

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Tin, Enriched Tin
Chemical Formula	Sn
Molecular Weight	118.70
CAS No.	7440-31-5
EINECS No.	231-141-8
Synonyms	Metallic Tin, Silver Matt Powder, Tin Flake, Tin Powder, Wang, Elemental Tin, Stannum, C.I. 77860, C.I. Pigment Metal 5

Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
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Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
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Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Silver white

Caution! This is expected to be a low hazard for usual industrial handling. May cause central nervous system effects. May cause respiratory and digestive tract irritation. May cause mechanical eye and skin irritation. Inhalation of fumes may cause metal-fume fever.

Target Organs: Central nervous system

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

Health Hazard = 2 Flammability = 0 Reactivity = 0



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

Health Hazard = 2 Flammability = 0 Physical Hazard = 0

HEALTH HAZARD	2
FLAMMABILITY	0
PHYSICAL HAZARD	0

Potential Health Effects

<i>Eye</i>	May cause eye irritation
<i>Skin</i>	May cause skin irritation; prolonged and/or repeated contact may cause irritation and/or dermatitis; low hazard for usual industrial handling.
<i>Ingestion</i>	May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Low hazard for usual industrial handling. Ingested inorganic tin exhibits only moderate toxicity due to poor absorption and rapid tissue turnover. Ingestion of large amounts may cause gastrointestinal irritation, nausea, cramps, vomiting and diarrhea. May interfere with absorption and metabolism of biological essential enzyme systems. Inorganic tin salts may cause systemic effects on the central nervous system, heart and liver.
<i>Inhalation</i>	Dust is irritating to the respiratory tract. Inhalation of fumes may cause metal-fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. When inhaled as a dust or fume, may cause benign pneumoconiosis.
<i>Chronic</i>	Prolonged or repeated skin contact may cause dermatitis. Chronic exposure to tin oxide dusts and fumes may result in stenosis (benign pneumoconiosis).

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Tin
CAS No.:	7440-31-5
Chemical Formula:	Sn
Molecular Weight:	118.69

4. FIRST AID MEASURES

<i>Eye Exposure</i>	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation develops, get medical aid.
<i>Dermal Exposure</i>	Get medical aid if irritation develops or persists. Wash clothing before reuse. Flush skin with plenty of soap and water.
<i>Oral Exposure</i>	Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid if irritation or symptoms occur.
<i>Inhalation Exposure</i>	Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Notes to Physician

Treat symptomatically.



5. FIREFIGHTING MEASURES

General Information

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH-approved or equivalent, and full protective gear. Dusts at sufficient concentrations can form explosive mixtures with air. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Suitable Extinguishing Media

Do NOT use carbon dioxide. If water is the only media available, use in flooding amounts. Use dry sand, dry chemical, soda ash or lime.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Use proper personal protective equipment as indicated in Section 8. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental Precautions

Do not let product enter drains.

Methods for Cleaning Up

Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation.

7. HANDLING AND STORAGE

Handling

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin and clothing. Avoid ingestion and inhalation.

Storage

Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

ACGIH

Metal: 2 mg/m³; skin - potential for cutaneous absorption

NIOSH

As Sn: 2 mg/m³ TWA; as Sn: 100 mg/m³ IDLH (organic compounds as Sn: 25 mg/m³ IDLH)

OSHA - Final PELs

Inorganic compounds (except oxides), as Sn: 2 mg/m³ TWA; organic compounds, as Sn: 0.1 mg/m³ TWA

OSHA - Vacated PELs

TIN: inorganic compounds (except oxides), as Sn: 2 mg/m³ TWA; organic compounds

Personal Protective Equipment

Eyes

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

<i>Skin</i>	Wear appropriate protective gloves to prevent skin exposure.
<i>Clothing</i>	Wear appropriate protective clothing to prevent skin exposure.
<i>Respirators</i>	A respiratory protection program that meets OSHA's 29 CFR §1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Solid
Color	Silver-white
Odor	None reported

Safety Data

pH:	Not applicable
Vapor Pressure:	Not available
Vapor Density:	Not available
Evaporation Rate:	Not applicable
Viscosity:	Not applicable
Boiling Point:	2507 °C
Freezing/Melting Point:	231.9 °C
Autoignition Temperature:	806 °F (430.00 °C)
Flash Point:	Not available
Explosion Limits	
Lower:	Not available
Upper:	0.19
Decomposition Temperature:	Not applicable
Solubility:	Slightly soluble in hot water
Specific Gravity/Density:	7.31
Molecular Formula:	Sn
Molecular Weight:	118.69

10. STABILITY AND REACTIVITY

<i>Chemical Stability</i>	Stable under normal temperatures and pressures; oxidizes when exposed to air
<i>Conditions to Avoid</i>	Incompatible materials, dust generation, moisture, excess heat
<i>Incompatible Materials</i>	Halogens, nitric acid, sodium peroxide, sulfur, copper nitrate, hydrochloric acid, tin chloride, potassium peroxide
<i>Hazardous Decomposition Products</i>	Irritating and toxic fumes and gases, tin/tin oxides
<i>Hazardous Polymerization</i>	Will not occur

11. TOXICOLOGICAL INFORMATION

<i>RTECS No.</i>	XP7320000
<i>CAS No.</i>	7440-31-5
<i>LD50/LC50</i>	Not available

Carcinogenicity

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

<i>Epidemiology</i>	Tumors were observed at the site of application when implanted in rats (TDLo=395 mg/kg) and mice (TDLo=840 gm/kg), according to RTECS.
<i>Teratogenicity</i>	No information available
<i>Reproductive Effects</i>	No information available
<i>Neurotoxicity</i>	No information available
<i>Mutagenicity</i>	No information available
<i>Other Studies</i>	See actual entry in RTECS for complete information.

12. ECOLOGICAL INFORMATION

<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>	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulation to ensure complete and accurate classification. <i>RCRA P-Series:</i> None listed <i>RCRA U-Series:</i> None listed
<i>Contaminated Packaging</i>	Dispose of as unused product.

14. TRANSPORT INFORMATION

Non-hazardous for air, sea and road freight.

15. REGULATORY INFORMATION

OSHA Hazards	Irritant
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	Acute Health Hazard
Massachusetts Right to Know Components	CAS No. 7440-31-5 / Revision Date 1994-04-01
Pennsylvania Right to Know Components	CAS No. 7440-31-5 / Revision Date 1994-04-01
New Jersey Right to Know Components	CAS No. 7440-31-5 / Revision Date 1994-04-01

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 472615 San Francisco CA 94147 United States
<i>Issuing Date</i>	January 12, 2014
<i>Revision Date</i>	October 18, 2024
<i>Revision Number</i>	4
<i>Revision Note</i>	Update supplier address

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
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
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)
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
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
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
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
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
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	Wassergefährungsklassen (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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