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SILVER ALLOY 50Ni3 (BAg-3)

TECHNICAL DATA

NOMINAL COMPOSITION	**Silver**	50.0% ± 1.0
	Copper	15.5% ± 1.0
	Zinc	15.5% ± 2.0
	Cadmium	16.0% ± 1.0
	Nickel	3.0% ± 0.5
	Other Elements, Total	0.15% Max
PHYSICAL PROPERTIES	**Color**	Light Yellow
	Solidus	1170°F (632°C)
	Liquidus	1270°F (687°C)
	Recommended Brazing Temperature	1320-1370°F (715-743°C)
	Density (Troy oz/in^3)	5.02
	Specific Gravity	9.52
	Electrical Conductivity (%IACS)	18.0
	Electrical Resistivity (Microhm-cm)	9.58

USES

Silver Alloy 50Ni3 is recommended for use on stainless steels subject to chloride corrosion, such as marine hardware, fishing tackle, and come dairy equipment cleaned with bleaching solutions and other equipment exposed to chlorinated water. While Silver Alloy 50Ni3 is used successfully on many stainless steel assemblies where corrosion in service is not severe, it is better and safer to use Silver Alloy 50Ni3 for all stainless steel joints where the end use is not known. Silver Alloy 50Ni3 should not be used where the joints are exposed to direct contact with food, because of its cadmium content. Silver Alloy 50Ni3 is used extensively in brazing tungsten carbide inserts for wood and metal cutting, and for mining tools. It is also recommended for the brazing of aluminum bronze to steel as the nickel content offsets the harmful effect of diffusion of aluminum into the brazing alloy.

BRAZING CHARACTERISTICS

Silver Alloy 50Ni3 differs from most other silver brazing filler metals in that it is rather sluggish even at temperatures above its flow point. For this reason it will fill larger gaps that more fluid alloys and may be used where clearances between joint surfaces cannot be kept within the tolerance normally recommended. This characteristic makes it easier to produce large fillets where fillets are required for appearance or affecting the distribution of stresses in an assembly. Silver Alloy 50Ni3 has a tendency liquate (separate into low and high melting constituents) and is preferably used where the assembly is to be heated rapidly through the melting range of the filler metal. It is not a good alloy for furnace brazing where it can be pre-placed internally in the joint area in the form of shims or rings, and where heating is rapid.

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.

SPECIFICATIONS	Silver Alloy 50Ni3 conforms to: Unified Numbering System (UNS) P07501, American Welding Society (AWS) A5.8/A5.8M BAg-3, and Society of Automotive Engineers (SAE)/AMS 4771
AVAILABLE FORMS	Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste.
SAFETY INFORMATION	The operation and maintenance of brazing equipment or facility should conform to the provisions of American National Standard (ANSI) Z49.1, “Safety in Welding and Cutting.”

WARNING

Contains cadmium – poisonous fumes may be formed when heated.
Do not breathe fumes. Use only with adequate ventilation such as fume collectors, exhaust ventilators, or air supplied respirators. See American National Standard Z49.1. If chest pain, cough or fever develops after use, call a physician immediately! Keep children away when using!

The Prince & Izant Company recommends using **cadmium-free** alloys for brazing applications. If you are presently using cadmium bearing alloy and need assistance in identifying a suitable cadmium free substitute, please contact your Prince & Izant Company sales representative.

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:

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