

## The Prince & Izant Company

12999 Plaza Drive  
Cleveland, Ohio 44130

T: 216-362-7000

F: 216-362-7456

[www.princeizant.com](http://www.princeizant.com)



## SILVERBRAZE & TRIMETAL 50Ni2 (BAg-24)

### TECHNICAL DATA

<b>NOMINAL COMPOSITION</b>	Silver	50.0% ± 1.0
	Copper	20.0% ± 1.0
	Zinc	28.0% ± 2.0
	Nickel	2.0% ± 0.5
	Other	0.15% Max
<b>PHYSICAL PROPERTIES</b>	Color	Yellow White
	Solidus	1220 °F (660 °C)
	Liquidus	1305 °F (707 °C)
	Recommended Brazing Temperature	1355-1405 °F (735-762 °C)
	Density (Troy oz/in <sup>3</sup> )	4.83
	Specific Gravity	9.17
	Electrical Conductivity (%IACS)	15.0
Electrical Resistivity (Microhm-cm)	11.9	

### USES

Silver Braze 50Ni2 readily wets nickel and iron base alloys. It is recommended for joining 300 Series stainless steel and will retard interface corrosion in most exposures for which the base metals are suitable. However, for joints on cupro-nickel exposed to salt water at elevated temperatures, zinc-free alloys should be used to avoid joint failure by dezincification. Because this alloy is cadmium-free, it can be safely used on food handling equipment and hospital utensils. The presence of nickel in Silver Braze 50Ni2 aids in the joining of small tungsten carbide inserts in cutting tools. In addition, it offsets joint interface brittleness caused by diffusion of aluminum into the brazing alloy, when joining aluminum-bronze to steel.

Trimetal 50Ni2 is a three-layer composite metal consisting of a copper core faced on each side with SB50Ni2; 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 50Ni2 is very fluid at its flow point and will quickly fill long, narrow joints. Because it has the tendency to liquate (separation into low and high melting constituents) when heated slowly, this alloy should be heated quickly through its melting range. Its low flow point will minimize oxidation of the stainless steel during brazing. 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 SB50Ni2 to the steel surface.

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. The results listed below were generated from brazed butt joints which were tested under standard room temperature conditions.

**PROPERTIES OF BRAZED JOINTS**

	<u>Tensile Strength (lbs/in<sup>2</sup>)</u>	<u>Elongation (% 2" gage length)</u>
18-8 Stainless Steel (annealed)	69,500-88,000	1-9
1029 Carbon Steel (Cold Worked)	66,000-73,300	15-25

**SPECIFICATIONS**

Silver Braze & Trimetal 50Ni2 conform to: Unified Numbering System (UNS) P07505, American Welding Society (AWS) A5.8/A5.8M BAg-24 and Society of Automotive Engineers (SAE) AMS 4788

**AVAILABLE FORMS**

Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste. \*TRI50Ni2 is only available in strip and stamped preforms due to its layered design.

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:**

**DISCLAIMER**

The information and recommendations contained in this publication have been provided without charge & compiled from sources believed to be reliable and to represent the best information available on the subject at the time of issue. No warranty, guarantee, or representation is made by the Prince and Izant Company, Inc. as to the absolute correctness or sufficiency of any representation contained in this and other publications; Prince and Izant Company, Inc. assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this (and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances.