Prince & Izant Company
12999 Plaza Drive
Cleveland, Ohio 44130
T: 216-362-7000
F: 216-362-7456
princeizant.com

SILVERBRAZE & TRIMETAL 49Ni4 (BAg-22)

TECHNICAL DATA

NOMINAL COMPOSITION

Silver	49.0% ± 1.0
Copper	16.0% ± 1.0
Zinc	23.0% ± 2.0
Manganese	7.5% ± 0.5
Nickel	4.5% ± 0.5
Other Elements Total	0.15% Max

PHYSICAL PROPERTIES

Color	Yellow White
Solidus	1260°F (680°C)
Liquidus	1290°F (699°C)
Recommended Brazing Temperature	1340-1390°F (726-754°C)
Density (Troy oz/in^3)	4.68
Specific Gravity	8.88
Electrical Conductivity (%IACS)	5.70
Electrical Resistivity (Microhm-cm)	30.3

USES

Silver Braze 49Ni4 has excellent wetting properties. It is used extensively for brazing tungsten carbide inserts to cutting tools and rock drills. It may be used for joining all types of stainless steels and carbon steels.

Trimetal 49Ni4 is a three-layer composite metal consisting of a copper core faced on each side with SB49Ni4; 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 49Ni4 is a cadmium-free, low temperature brazing filler metal used for brazing of tungsten carbides, steels and stainless steels. Because of its high manganese content, Silver Braze 49Ni4 may tend to liquate (separation into low and high melting constituents). However this can be mitigated by rapidly heating the joint assembly through the melting range of Silver Braze 49Ni4. Flux may be used, but on some more of the more difficult to braze alloys, such as carbides and stainless steels, flux assists in producing better wetting of the joint surfaces.

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 SB49Ni4 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. The results listed below were generated from brazed butt joints which were tested under standard room temperature conditions.

	Tensile Strength (lbs/in^2)	Elongation (%, 2" gage length)
1020 Carbon Steel	49,000	4
1095 Carbon Steel	92,400	7
304 Stainless Steel	76,600	15

SPECIFICATIONS

Silver Braze & Trimetal 49Ni4 alloys conform to: Unified Numbering System (UNS) P07490 and American Welding Society (AWS) A5.8/A5.8M BAg-22

AVAILABLE FORMS

Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste. *TRI49Ni4 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