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SILVERBRAZE & TRIMETAL 40Ni2 (BAg-4)

TECHNICAL DATA

NOMINAL COMPOSITION	**Silver**	40.0% ± 1.0
	Copper	30.0% ± 1.0
	Zinc	28.0% ± 2.0
	Nickel	2.0% ± 0.5
	Other	0.15% Max
PHYSICAL PROPERTIES	**Color**	Light Yellow
	Solidus	1220°F (660°C)
	Liquidus	1435°F (779°C)
	Recommended Brazing Temperature	1485-1535°F (807-835°C)
	Density (Troy oz/in^3)	4.76
	Specific Gravity	9.04
	Electrical Conductivity (%IACS)	16.8
	Electrical Resistivity (Microhm-cm)	10.3

USES

Silver Braze 40Ni2 is an intermediate temperature brazing alloy for use on stainless steels, mild steels, cast and malleable irons and various non-ferrous alloys. This alloy is particularly useful for brazing stainless steel food containers and food handling equipment where a cadmium free brazing alloy is specified.

Trimetal 40Ni2 is a three-layer composite metal consisting of a copper core faced on each side with SB40Ni2; the relative thickness of the 3 layers is in a 1/2/1 ratio. This layered design is beneficial for carbide tool inserts because the increased ductility of the copper core minimizes internal stresses introduced by differences in thermal expansion between the carbide and tool shank

BRAZING CHARACTERISTICS

Silver Braze 40Ni2 is an intermediate temperature silver brazing filler metal with a fairly long melting range. It has a tendency to liquate (separation into low and high melting constituents) and therefore it is preferable to use this filler metal where the assembly can be heated rapidly through the filler metal melting range, or where the assembly can be preheated before the filler metal is applied. Flux is normally used.
Trimetal strip may also be used to braze aluminum-bronze to steel; the copper core acts as a barrier which prevents aluminum from migrating to the steel surface and adversely affecting the wetting of the SB40Ni2 to the steel surface.

PROPERTIES OF BRAZED JOINTS

The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design, metallurgical interaction between the base metal and the filler metal. Tensile strength of joints in butt joint configuration for stainless steels has ranged from 72,000 to 110,000 lbs/in^2 PSI. Data for shear strengths tested at room temperature included values in range of 35,000 to 40,000 PSI.

The following results are based on butt joints brazed from 18-8 stainless steel:

Tensile Strength (lbs/in^2)	Test Temp (°F)	Elongation (%, 2" gage length)
80,500	Room Temp.	1.6
65,600	200	2.4
51,700	400	1.5
38,000	600	0
13,600	800	0
7,700	1000	0

CORROSION RESISTANCE

A 20% salt spray test is typically used for testing corrosion resistance of stainless steel alloys. During a 10-day period of exposure the strength of a 18-8 stainless steel braze joint decreased by roughly 50%. SB 40Ni2 inhibits interface corrosion in braze joints of 300 and 400 series stainless steel base components.

SPECIFICATIONS

Silver Braze & Trimetal 40Ni2 conform to: Unified Numbering System (UNS) P07400 and American Welding Society (AWS) A5.8/A5.8M BAg-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: