LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

Technical Data Sheet

SILVALOY® 202
(BRAZE™ 202, SILVALOY® A20)

NOMINAL COMPOSITION

Silver	20.0% ± 1.0%
Copper	45.0% ± 1.0%
Zinc	35.0% ± 1.0%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Brass Yellow
Melting Point (Solidus)	1315°F (710°C)
Flow Point (Liquidus)	1500°F (815°C)
Brazing Temperature Range	1500°F - 1600°F (815°C - 871°C)
Specific Gravity	8.45
Density (Troy oz/in^3)	4.45
Electrical Conductivity (%IACS) [(1)]	23.5
Electrical Resistivity (Microhm-cm)	7.36

[(1)] IACS = International Annealed Copper Standard

PRODUCT USES

Silvaloy 202 is a useful intermediate temperature, low cost brazing alloy for joining a variety of ferrous and non-ferrous alloys. It provides a good color match on yellow brasses. Silvaloy 202 is preferred for brazing steel where heat-treating will be combined with brazing in a single operation.

BRAZING CHARACTERISTICS

Silvaloy 202 is a braze filler metal with rather long melting range. It has a tendency to liquate (i.e. separate into low and high melting constituents) when heated slowly through its melting range. Therefore, it is preferable to use this alloy where the assemblies can be heated rapidly through solidus-liquidus range. Handy® Flux or Handy® Flux Type B-1 can be used with Silvaloy 202.

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. The following information, however, should serve as a guide for estimating the results that can be achieved with Silvaloy 202. 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	25.0 - 31.0
Brass	35,000 - 45,000	17.0 - 39.0
Nickel-Silver	40,000 - 50,000	8.00 - 11.0

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CORROSION RESISTANCE

Silvaloy 202 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
1% Acetic Acid	200°F (95°C)	In Vapor	-17.1
10% Acetic Acid	200°F (95°C)	In Vapor	158.0
5% Sulphuric Acid	Room	Constant Immersion	27.98
5% Sulphuric Acid	160°F (70°C)	Constant Immersion	190.8
10% Sulphuric Acid	Room	Constant Immersion	16.7
10% Sulphuric Acid	160°F (70°C)	Constant Immersion	89.3
20% Sulphuric Acid	Room	Constant Immersion	10.7
20% Sulphuric Acid	160°F (70°C)	Constant Immersion	56.1

In addition to the tests above, brazed joints of copper, brass and nickel-silver were subjected to corrosion tests. The results of weight loss obtained from these tests are not given as they are not an indication of the resistance of the brazing alloy filler metal to corrosion. This is true because the area of the alloy is small as compared to the total area of the specimen. At the conclusion of these tests, the brazed joint in general showed less corrosion than the base metal and the filler metal 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 202 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 32-202, 6114.

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 202.

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