

HI-TEMP® 720

NOMINAL COMPOSITION

Nickel	Remainder
Chromium	14.0% ± 1.0%
Boron	2.75% - 3.50%
Silicon	4.5% ± 0.5%
Iron	4.5% ± 0.5%
Carbon	0.75% ± 0.15%
Phosphorous	0.02% 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
Melting Point (Solidus)	1780°F (971°C)
Flow Point (Liquidus)	1900°F (1038°C)
Brazing Temperature Range	1950°F - 2200°F (1065°C - 1205°C)
Specific Gravity	7.08
Density (Lbs/in ³)	0.256
Electrical Conductivity (%IACS) ⁽¹⁾	N/A
Electrical Resistivity (Microhm-cm)	N/A

⁽¹⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Hi-Temp 720 is a general-purpose nickel brazing alloy which can be used for a wide variety of applications. Typically, this alloy is used for joining super alloys, stainless steels, and alloys requiring good joint strength at high temperatures while maintaining good corrosion and oxidation resistant characteristics.

BRAZING CHARACTERISTICS

Hi-Temp 720 exhibits excellent flow characteristics when tighter clearances are maintained. Minimizing joint clearances and the amount of material applied will limit the amount of erosion into the base metal. Recommended joint clearances at brazing temperature for Hi-Temp 720 are 0.002 in. – 0.005 in. (0.05 mm – 0.12 mm). In atmosphere brazing, base metals containing more than 0.5% aluminum and/or titanium (i.e. Inconel X and A286) are often nickel-plated (0.0005 in. to 0.0015 in. 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 clearances, fast heating/cooling cycles, and a minimum quantity of brazing alloy to minimize erosion.

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. This alloy shows satisfactory oxidation resistance at temperatures as high as 2000°F (1093°C).

AVAILABLE FORMS

Powder and paste.

Available mesh sizes for powder:

<u>140F</u>	<u>325</u>
100 Mesh: 0.5% Max	+200 Mesh: 0.5% Max
140 Mesh: 10% Max	+325 Mesh: 10% Max
-325 Mesh: 55% Max	-325 Mesh: 90% Min

*Mesh sizes per AWS A5.8M/A5.8

SPECIFICATIONS

Hi-Temp 720 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BNi-1
- Society of Automotive Engineers (SAE) / AMS 4775

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 77-818.

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". For more complete information refer to the Material Safety Data Sheet for Hi-Temp 720.

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