

Hi-Temp® 940

NOMINAL COMPOSITION

Iron	Remainder
Nickel	30.0% ± 2.0%
Chromium	25.0% ± 2.0%
Silicon	5.5% ± 1.0%
Phosphorus	7.0% ± 1.0%
Molybdenum	2.0% ± 0.5%

PHYSICAL PROPERTIES

Color	Grey
Melting Point (Solidus)	1850°F (1010°C)
Flow Point (Liquidus)	1950°F (1065°C)
Brazing Temperature Range	2012°F - 2050°F (1100°C - 1120°C)
Specific Gravity	5.78
Density (Lbs/in ³)	0.209

PRODUCT USES

Hi-Temp 940 is an iron-based brazing alloy powder used in applications very similar to the nickel based brazing filler metal. The base metals include Stainless Steels, Alloy Steels, Heat Resistant Steels, Tool Steels, Superalloys and Nickel based alloys. Typical applications include Stainless Steel EGR Coolers, Heat Exchangers, Heat and Corrosion Resistant Pipes.

BRAZING CHARACTERISTICS

Hi-Temp 940 has very similar performance characteristics as nickel filler metals; including brazing temperature, mechanical properties, corrosion resistance and heat resistance. Since the base metal costs of Iron and Chromium have been much more stable than those of Nickel, these can provide a significant reduction in the total overall brazing costs. Fast ramp-up rates for heating should be employed to avoid liquation. Hi-Temp 940 is intended for use under vacuum (10^{-3} Torr or better), or Hydrogen atmospheres (-60°F dew point or better). Suggested joint clearance at brazing temperature for Hi-Temp 940 is 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 section 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.

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. Shear strengths exceeding 350 N/mm² (50,000 PSI) have been achieved on braze joints with Stainless Steels.

AVAILABLE FORMS

Available in -100 mesh powder and paste.

SPECIFICATIONS

Hi-Temp 940 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 77-940.

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 940.

WARRANTY CLAUSE

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