S-Bond Technologies, LLC

S-Bond 220 Active Solder Joining of Metals

An ACTIVE SOLDER…

- Joins any material, versatile
- Wets metals and ceramic alike
- Eliminates need for flux
- Joins in air
- No pre-plating required
- Cost effective
- Environmentally friendly material

What is S-Bond® 220?

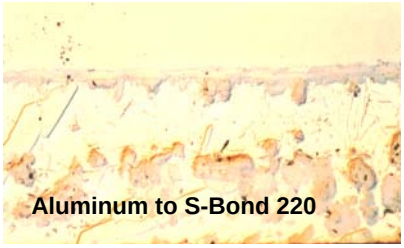
S-Bond 220 is a solder material (Sn-Ti-Ag) and a process by which most materials, including dissimilar metallic and ceramic materials can be joined. It is a new family of solders, developed and patented by S-Bond Technologies. The material is an activated solder with elements added to the alloy that react with surfaces during joining and adhere to any surface films that normally disrupt wetting and bonding. The characteristics of S-Bond 220 include:

- Joining Temperature(s):
250 – 270°C (480 - 580 °F)

- Tensile Strengths:
>28-100 MPa (4,100 – 7,000 psi)

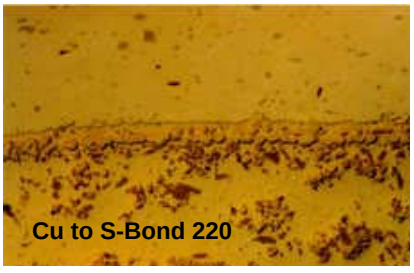
Our investigations to date indicate the versatility of S-Bond 220, with examples shown in this Bulletin:

Aluminum Joining

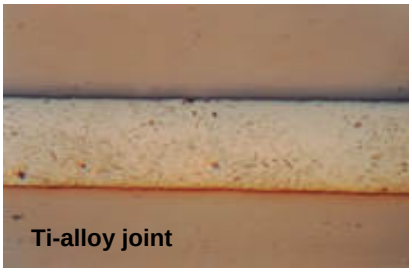


- Wets aluminum
- Clean interfaces
- Excellent bonds
- Joins at ~250 °C

- Wets alloys
- Excellent interface
- Good conductivity
- Good thermal properties



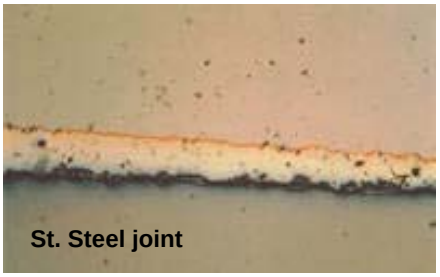
Titanium Joining

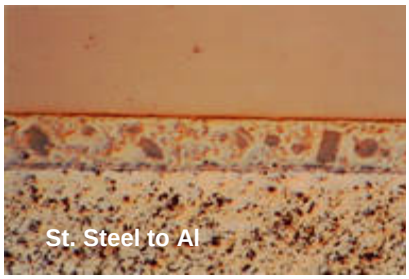


- Joins in air
- No interface oxides
- Excellent interfaces
- Good strength
- Ti-alloy compatible

Stainless Steel Joining

- No vacuum
- Excellent interface
- No brittle phases
- No pre-cleaning
- No pre-plating





Stainless Steel to Aluminum

- Compatible
- No premetallization
- Low Temperature
- Good toughness

Other Joined Metals include...

- Cast Iron - Stellite - Superalloys
- Tantalum - Beryllium - Magnesium

Applications

Sheet/Tube
- Heat exchangers - Coolers
- Appliances - Sports equipment
- Condensers - Probes

Structures
- Food processing - Rail cars
- Aircraft frames - Nacelles
- Auto components - Truck/frames
- Cargo structures - Acoustic suppression

Electrical
- Buss bars - Motor/magnets
- Lighting connectors - Conductors/connectors
- Appliances - Power electronics

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