LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

Technical Data Sheet

HI-TEMP® 870

NOMINAL COMPOSITION

Copper	87.0% ± 1.0%
Manganese	10.0% ± 1.0%
Cobalt	3.0% ± 0.5%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Light Copper
Melting Point (Solidus)	1760°F (960°C)
Flow Point (Liquidus)	1885°F (1030°C)
Brazing Temperature Range	1885°F - 2000°F (1030°C - 1093°C)
Specific Gravity	8.76
Density (Lbs/in^3)	0.317
Electrical Conductivity (%IACS) (1)	14.5
Electrical Resistivity (Microhm-cm)	11.9

(1) IACS = International Annealed Copper Standard

PRODUCT USES

Hi-Temp 870 is a bronze filler metal used for tungsten carbide to steel joints or stainless steels, requiring optimum high temperature shear strength, toughness and corrosion resistance. Brazing is often done in conjunction with heat treatment of the steel.

BRAZING CHARACTERISTICS

Because of the wide melting range, this filler metal has good gap filling characteristics at the lower end of the brazing range and is relatively free-flowing near the upper end. Wetting is excellent on carbide stainless steel and copper. Recommended brazing clearances are 0.006 in. - 0.012 in. (0.152 mm - 0.305 mm). Fluxless brazing can be accomplished in a vacuum or suitable protective atmosphere, or induction or air furnace brazing using Handy Hi-Temp® M, Handy Hi-Temp® DB or Handy Hi-Temp® Boron Modified Flux.

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. Lap joints, in the listed metals, have been tested at room temperature with the following typical results:

	Tensile Strength (lbs/in^2)
Tungsten Carbide/Tool Steels	35,000 - 40,000

AVAILABLE FORMS

Powder and paste.

Lucas-Milhaupt, Inc. • 5656 S. Pennsylvania Ave • Cudahy, WI 53110 • Phone: 414.769.6000 • Fax: 414.769.1093 • www.lucasmilhaupt.com

SPECIFICATIONS

Hi-Temp 870 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: A00000477, Legacy Code: 77-870.

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 870.

WARRANTY CLAUSE

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