LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

Technical Data Sheet

HI-TEMP® 800

NOMINAL COMPOSITION

Nickel	Remainder
Chromium	29.0 % ± 1.0%
Phosphorus	6.0 % ± 0.5%
Silicon	6.5 % ± 0.5%
Carbon	0.10% Max
Other Elements (Total)	0.50% Max

PHYSICAL PROPERTIES

Color	Iron Gray
Melting Point (Solidus)	1810°F (988°C)
Flow Point (Liquidus)	1912°F (1045°C)
Brazing Temperature Range	1950°F - 2150°F (1065°C - 1177°C)
Specific Gravity	5.99
Density (Lbs/in^3)	0.216
Electrical Conductivity (%IACS) [(1)]	N/A
Electrical Resistivity (Microhm-cm)	N/A

[(1)] IACS = International Annealed Copper Standard

PRODUCT USES

Hi-Temp 800 is a nickel-chromium-silicon-phosphorus brazing alloy powder used in high temperature strength and oxidation applications. Typically this alloy is used for joining super alloys, corrosion and heat resistant steels and alloys requiring good joint strength at high temperatures while maintaining good corrosion and oxidation resistant characteristics. This alloy is typically used in brazing heat exchangers used in automotive industry.

BRAZING CHARACTERISTICS

Hi-Temp 800 has very good flow characteristics on stainless steel comparable to that of AWS A5.8/A5.8M BNi-7 alloy. It has improved wettability on stainless steel over conventional nickel based filler metals such as AWS A5.8/A5.8M BNi-2, BNi-3 and BNi-5 alloys. 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 with 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. Joint ductility, strength and high temperature properties, and alloy re-melt temperature increase with increasing temperature and heating cycles and decreasing joint clearances. Corrosion resistance against sulfuric and nitric acids, ammonia and salt showed satisfactory results comparable to those of AWS A5.8/A5.8M BNi-5 alloy.

The tensile strength of Hi-Temp 800 is comparable to those of the joints brazed with BNi-2 and BNi-5, and exceeded strengths of AWS A5.8/A5.8M BNi-3 and BNi-7 alloys. Recommended furnace atmospheres for this alloy are vacuum, argon, nitrogen and hydrogen. Recommended joint clearances for Hi-Temp 800 at brazing temperature are 0.000 in. – 0.001 in. (0.00 mm – 0.05 mm).

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AVAILABLE FORMS

Powder and paste.

SPECIFICATIONS

Hi-Temp 800 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 77-800.

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 800.

WARRANTY CLAUSE

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