LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

Technical Data Sheet

69-285 VTG[(1)]

NOMINAL COMPOSITION

Silver	85.0% ±1.0%
Copper	Remainder
Cadmium	0.002% Max
Zinc	0.002% Max
Phosphorous	0.02% Max
Carbon	0.005% Max
Lead	0.002% Max
Other volatile elements [(2)]	0.002% Max
Volatile elements total (incl. Cd, Zn, Pb)	0.010% Max
Total non-volatile elements	0.05% Max

[(1)] Vacuum Tube Grade
[(2)] Elements with a vapor pressure higher than 10^{-7} torr at 932ºF (500ºC) such as Mg, Sb, K, Na, Li, Ti, S, Cs, Rb, Se, Te, Sr, and Ca

PHYSICAL PROPERTIES

Color	White
Melting Point (Solidus)	1435ºF (780ºC)
Flow Point (Liquidus)	1555ºF (846ºC)
Brazing Temperature Range	1555ºF - 1800°F (846°C - 982°C)
Specific Gravity	10.22
Density (Troy oz/in^3)	5.39
Electrical Conductivity (%IACS) [(3)]	N/A
Electrical Resistivity (Microhm-cm)	N/A

[(3)] IACS = International Annealed Copper Standard

PRODUCT USES

69-285 (VTG) is generally used to join silver, copper and nickel base alloys in reducing or inert atmospheres or vacuum. It is also widely used to join metalized ceramics to metals in vacuum. 69-285 (VTG) is designed for all types of moderate temperature vacuum systems and particularly where maximum precautions must be taken to insure the presence of only a minimum amount of detrimental volatile impurities.

BRAZING CHARACTERISTICS

69-285 (VTG) is a silver-copper composition alloy similar to Silvaloy 721 (BAg-8) with a wide melting range where better gap filling capabilities may be required. On either silver or copper base alloys, 69-285 (VTG) may exhibit a decreased in fluidity and an increased re-melt temperature due to the dissolution of either silver or copper into the filler metal. Brazing time and temperature should be minimized to prevent excessive diffusion and erosion of the base metal.

This filler metal has limited wetting ability on iron and/on nickel base alloys. The wetting ability it does have is derived from its copper content. Both iron and nickel have practically no solubility in silver, while nickel is readily soluble in copper and the solubility of iron in copper is sufficient to provide wetting. It is an observed fact that the wetting obtained in good hydrogen atmospheres is superior to that derived from flux protection.

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AVAILABLE FORMS

Strip, engineered preforms, specialty preforms per customer specification.

SPECIFICATIONS

69-285 (VTG) alloy conforms to the following specifications: N/A

APPLICABLE CODES

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 69-285.

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 69-285 (VTG).

WARRANTY CLAUSE

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