STANFORD ADVANCED MATERIALS

Safety Data Sheet

Tin/Zinc

SECTION 1: PRODUCT DESCRIPTION

PRODUCT IDENTIFIER

Product form: Solid
Product Name: Tin /
Zinc Formula: Sn/Zn
Synonyms: N/A

INTENDED USE OF PRODUCT

Use: Industrial; professional use only

EMERGENCY TELEPHONE NUMBER

CHEMTEL 24 HR Emergency number: (949) 407-8904

SUPPLIER

Stanford Advanced Materials
Address : 23661 Birtcher Dr.,
Lake Forest, CA 92630 U.S.A.
Tel: (949) 407-8904
Fax: (949) 812-6690

SECTION 2: HAZARD IDENTIFICATION

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

Not a dangerous substance according to GHS classification criteria.

Tin: No known OSHA hazards

Zinc:
General Hazard Statement: Zinc in solid metallic form is a non-hazardous material as per the OSHA Hazard Communication Standard. The coating produced by this material in electroplating and galvanizing operations is generally classified as non-hazardous. However, some hazardous elements contained in this product can be emitted under certain processing conditions such as but not limited to: burning, melting, cutting, sawing, brazing, grinding, machining, milling, and welding. Products in the solid state generally present no fire or explosion hazard, but fine chips, powders and dust may ignite readily. This material may present an explosion hazard if placed directly into molten metal without adequate pre-heating to assure all entrained moisture is eliminated.

Potential Health and Safety Effects: Zinc in solid metallic form present little hazard to the health of those who come into contact with it. Zinc oxide fume is formed when zinc alloy is heated to, or near, the boiling point of zinc, or burned. Zinc oxide may cause mild local irritation to nose, throat and upper airways. Acute over-exposure to zinc oxide may cause metal fume fever, charac-terized by flu-like symptoms such as chills, fever, nausea and vomiting. The onset of these symptoms may be delayed from exposure by 3 to 10 hours. Contact of zinc with acids and alkalis generate flammable hydrogen gas which can accumulate in poorly ventilated areas, Contact with acidic solutions of arsenic and antimony compounds may evolve highly toxic gasses. Contact of powered material with strong oxidizers may produce violent reactions. In most cases, dermal exposure to zinc or compounds of zinc does not result in any notable toxic effects. There are no known carcinogenetic or mutagenic effects from exposure to zinc and zinc compounds.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE			
Name	Product Identifier	%	Classification (GHS-US)
Tin, Metal	7440-31-5	ANY	N/A
Zinc, Metal	7440-66-6	ANY	N/A

SECTION 4: FIRST AID MEASURES

General First-aid Measures: Never give an unconscious person anything by mouth. If you feel unwell, seek medical attention. (show label when possible)

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: In case of accident by inhalation: remove casualty to fresh air and keep at rest.

EYES: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SKIN CONTACT: After contact with skin, wash immediately with plenty of water.
Molten Metal: Flush contact area to solidify and cool but do not attempt to remove encrusted material or clothing. Cover burns and seek medical attention immediately.

INGESTION: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

SECTION 5: FIRE FIGHTING PROCEDURES

EXTINGUISHING MEDIA: Use dry chemical, dry sand, or special powder extinguishing media. DO NOT use water, carbon dioxide or foam on a metal fire. Water is ineffective for extinguishing a Tin/zinc fire and can act as an accelerant. However, water may be used to keep fire-exposed billets, ingots and castings cool. Do not use water to cool molten zinc as entrapped water will rapidly turn to steam which can generate an explosion.

FIRE FIGHTING METHODS AND PROTECTION: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.

FIRE AND/OR EXPLOSION HAZARDS: Combustible in the form of dust when exposed to heat or by exposing molten metal with water.

HAZARDOUS COMBUSTION PRODUCTS: N/A

SECTION 6: SPILL OR LEAK MEASURES/PROCEDURES

STEPS TO TAKE IN CASE MATERIAL IS RELEASED OR SPILLED:

No health affects expected from the clean-up of this material if contact can be avoided. Follow personal protective equipment recommendations found in Section 8 of this SDS. Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation

SECTION 7: HANDLING AND STORAGE

HANDLING: Avoid creating and inhaling dust. Avoid contact with skin, eyes and clothing. Wear personal protective equipment.. Keep material dry. Avoid contact with sharp edges or heated material. Hot and cold zinc is not visually different. Solid zinc hot enough to cause serious burns does not glow red.

STORAGE: Store locked up. Keep container tightly closed in a cool, well-ventilated place. Store Tin/zinc alloy in a DRY covered area, separate from incompatible materials. Ingots suspected of containing moisture must be **THOROUGHLY DRIED** before being added to a molten bath. Ingots may contain cavities that collect moisture. Entrained moisture will expand explosively when immersed in a molten bath.

STORAGE CODE: Green - general chemical storage.

SECTION 8: PROTECTION INFORMATION

CHEMICAL NAME:

	ACGIH		OSHA PEL	
	TWA	STEL	TWA	STEL
TIN, METAL	2 MG/M3	N/A	2 Mg/m3	N/A
ZINC,METAL	2 MG/M3	N/A	5 Mg/m3	N/A

CONTROL PARAMETERS/ ENGINEERING MEASURES: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure, Heat resistant clothing and gloves are required when handling molten metal.

PERSONAL PROTECTIVE EQUIPMENT (PPE): Heat resistant gloves, safety boots, eye wash, safety shower.

RESPIRATORY PROTECTION No respiratory protection required under normal conditions of use. Respiratory protection may be required in addition to ventilation depending upon conditions of use.

EYE PROTECTION: Wear safety glasses when handling this product. Have an eye wash station available.

SKIN PROTECTION: Avoid skin contact by wearing heat resistant gloves, and other protective equipment depending upon conditions of use. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking and when leaving work.

GLOVES: Heat resistant for molten metal.

SECTION 9: PHYSICAL DATA

FORMULA: Sn

MOLECULAR WEIGHT: 118.69

APPEARANCE: Grey Metallic Solid

ODOR: None

PHYSICAL STATE: Solid

pH: No data available

MELTING POINT: 450° F (232°C)

BOILING POINT: 4717° F (2603°C)

FREEZING POINT: No data available

FLAMMABILITY: No data Available

FLASH POINT: No data available

AUTO IGNITION TEMPERATURE: No data available

DECOMPOSITION TEMPERATURE: No data available

VAPOR PRESSURE : 1.3332 hPa at 1492°C

SPECIFIC GRAVITY: 7.28 (Water = 1)

RELATIVE VAPOR DENSITY AT 20°C: No data available

PHYSICAL DATA CONTINUED ON PAGE 4

SECTION 9: PHYSICAL DATA CONTINUED

FORMULA: Zn

MOLECULAR WEIGHT: 65.38

APPEARANCE: Blue-Grey Metallic Solid

ODOR: None

PHYSICAL STATE: Solid

pH: No data available

MELTING POINT: 419° C

BOILING POINT: 907° C

FREEZING POINT: No data available

FLAMMABILITY: No data Available

FLASH POINT: No data available

AUTO IGNITION TEMPERATURE: 680°C (dust cloud in air)

DECOMPOSITION TEMPERATURE: No data available

VAPOR PRESSURE : 1mm at 487°C

SPECIFIC GRAVITY: 7.12 (Water = 1)

RELATIVE VAPOR DENSITY AT 25°C: 7.14g/cm3

SECTION 10: REACTIVITY DATA

REACTIVITY: Not generally reactive under normal conditions.

CHEMICAL STABILITY: Stable under normal conditions.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

CONDITIONS TO AVOID: None known.

INCOMPATABLE MATERIALS: Water, Chlorine, Halogens, Bromine, Trifluoride, strong acids, strong oxidizing agents, Sulfur, Alkali, and Alkaline metals.

HAZARDOUS DECOMPOSITION PRODUCTS: N/A

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11: TOXICITY DATA

ROUTES OF ENTRY: Inhalation and ingestion.

SYMPTOMS (ACUTE): Reproductive systems

DELAYED EFFECTS: No data available

ACUTE TOXICITY:

CHEMICAL NAME:	CAS NUMBER	ORAL LD50	DERMAL LD50	INHALATION LC50
Tin, Metal	7440-31-5	N/A	N/A	N/A
Zinc, Metal	7440-66-6			

CARCINOGENICITY:

CHEMICAL NAME:	CAS NUMBER	IARC	NTP	OSHA
Tin, Metal	7440-31-5	N/A	N/A	N/A
Zinc, Metal	7440-66-6			

CHRONIC EFFECTS:

MUTAGENICITY: No evidence of a mutagenic effect.
TERATOGENICITY: No evidence of a teratogenic effect (Birth defect)
SENSITIZATION: No evidence of a sensitization effect.
REPRODUCTIVE: No evidence of negative reproductive effects.

TARGET ORGAN EFFECTS:

ACUTE: None
CHRONIC: None

SECTION 12: ECOLOGICAL DATA

OVERVIEW: This material is not expected to be harmful to the ecology.

MOBILITY: N/A

PERSISTANCE: N/A

BIOACCUMULATION: N/A

DEGRADABLITY: N/A

OTHER ADVERSE EFFECTS: N/A

CHEMICAL NAME:	CAS NUMBER	ECO TOXICITY
TIN METAL	7440-31-5	N/A N/A
ZINC, METAL	7440-66-6	

SECTION 13: DISPOSAL INFORMATION

DISPOSAL METHODS: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance

WASTE DISPOSAL CODE(S): Not determined

SECTION 14: TRANSPORT INFORMATION

GROUND– DOT PROPER SHIPPING

NAME: Not regulated for transport by US

DOT

AIR– IATA PROPER SHIPPING NAME:

Not regulated for air transport by IATA

SECTION 15: REGULATORY INFORMATION

TSCA STATUS: All components in this product are on the TSCA Inventory.

CHEMICAL	CAS NUMBER	§ 313 NAME	§ 313 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
NAME: Tin, Metal		Tin	No	No	No	No
Zinc, Metal	7440-31-5	Zinc	No	No	No	No
	7440-66-6					

SECTION 16: ADDITIONAL INFORMATION

REVISED: MAY 2015

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Stanford Advanced Materials makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

GLOSSARY:

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstract Service Number

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

DOT: U.S. Department of Transportation

IARC: International Agency for Research on Cancer

N/A: Not Available

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

PPM: Parts per million

RCRA: Resource Conservation and Recovery Act

SARA: Superfund Amendments and Reauthorization Act

TLV: Threshold Limit Value

TSCA: Toxic Substances Control Act

IDLH: Immediately dangerous to life and health

END OF SDS