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GOLD BRAZE 8218 (BAu-4/BVAu-4)

T E C H N I C A L D A T A

NOMINAL COMPOSITION

Gold	82.0% ± 0.5
Nickel	Balance
Other Elements Total	0.15% max
Vacuum Grade Trace Elements	
Cadmium	0.001% max.
Zinc	0.001% max.
Phosphorus	0.002% max.
Lead	0.002% max.
Carbon	0.005% max.
Other volatile elements each*	0.002% max.
Volatile elements total	0.010% max.
Total non-volatile elements (Grade 1)	0.01% max.
Total non-volatile elements (Grade 2)	0.05% max.

*Elements with a vapor pressure higher than 10^{-7} torr at 932ºF (such as Mg, Sb, K, Li,Tl,S,Cs,Rb,Se,Te,Sr, and Ca) are limited to 0.001% each for Grade 1 and 0.002% for Grade 2.

PHYSICAL PROPERTIES

Color	Nickel gray
Melting Point (eutectic)	1742°F (950°C)
Density (TOz./in³)	8.41
Electrical Conductivity (x10⁶ / (ohm*m))	3.70
Electrical Resistivity (x10⁻⁹ ohm*m)	274
Elongation (%)	14
CTE (x10⁻⁶/ ⁰C)	17.5
Thermal Conductivity (W/(m*K))	28
Yield Strength (MPa)	686
Tensile Strength (MPa)	792

Note: Mechanical values expressed above may not reflect post braze conditions

BRAZING CHARACTERISTICS

GB8218 wets a wide range of high temperature iron & nickel base alloys such as the stainless steels, A286, Inconel & Inconel X very well. It does not alloy excessively with these materials nor produce the severe intergranular penetration normally associated with the nickel based brazing alloys containing boron. A minimum brazing temperature of 1800°F (980°C) is suggested for furnace brazing in hydrogen
or dissociated ammonia having a -40°F dew point or drier on 300 & 400 series stainless steels which do not contain additions of Ti or Al.

Stainless steels of the 17-7 PH variety require dew points of -70°F or drier for furnace brazing. Brazing is also being conducted in inert atmospheres or in vacuum.

Joint clearances of 0.0015" = 0.003" are normally suggested.

Gold & nickel are completely soluble in all proportions at temperatures above 1490°F (810°C) & this specific composition (82Au/18Ni) represents the minimum in this system so that the solidus (melting point) & the liquidus (flow point) are identical.
Normally, GB8218 would not be used for joining copper based & silver-based alloys. In addition, to having a flow point very close to the melting point of silver, & above that of the silver-copper eutectic, it would alloy quite readily with copper based alloys.

USES

GB8218 can be used on any of the common ferrous, non-ferrous, and super alloys. Typical applications include brazing of electron tubes, vacuum tubes, wave guides in electronic industry. In aerospace industry, AMS 4787 can be used in brazing of fuel line assemblies and aero-engine components.

SPECIFICATIONS

GB8218 conforms to the following specification: AMS 4787, PWA 698, Unified Numbering System (UNS) P00827 and American Welding Society (AWS) A5.8 BAu-4/BVAu-4.

AVAILABLE FORMS

Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste.

Individuals requiring further information and Engineering Specification Documents may wish to contact the Engineering Society for Advanced Mobility, Land Sea Air and Space, The Society of Automotive Engineers http://www.sae.org/ (SAE AMS) or The American Welding Society (AWS) http://aws.org/

NOTE: