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## SAFETY DATA SHEET

Section 1- IDENTIFICATION		
COMPOSITION <b>Sn</b>		PRODUCT NAME <b>Tin</b>
SUPPLIER: <b>Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030</b>	RECOMMENDED USE: <b>Laboratory Chemicals Scientific Research</b>	EMERGENCY TELEPHONE NUMBERS <b>US: 001-800-424-9300 Europe: 001-703-527-3887</b>

Section 2- HAZARD(S) IDENTIFICATION	
<b>Physical Hazards:</b> Not Classified	<b>Health Hazards:</b> Not Classified
<b>Environmental Hazards:</b> Not Classified	<b>OSHA Defined Hazards:</b> Not Classified
<b>LABEL ELEMENTS:</b>	
<b>Hazard Symbol:</b> None	<b>Signal Word:</b> None
<p style="text-align: center;"><b><u>HAZARD STATEMENTS</u></b></p> <p>-The substance does not meet the criteria for classification</p> <p style="text-align: center;"><b><u>PRECAUTIONARY STATEMENTS</u></b></p> <p>-P264: Wash face, hands and any exposed skin thoroughly after handling          -P270: Do not eat, drink or smoke when using this product          -P420: Store away from other materials          -P501: Dispose of contents/container to an approved waste disposal plant</p> <p><b>Hazards not otherwise classified (HNOC):</b>          -None identified.</p>	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS		
COMPONENT	CAS-No	Molecular Weight
Tin	7440-31-5	118.71 g/mol

Section 4- FIRST AID MEASURES
<p><b>Inhalation:</b> Remove victim from exposure to fresh air. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Consult a physician if symptoms develop or persist.</p> <p><b>Skin Contact:</b> Wash off with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if irritation develops or persists.</p> <p><b>Eye Contact:</b> As a precaution, flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Consult a physician if irritation develops or persists.</p> <p><b>Ingestion:</b> Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if irritation develops or persists. If ingestion of a large amount does occur, call a poison control center immediately.</p> <p><b>Most Important Symptoms/Effects:</b> The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11. Nausea, vomiting and diarrhea.</p> <p><b>Indication of any Immediate Medical Attention and Special Treatment Needed:</b> No data available</p>

## Section 5- FIREFIGHTING MEASURES

### Suitable Extinguishing Media:

Alcohol Resistant Foam, Dry Chemical, Carbon Dioxide (CO<sub>2</sub>), Dry Sand

### Unsuitable Extinguishing Media:

Do not use water jet as an extinguisher, as this will spread the fire.

### Specific Hazards Arising from the Chemical:

Gases hazardous to health may be formed.

### General Fire Hazards:

No unusual fire or explosion hazards noted.

### Protective Equipment & Precautions for Firefighters:

As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.

### Specific Methods:

Use water spray to cool unopened containers. Use standard firefighting procedures and consider the hazards of other involved materials.

## Section 6- ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Keep unnecessary personnel away. Avoid dust formation. Avoid breathing dust, vapors, mist or gas. For personnel protection see Section 8.

**Environmental Precautions:** Do not let product enter drains.

**Methods for Containment & Clean Up:** The product is immiscible with water and will spread on the water surface. Stop the flow of material if this is without risk. Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal. Following product recovery, flush area with water. For waste disposal see Section 13.

## Section 7- HANDLING AND STORAGE

**Handling:** Avoid formation of dust and aerosols. 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. Provide appropriate exhaust ventilation at places where dust is formed. Avoid prolonged exposure. Use care in handling and storage.

**Storage:** Store in original tightly closed container in a dry and well-ventilated place. Store away from incompatible materials.

## Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines:

#### Components with Workplace Control Parameters:

Component	CAS-No.	Value	Control Parameters	Basis
Tin	7440-31-5	TWA	2.000000 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pneumoconiosis (or Stannosis)		
		TWA	2.000000 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) Table Z-1 Limits for Air Contaminants
		TWA	2.000000 mg/m <sup>3</sup>	USA.NIOSH recommended exposure limits
		TWA	2 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pneumoconiosis (or Stannosis)		
		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
		PEL	2 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) Table Z-1 Limits for Air Contaminants
		PEL	2 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

<b>Biological Limit Values:</b> No biological exposure limits noted for the ingredient(s)
<b>Control Parameters:</b> Follow standard monitoring procedures.
<b>Personal Protective Equipment:</b> <b>Eye/Face Protection:</b> Wear safety glasses with side shields. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). <b>Skin and Body Protection:</b> 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. Wear suitable protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. <b>Respiratory Protection:</b> 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). <b>Hygiene Measures:</b> Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

## Section 9- PHYSICAL AND CHEMICAL PROPERTIES

<p><b>Physical State:</b> Solid</p> <p><b>Odor:</b> No information available</p> <p><b>Odor Threshold:</b> No information available</p> <p><b>pH:</b> No information available</p> <p><b>Melting Point/Range:</b> 231.9°C (449.4°F) – lit.</p> <p><b>Boiling Point/Range:</b> 2,270°C - 2,507°C (4,118°F - 4,544.6°F) – lit.</p> <p><b>Flash Point:</b> No information available</p> <p><b>Evaporation Rate:</b> No information available</p> <p><b>Flammability (solid,gas):</b> No information available</p> <p><b>Flammability or Explosive Limits:</b>  <b>Upper:</b> No data available  <b>Lower:</b> No data available</p> <p><b>Vapor Pressure:</b> No information available</p> <p><b>Vapor Density:</b> No information available</p> <p><b>Relative Density:</b> 7.31 g/mL at 25°C (77°F)</p> <p><b>Solubility (Water):</b> Insoluble</p> <p><b>Partition coefficient; n-octanol/water:</b> No information available</p> <p><b>Auto Ignition Temperature:</b> No information available</p> <p><b>Decomposition Temperature:</b> No information available</p> <p><b>Viscosity:</b> No information available</p> <p><b>Explosive Properties:</b> No information available</p> <p><b>Oxidizing Properties:</b> No information available</p>
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## Section 10- STABILITY AND REACTIVITY

<b>Reactive Hazard:</b> No information available
<b>Stability:</b> Stable under recommended storage conditions.
<b>Conditions to Avoid:</b> Contact with incompatible materials
<b>Incompatible Materials:</b> Strong oxidizing agents, acids, chlorine, sulfur compounds, strong bases, halogens, carbon tetrachloride, chloride trifluoride
<b>Hazardous Decomposition Products:</b> Hazardous decomposition products formed under fire conditions – Tin/Tin Oxides Other decomposition products - No data available
<b>Hazardous Polymerization:</b> No information available
<b>Hazardous Reactions:</b> No information available

## Section 11- TOXICOLOGICAL INFORMATION

### Information on likely Routes of Exposure:

**Inhalation:** Prolonged inhalation may be harmful

**Skin Contact:** No adverse effects due to skin contact are expected

**Eye Contact:** Direct contact with eyes may cause temporary irritation

**Ingestion:** Expected to be a low ingestion hazard

### Information on Toxicological Effects:

#### Acute Toxicity:

Component	LD50 Oral	LC 50 Inhalation
Tin	Rat (Male and Female) = 2,000 mg/kg (OECD Test Guideline 423)	Rat (Male and Female) = 4 h - >4.75 mg/l (OECD Test Guideline 403)

**Dermal:** No information available

**Skin Corrosion/Irritation:** Prolonged skin contact may cause temporary irritation.

**Serious eye damage/irritation:** Direct contact with eyes may cause temporary irritation

**Respiratory or Skin Sensitization:** No information available

#### Carcinogenicity:

-Carcinogenicity: Mouse – Implant

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumors at site of application

-Carcinogenicity: Rat – Implant

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumors at site of application

This product is or contains a component that is not classifiable as to its carcinogenicity based in its by IARC, ACGIH, NTP or EPA classification.

-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.

-NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.

-OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

**Germ Cell Mutagenicity:** No information available

**Reproductive Effects:** No information available

**Development Effects:** No information available

**Specific Target Organ Toxicity – single exposure:** No information available

**Specific Target Organ Toxicity – repeated exposure:** No information available

**Aspiration Hazard:** No information available

#### Additional Information: (RTECS: XP7320000)

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

## Section 12- ECOLOGICAL INFORMATION

**Toxicity:** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

**Persistence and Degradability:** No information available

**Bioaccumulation/Accumulation:** No information available

**Mobility in Soil:** No information available

**Results of PBT & vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**Other Adverse Effects:** No information available.

## Section 13- DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dispose of contaminated packaging as unused product. Dispose in accordance with all applicable regulations.

## Section 14- TRANSPORT INFORMATION

**DOT:** Not regulated as dangerous goods

**IATA:** Not regulated as dangerous goods

**IMDG/IMO:** Not regulated as dangerous goods

## Section 15- REGULATORY INFORMATION

**US Federal Regulations:** This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D):** Not regulated

**U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):** Not Listed

**SARA 302 Extremely Hazardous Substance:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

**SARA 313 (TRI Reporting):** 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 Hazardous Chemical:** Yes

**HMIS (USA):**

**Health Hazard:** 1

**Chronic Health Hazard:**

**Flammability:** 0

**Physical Hazard:** 0

**National Fire Protection Association (USA):**

**Health Hazard:** 0

**Fire Hazard:** 0

**Reactivity Hazard:** 0

**CERCLA Hazardous Substance List (40 CFR 302.4):** Not Listed

**US California Proposition 65:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

**US California Candidate Chemicals List Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3 subd. (a)):** Tin (CAS-No: 7440-31-5)

**US Massachusetts RTK:**

Component	CAS No.	Revision Date
Tin	7440-31-5	1994-04-01

**US New Jersey RTK:**

Component	CAS No.	Revision Date
Tin	7440-31-5	1994-04-01

**US Pennsylvania RTK:**

Component	CAS No.	Revision Date
Tin	7440-31-5	1994-04-01

## Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

The information in this SDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

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