

SILVALOY[®] 720
(BRAZE[™] 720, SILVALOY[®] B72)

NOMINAL COMPOSITION

Silver	72.0% ±1.0%
Copper	Remainder
Total non-volatile elements	0.15% Max

PHYSICAL PROPERTIES

Color	White
Melting Point (Solidus)	1435°F (780°C)
Flow Point (Liquidus)	1435°F (780°C)
Brazing Temperature Range	1435°F - 1700°F (780°C - 925°C)
Specific Gravity	10.01
Density (Troy oz/in ³)	5.28
Electrical Conductivity (%IACS) ⁽³⁾	87.0
Electrical Resistivity (Microhm-cm)	2.00

⁽³⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Silvaloy 720 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 metallized ceramics to metals in vacuum.

BRAZING CHARACTERISTICS

Silvaloy 720 is the silver-copper eutectic composition and in melting it acts like a metallic element, i.e. it melts completely at a single temperature, thus it will quickly flow into long narrow joints. On either silver base or copper base alloys, Silvaloy 720 exhibits a decreased fluidity and an increased re-melt temperature due to the solution of either silver or copper in the eutectic. Brazing time and temperature should be minimized to prevent excessive diffusion and erosion of the base metal.

Silvaloy 720 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.

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. Butt joints have been brazed and tested for tensile strength at room temperature, on the listed metals, with the following typical results:

	Tensile Strength (lbs/in ²)
Copper	30,000 - 35,000
Brass	35,000 - 50,000
Nickel-Silver	35,000 - 40,000

CORROSION RESISTANCE

The results of limited corrosion tests on Silvaloy 720 are as follows:

Solution	Test Temp.	Conditions	Loss in Weight Mgs/dcm ² /Day
Wet Ammonia Gas	Room	Closed Container	0.28
Dry Ammonia Gas	Room	Closed Container	None

A potential interface corrosion problem exists in stainless steel joints brazed with flux.

AVAILABLE FORMS

Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste.

SPECIFICATIONS

Silvaloy 720 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAg-8

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for Silvaloy 720: 32-720, 1792.

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 Silvaloy 720.

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