

# Material Safety Data Sheet

S-Bond<sup>®</sup> 220M Alloy

Date of Preparation: 2/06

Revision: 2/06

## Section 1 - Chemical Product and Company Identification

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

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

**CAS Number:** See below

**Other Designations:** ISO designation = ISO-S-Sn90Ag4Ti

**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	91.5-93.5
Silver (Ag)	7440-22-4	3.5-4.0
Titanium (Ti)	7440-32-6	3.1-4.1
Other active elements		0.0-0.3
Inactive elements/impurities		0.0-0.1

**Trace Impurities:** 2000 ppm max

### 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 220M 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 220M produces 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 220M (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 non-routine 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 220M  
Alloy

**Shipping Symbols:** None

**Hazard Class:** None

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

**Prepared By:** RW Smith

**Revision Notes:** None

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