patch test: - In vitro study

Result: positive

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

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

NTP: No ingredient 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 on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure. **Aspiration hazard**

No data available

**11.2 Additional Information**

RTECS: XQ3700000

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.

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**SECTION 12: Ecological information****12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

The methods for determining biodegradability are not applicable to inorganic substances.

**12.3 Bioaccumulative potential**

No data available

#### **12.4 Mobility in soil**

No data available

#### **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

#### **12.6 Endocrine disrupting properties**

No data available

#### **12.7 Other adverse effects**

No data available

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### **SECTION 13: Disposal considerations**

#### **13.1 Waste treatment methods**

##### **Product**

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

##### **Contaminated packaging**

Dispose of as unused product.

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### **SECTION 14: Transport information**

#### **DOT (US)**

Not dangerous goods

#### **IMDG**

Not dangerous goods

#### **IATA**

Not dangerous goods

#### **Further information**

Not classified as dangerous in the meaning of transport regulations.

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### **SECTION 15: Regulatory information**

#### **SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

#### **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**

No SARA Hazards

#### **Massachusetts Right To Know Components**

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



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## SECTION 16: Other information

### Further information

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