

SILVALOY[®] 655 **(BRAZE[™] 655)**

NOMINAL COMPOSITION

Silver	65.0% ± 1.0%
Copper	28.0% ± 1.0%
Manganese	5.0% ± 0.5%
Nickel	2.0% ± 0.5%
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	White
Melting Point (Solidus)	1385°F (750°C)
Flow Point (Liquidus)	1560°F (850°C)
Brazing Temperature Range	1560°F - 1700°F (850°C - 927°C)
Specific Gravity	9.78
Density (Troy oz/in ³)	5.15
Electrical Conductivity (%IACS) ⁽¹⁾	12.8
Electrical Resistivity (Microhm-cm)	13.4

⁽¹⁾ IACS = International Annealed Copper Standard

PRODUCT USES

Silvaloy 655 alloy has been used in brazing of Invar, Kovar, and similar low expansion alloys to copper in vacuum tube applications. This filler can be used for brazing of tungsten carbide cutting tools. In certain instances, Silvaloy 655 alloy has been used as a rubbing seal for jet engine turbine blades.

BRAZING CHARACTERISTICS

Silvaloy 655 liquates markedly from 1475°F (801°C) to 1500°F (816°C) and in instances where complete fluidity is the objective, heating to 1560°F (849°C) or higher must be rapid. Since it is a silver-copper base alloy, Silvaloy 655 flows well on base metals of both of these elements. As compared to the silver-copper eutectic, this alloy exhibits improved wetting on nickel due to the manganese content and on iron base alloys due to nickel and manganese content. While Silvaloy 655 can be employed in torch brazing with flux, it is more suited to hydrogen atmosphere brazing when dew point of -60°F or better can be maintained. This alloy can be used in furnace brazing applications, as there are no volatile constituents such as cadmium or zinc to condense and accumulate on cooler furnace parts.

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 various temperatures on 1020 steel, with the following typical results:

PROPERTIES OF BRAZED JOINTS (Cont.)

Test Temp. (°F)	Tensile Strength (lbs/in ²)
Room	52,000
200	52,000
400	52,000
600	52,000
800	29,000
1000	16,000
1200	7,500

AVAILABLE FORMS

Wire, strip, engineered preforms, specialty preforms per customer specification.

SPECIFICATIONS

Silvaloy 655 alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: A00000319, Legacy Code: 32-655.

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 655.

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