Technical Data Sheet
S-Bond® 220-1/50

Recommended Information 2004

euromat INDUSTRIAL SURFACE SOLUTIONS

Description

S-Bond® 220-1/50 is a Sn-Ag-Ti based active solder joining a range of metals, light metals and ceramic materials.

Melting Range

- Solidus Temperature: 428º F (221º C)
- Liquidus Temperature: 447º F (232º C)
- Joining Temperature: 482 – 536º F (250 – 280º C)

Physical Properties

- Density: 0.264 lbs/in^3 (7.3 g/cc)
- Thermal Coefficient of Expansion from R.T. to 300º F (25 – 150º C): ~19 x 10^{-6}/ ºC
- Electrical Resistivity (ρ): 1.6µ–ohm-m
- Thermal Conductivity:
  - Intrinsic: 48 W/mK

Mechanical Properties

- Tensile Strengths: UTS 0.2%Y.S.
  - 25º C…….. 7.8 ksi (53 MPa) 5.6 ksi (38 MPa)
  - 75º C…….. 6.2 ksi (42 MPa) 4.7 ksi (32 MPa)
  - 175º C…….. 3.9 ksi (26 MPa) 3.4 ksi (23 MPa)
  - 190º C…….. 3.9 ksi (26 MPa) 3.0 ksi (20 MPa)
- Joint Strength (R.T.):
  - Aluminum to Aluminum 2.9 – 4.3 ksi (20 – 30 MPa)
  - Steel to Steel 2.9 – 7.5 ksi (20 – 52 MPa)
  - Stainless Steel (Type 304) 2.6 – 3.6 ksi (18 – 25 MPa)
  - Copper to Copper 2.9 – 5.8 ksi (20 – 40 MPa)
  - Aluminum to Steel 4.8 – 6.5 ksi (33 – 45 MPa)
  - Al:SiC to Metals 4.4 – 6.0 ksi (30 – 41 MPa)
  - Glass to Metal 3.5 – 5.1 ksi (24 – 35 MPa)

Joint Sealing Capabilities

- Kovar to Alumina 3.8 x 10^{-9} atmospheres / cc sec
- SiC to Invar 5 x 10^{-10} mbar*L/sec (helium leak rate)
- Silicon and Glass to metals 4.1 x 10^{-9} atmospheres / cc sec

Corrosion

- Good atmospheric protection/salt spray resistance is good since Ti passivates alloy. Resistant to Cl in solution.

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- Other corrosion data, updates or special requests…. Please call.

EUROMAT GMBH does not guarantee the correctness of the above values. Values were determined in the laboratory and may vary depending on the batch. We recommend that you check the values yourself after receipt of the goods.

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