

Prince & Izant Company

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



AMS 4776 (BNi-1a) TECHNICAL DATA

NOMINAL COMPOSITION	Nickel	Remaining
	Chromium	14.0% ± 1.0
	Boron	3.125% ± 0.375
	Silicon	4.5% ± 0.5
	Iron	4.5% ± 0.5
	Phosphorus	0.02% Max
	Carbon	0.06% Max
	Sulfur	0.02% Max
	Titanium	0.05% Max
	Aluminum	0.05% Max
	Zirconium	0.05% Max
	Cobalt	0.10% Max
	Selenium	0.005% Max
	Other Elements, Total	0.50% Max
PHYSICAL PROPERTIES	Color	Iron Gray
	Solidus	1790°F (976°C)
	Liquidus	1970°F (1076°C)
	Recommended Brazing Temperature	2020-2070°F (1104-1132°C)
	Density (Lbs/in³)	0.28
	Specific Gravity	7.80
	Electrical Conductivity (%IACS)	N/A
	Electrical Resistivity (Microhm-cm)	N/A
USES	<p>AMS 4776 is a general purpose nickel brazing alloy which can be used for a wide variety of applications. This alloy is typically used for joining super alloys, stainless steels and alloys requiring good joint strength at high temperature while maintaining good corrosion and oxidation resistant characteristics. Due to the low carbon content AMS 4776 exhibits low carbide precipitation.</p>	
BRAZING CHARACTERISTICS	<p>AMS 4776 exhibits good flow characteristics when clearance between 0.002in-0.005in (0.051 mm-0.127mm) are maintained. Minimizing joint clearance and the amount of material applied will limit the amount of erosion into the base metal. In atmosphere brazing, base metals containing more than 0.5% aluminum and/or titanium are often nickel-plated (0.0005inc. to 0.005in. thick depending upon brazing temperature and cycle), if difficulties in wetting and bonding are encountered. On thinner sections or less ductile base metals, brazing should be done at the low end of the brazing range with small clearance, fast heating/cooling cycles and minimum quantity of brazing alloy to minimize erosion.</p>	

**PROPERTIES OF
BRAZED JOINTS**

The properties of a brazed joint are dependent upon numerous factors including base metal properties, joint design and metallurgical interaction between base metals and filler metal. This alloy shows satisfactory oxidation resistance at temperatures as high as 2000°F

SPECIFICATIONS

AMS 4776 conforms to: Unified Numbering System (UNS) N99610, American Welding Society (AWS) A5.8/A5.8M BNi-1a and Society of Automotive Engineers (SAE) AMS 4776

AVAILABLE FORMS

Powder and Paste

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.