

SILVALOY® 600
(BRAZE™ 600, SILVALOY® A60)

NOMINAL COMPOSITION

Silver	60.0% ± 1.0%
Copper	25.0% ± 1.0%
Zinc	15.0% ± 1.0%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	White
Melting Point (Solidus)	1245°F (675°C)
Flow Point (Liquidus)	1325°F (720°C)
Brazing Temperature Range	1325°F - 1425°F (720°C - 774°C)
Specific Gravity	9.51
Density (Troy oz/in ³)	5.01
Electrical Conductivity (% IACS) ⁽¹⁾	21.0
Electrical Resistivity (Microhm-cm)	8.40

⁽¹⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Silvaloy 600 is generally used in place of BAg-9 (Silvaloy 650) on silverware where only one joint is required. It is also used as a secondary joining filler metal in step brazing on an article. It has the same flow point as BAg-9, but the color is slightly yellower. In a properly made joint, however, the seam should be so narrow that this difference is not noticeable after polishing.

BRAZING CHARACTERISTICS

Silvaloy 600 is a copper rich eutectiferous alloy, the eutectiferous portion of which is molten at 1300°F (705°C), about 25° F (-3.8°C) before the entire composition is completely fluid. Thus to the eye, the alloy would appear to flow at 1300°F. With this type of alloy, fluidity when brazing copper based metal is decreased, but in the brazing of silver based alloys it is increased. This effect is due to the solution of the base metal. Both nickel and iron based alloys are readily wet by Silvaloy 600 as it contains 15% zinc.

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)	Elongation (% in 2 in.)
Copper	25,000 - 30,000	21.0 - 27.0
Brass	35,000 - 45,000	13.0 - 19.0
Nickel-Silver	55,000 - 60,000	20.0 - 25.0

CORROSION RESISTANCE

Solution	Test Temp.	Conditions	Loss in Weight mg/dm ² /day
Concentrated Hydrofluoric Acid	Room	Closed Container	123
1% Acetic Acid	205°F (95°C)	Vapor	9.30
10% Acetic Acid	205°F (95°C)	Vapor	35.7
Wet Ammonia Gas	Room	Closed Container	None
Dry Ammonia Gas	Room	Vapor	None
Carbon Tetrachloride	Room	Presence of Water	891

In addition to the tests above, brazed joints of copper, brass and nickel silver have been subjected to corrosion tests. The loss in weight obtained with these tests is not given, as it is not indicative of the resistance of the Silvaloy 600 to corrosion, since the area of the exposed filler metal was small when compared to the total area of the specimen. At the conclusion of these tests, the brazed joints in general showed less corrosion than the base metal and the Silvaloy 600 stood up in relief where the base metal had dissolved faster than the joint. A potential interface corrosion problem exists on flux brazed stainless steel joints in an aqueous environment.

AVAILABLE FORMS

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

SPECIFICATIONS

Silvaloy 600 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 32-600, 6338.

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 600.

WARRANTY CLAUSE

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