

## Data Sheet

# 50Au - 50Cu

### Description:

High-purity gold and copper alloy for vacuum brazing.  
Nominal composition by weight: **50% Au** and **50% Cu**

### Prime Features:

- Suitable for brazing assemblies of copper, nickel and Kovar (Ni-Co-Fe alloy)
- Widely used for brazing ceramic components that have been moly-manganese metallized
- High-integrity brazed joint duties in critical applications
- Greater strength than 35Au-65Cu grade

### Typical Applications:

- Aero-engines (OEM and repair)
- Aerospace fuel-line assemblies
- Vacuum tubes
- Wave guide and Klystron assemblies
- Power supply surge arrestors
- Automotive components

### Physical Properties\*

Liquidus Temperature	970°C 1778 °F
Solidus Temperature	955 °C 1751 °F
Coefficient of Thermal Expansion (CTE)	19.2 x 10 <sup>-6</sup> /C, for 20 – 850 °C 10.7 x 10 <sup>-6</sup> /°F, for 68 – 1562 °F
Thermal Conductivity (Calculated)	33.0 W/m·K 19.1 BTU/ft·h· °F
Density	12.0 Mg/m <sup>3</sup> 0.434 lb/in <sup>3</sup>
Yield Strength (0.2% offset)	128 MPa 18.5 x 10 <sup>3</sup> lb/in <sup>2</sup>
Tensile Strength	393 MPa 57.0 x 10 <sup>3</sup> lb/in <sup>2</sup>
Elongation (2in/50mm gage section)	37.5%
Electrical Resistivity	237 x 10 <sup>-9</sup> ohm·m
Electrical Conductivity	4.2 x 10 <sup>6</sup> /ohm·m
Vapor Pressure (Calculated)	2 x 10 <sup>-9</sup> mm Hg @ 700 °C, 1292 °F 3 x 10 <sup>-6</sup> mm Hg @ 900 °C, 1652 °F
Recommended Brazing Temperatures	970 – 1020 °C
Recommended Brazing Atmospheres	10 <sup>-5</sup> mm Hg, H <sub>2</sub> , or inert gas

\* Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in any way and should only be treated as indicative values. They should be used for guidance only and for no other purpose whatsoever.

### Impurity Limits

Zn	less than 0.001%
Cd	less than 0.001%
Pb	less than 0.002%
P	less than 0.002%
C	less than 0.01%

All other metallic impurities having a vapor pressure higher than 10<sup>-7</sup> mm Hg at 500 °C are limited to 0.002% each. Impurities having a vapor pressure lower than 10<sup>-7</sup> mm Hg at 500 °C are limited to a total of 0.075%. (This applies to all forms except powder and extrudable paste.)

### Supplied As:

- Foil
- Flexibraz
- Wire
- Powder
- Extrudable paste
- Preforms

The determination as to the adaptability of any Wesgo materials to the specific needs of the Buyer is solely the Buyer's prerogative and responsibility. All technical information, data and recommendations are based on tests and accumulated experience data, which Wesgo believed to be reliable. However, the accuracy and completeness thereof are not guaranteed.

