

# Material Safety Data Sheet

S-Bond<sup>®</sup> 220-50 Alloy

Date of Preparation: 6/00

Revision: 0

## Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** S-Bond<sup>®</sup> 220-50 Alloy

**Chemical Formula:** Sn-Ag-Ti alloy

**CAS Number:** See below

**Other Designations:** ISO designation = ISO-S-Sn90Ag3.5Ti2

**General Use:** Alloy for material joining via soldering/brazing

**Manufacturer:** S-Bond Technologies, LLC., 811 West Fifth Street, Unit 2, Lansdale, PA 19446; Phone: (215) 631-7111; FAX: (215) 631-7115; Hours: (0830-1700 EST)

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

## Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt
Tin (Sn)	7440-31-5	94 max.
Silver (Ag)	7440-22-4	4 max.
Titanium (Ti)	7440-32-6	2.3 max.
other active elements		> 0.3 max.
Cerium	7440-45-1	0.1 max
Gallium	7440-55-3	0.1 max

**Trace Impurities:** None

**Toxicity Data:**

Ingredient	OSHA PEL	ACGIH TLV
	TWA	TWA
Sn	2 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
Ag	.01 mg/m <sup>3</sup>	.1 mg/m <sup>3</sup>
Ti	20 mg/m <sup>3</sup>	None established

## Section 3 - Physical and Chemical Properties

**Physical State:** Metallic Solid

**Appearance and Odor:** Metallic Gray/Silver - No odor

**Odor Threshold:** N/A

**Vapor Pressure:** N/A

**Vapor Density (Air=1):** N/A

**Formula Weight:** N/A

**Density:** 7.3 g/ccm

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** N/A

**pH:** N/A

**Water Solubility:** Insoluble

**Other Solubilities:** N/A

**Boiling Point:** Not established (> than 1800°C ( 3270°F))

**Freezing/Melting Point:** 220°C-240°C (488°F-525°F)

**Viscosity:** N/A

**Refractive Index:** N/A

**Surface Tension:** N/A

**% Volatile:** None

**Evaporation Rate:** N/A

## Section 4 - Fire-Fighting Measures

**Flash Point:** None

**Flash Point Method:** N/A

**Burning Rate:** None

**Autoignition Temperature:** None

**Flammability Classification:** N/A

**Extinguishing Media:** Sand, dry ice, or dry chemical should be used on surrounding fire, DO NOT use water on molten metal.

**Unusual Fire or Explosion Hazards:** Water on molten metal may cause steam explosion.

**Hazardous Combustion Products:** None

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** If fighting a fire where these products may be present, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode.

### Section 5 - Stability and Reactivity

**Stability:** S-Bond® 220 is stable at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** Strong acids and bases

**Conditions to Avoid:** Do not add water to molten metal, resultant steam may cause an 'explosion'

**Hazardous Decomposition Products:** Thermal oxidative decomposition of S-Bond® 220 can produce no hazardous byproducts. Oxidation will produce titanium dioxide, tin oxide, or silver oxide.

### Section 6 - Health Hazard Information

#### Potential Health Effects

**Primary Entry Routes:** Ingestion

**Target Organs:** N/A

**Acute Effects**

**Inhalation:** N/A.

**Eye:** May cause irritation. Direct contact with molten alloy can cause burns.

**Skin:** Molten alloy will burn unprotected skin.

**Ingestion:** May irritate stomach lining.

**Carcinogenicity:** IARC, NTP, and OSHA do not list S-Bond® 220 (or any of its material components) as a carcinogen.

**Medical Conditions Aggravated by Long-Term Exposure:** None

**Chronic Effects:** None

#### Emergency and First Aid Procedures

**Inhalation:** N/A

**Eye Contact:** For molten alloy, rinse with water, ice, and call physician.

**Skin Contact:** For contact with molten alloy, ice and treat as a second degree burn.

**Ingestion:** If subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical attention.

*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**Note to Physicians:** None

**Special Precautions/Procedures:** None

### Section 7 - Spill, Leak, and Disposal Procedures

**Spill /Leak Procedures:** For molten alloy, first allow the alloy to solidify. Once cooled to room temperature, collect the solids following appropriate disposal procedures for tin.

**Small Spills:** See above

**Large Spills**

**Containment:** None required

**Cleanup:** No special requirements

**Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

**Disposal:** Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

**Disposal Regulatory Requirements:** N/A

**Container Cleaning and Disposal:** N/A

**Ecological Information:** None

**EPA Regulations:**

SARA 311/312 Codes:

SARA Toxic Chemical (40 CFR 372.65):

CAS #	Chemical Name	% of Alloy
7440-22-4	Silver	4.5 max.

SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ)

**OSHA Regulations:**

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

OSHA Specifically Regulated Substance: Not listed

**State Regulations:** N/A

## Section 8 - Exposure Controls / Personal Protection

**Engineering Controls:** None

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2).

**Administrative Controls:** N/A

**Respiratory Protection:** Alloy is non-respirable, but always seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear thermally protective gloves, boots, aprons, and gauntlets to prevent skin contact with the molten alloy. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** No special systems required, but make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** No special requirements

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

## Section 9 - Special Precautions and Comments

**Handling Precautions:** None

**Storage Requirements:** Dry cool atmosphere to prevent excessive oxidation and do not store in close proximity to incompatible materials (see section 5).

### DOT Transportation Data (49 CFR 172.101):

**Shipping Name:** S-Bond® 220-50 Alloy

**Shipping Symbols:** None

**Hazard Class:** None

\*\* Shipment is not controlled by  
USDOT/IATA/ICAO/IMO regulations.

**Prepared By:** RW Smith

**Revision Notes:** None

**Disclaimer:** Despite reasonable care being taken in the preparation of this document, we (S-Bond Technologies, LLC and all of its employees) extend no warranties and make no representations as to the accuracy or completeness of the information contained therein. S-Bond Technologies, LLC assumes no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual user should make a determination as to the suitability of the information for their particular purpose(s).