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PAL 5 (BVAg-30) TECHNICAL DATA

NOMINAL COMPOSITION	Silver	68.0% ± 1.0
	Copper	27.0% ± 1.0
	Palladium	5.0% ± 0.5
	<u>Vacuum Grade Trace Elements</u>	
	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 932°F (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	Silver White
	Solidus	1485°F (807°C)
	Liquidus	1490°F (810°C)
	Recommended Brazing Temperature	1540-1590°F (838-866°C)
	Density (Toz/in³)	5.32
	CTE (x10⁻⁶/°C)	17.2
	Thermal Conductivity (W/(m•K))	208
	Electrical Conductivity (x10⁶/(ohm•m))	27
	Electrical Resistivity (x10⁻⁹ ohm•m)	37
	Yield Strength (MPa)	333
	Tensile Strength (MPa)	380
Elongation (%)	11	

USES

PAL 5 can be used on any of the common ferrous and non-ferrous alloys. The most common base materials joined are kovar and Mo/Mn seals. Due to its low vapor pressure compared to standard silver base filler metals, PAL 5 is suitable for use in all vacuum applications such as electronic valve construction, and vacuum tube construction in electronic industry. Often this alloy is used in brazing of metalized ceramics to nickel-cobalt-iron assemblies and in glass to metal seals.

**BRAZING
CHARACTERISTICS**

The palladium content in PAL 5 inhibits the potential of stress corrosion cracking in iron-nickel base metals in comparison to standard silver-copper alloys. PAL 5 exhibits higher corrosion and oxidation resistance than standard silver-copper alloys.

**PROPERTIES OF
BRAZED JOINTS**

The properties of a brazed joint are dependent upon the base metal, joint design and brazing technique. For controlled atmosphere brazing or vacuum brazing the recommended radial joint clearance for silver base alloys falls within 0.000in – 0.002in (0.00mm – 0.05mm) range.

SPECIFICATIONS

PAL 5 alloy conforms to: Unified Numbering System (UNS) P07687 and American Welding Society (AWS) A5.8/A5.8M BVAg-30 Grade 1 and Grade 2.

AVAILABLE FORMS

Wire, strip, engineered preforms and 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."

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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