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

APA 5
TECHNICAL DATA

NOMINAL COMPOSITION

Silver	63.0% ± 1.0
Copper	35.25% ± 0.5
Titanium	1.75%
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	0.05% max.

*Elements with a vapor pressure higher than 10^{-7} torr at 932ºF (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

Solidus	1435°F (780°C)
Liquidus	1500°F (816°C)
Recommended Brazing Temperature	1600-1650°F (871-899°C)
Density (Troy oz/in^3)	5.2
CTE, RT-500°C (x10^{-6}/°C)	18.5
Electrical Conductivity (10^6/ohm•m)	23
Electrical Resistivity (10^{-9} ohm•m)	44
Thermal Conductivity (W/m•K)	180
Yield Strength, 0.2% offset (MPa)	271
Tensile Strength (MPa)	346
Young's Modulus (GPa)	83
Elongation, 2" gage length (%)	20
Knoop Hardness (KHN)	110

USES

Suitable for brazing ceramics to metals as well as other non-metallic components without the need for prior metallization of the contact surface.

BRAZING CHARACTERISTICS

Suitable for use in all vacuum brazing applications as well as under partial pressure of argon gas. Brazing of active alloys under protective nitrogen atmosphere is not recommended. It is important to maintain a high purity, oxygen-free environment; any oxidation of reactive elements will limit alloy wettability across the non-metallic surface. For controlled atmosphere brazing or vacuum brazing the recommended radial joint clearance for silver-base alloys ranges between 0-0.002 in (0-0.05 mm).

PROPERTIES OF BRAZED JOINTS	The properties of a brazed joint are dependent upon the base metal, joint design and brazing technique. This alloy in particular is ductile and will exhibit exceptional corrosion resistance due to the high silver content.
SPECIFICATIONS	APA 5 conforms to: Cusil-ABA
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.”

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: