

**Melting Range**

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

**Physical Properties**

- Density: 0.264 lbs/in<sup>3</sup> (7.3 g/cc)
- Thermal Coefficient of Expansion from R.T. to 300° F (25 – 150° C): ~19 x 10<sup>-6</sup>/°C
- Electrical Resistivity (ρ): 1.6μ–ohm-m...(similar Pb-Sn solders)
- Thermal Conductivity:
  - Intrinsic: 48 W/mK
  - In Al:Cu Joints: 220 W/mK

**Mechanical Properties / Joint Shear Strengths**

- Tensile Strengths:
 

UTS		0.2%Y.S.
➤ 25° C.....	7.8 ksi (53 MPa)	5.6 ksi (38 MPa)
➤ 75° C.....	6.2 ksi (42 MPa)	4.7 ksi (32 MPa)
➤ 175° C.....	3.9 ksi (26 MPa)	3.4 ksi (23 MPa)
➤ 190° C.....	3.9 ksi (26 MPa)	3.0 ksi (20 MPa)
- Joint Strengths (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<sup>-9</sup> atmospheres / cc sec
- SiC to Invar 5 x 10<sup>-10</sup> mbar\*L/sec (helium leak rate)
- Glass to metal 4.1 x 10<sup>-9</sup> atmospheres / cc sec

**Corrosion**

- Good atmospheric protection/salt spray resistance is good since Ti passivates alloy.
- Resistant to Cl in solution.
- Other corrosion data, updates or special requests.... Please call.