

SILVALOY[®] 300 (BRAZE[™] 300, SILVALOY[®] A30)

NOMINAL COMPOSITION

Silver	30.0% ± 1.0%
Copper	38.0% ± 1.0%
Zinc	32.0% ± 2.0%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Light Yellow
Melting Point (Solidus)	1250°F (677°C)
Flow Point (Liquidus)	1410°F (765°C)
Brazing Temperature Range	1410°F - 1600°F (765°C - 871°C)
Specific Gravity	8.63
Density (Troy oz/in ³)	4.55
Electrical Conductivity (%IACS) ⁽¹⁾	24.4
Electrical Resistivity (Microhm-cm)	6.85

⁽¹⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Silvaloy 300 is a general purpose, intermediate temperature brazing alloy for use on copper, brass, nickel-silver, bronze, steel and other nonferrous alloys melting above 1450°F (788°C). Uses include the brazing of nickel-silver hollow knife handles and electrical equipment. It is particularly adaptable to metal bath dip brazing of fine wires for radio, small transformer and electronics assemblies because its flow point matches the fluid temperature of borax. Borax is used as a metal bath flux cover because it is less corrosive to ceramic pot linings than Handy Flux[®]. Silvaloy 300 exhibits better stability than lower melting alloys when used for metal bath dip brazing.

BRAZING CHARACTERISTICS

Silvaloy 300 is an intermediate temperature silver brazing alloy with a fairly long (160°F/88°C) melting range. This long melting range is helpful when wide gap joints are brazed and is useful in producing large joint fillets to reduce the notch effect on stressed assemblies. Where the higher brazing temperature and characteristics of this alloy are permissible, the lower silver content affords a saving. Handy Flux[®] should be used with this 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. 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	30,000 - 35,000	15.0 - 25.0
Brass	35,000 - 45,000	16.0 - 31.0
Nickel-Silver	35,000 - 40,000	7.00 - 17.0

CORROSION RESISTANCE

Silvaloy 300 is not considered as corrosion resistant as the higher silver content braze filler metals, but the following results were obtained from corrosion tests on this filler metal:

Solution	Test Temp.	Conditions	Loss in Weight Mgs/dcm ² /Day
5% Sulphuric Acid	Room	Constant Immersion	15.57
5% Sulphuric Acid	160°F (71°C)	Constant Immersion	1115.5
10% Sulphuric Acid	Room	Constant Immersion	15.7
10% Sulphuric Acid	160°F (71°C)	Constant Immersion	207.6
20% Sulphuric Acid	Room	Constant Immersion	13.9
20% Sulphuric Acid	160°F (71°C)	Constant Immersion	181.1

In addition to the tests above, brazed joints of copper, brass and nickel-silver were subjected to corrosion tests. At the conclusion of these tests, the brazed joints showed less corrosion than the base metal and the brazing alloy stood up in relief where the base metal had dissolved faster than the joint.

AVAILABLE FORMS

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

SPECIFICATIONS

Silvaloy 300 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAg-20
- ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8 BAg-20
- Federal Specification QQ-B-654 BAg-20

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 32-300, 125.

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 300.

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