

## **SILVALOY<sup>®</sup> 603** **(BRAZE<sup>™</sup> 603, SILVALOY<sup>®</sup> B60T)**

### ***NOMINAL COMPOSITION***

---

Silver	60.0% ± 1.0%
Tin	10.0% ± 0.5%
Copper	Remainder
Other Elements (Total)	0.15% Max

### ***PHYSICAL PROPERTIES***

---

Color	White
Melting Point (Solidus)	1115°F (602°C)
Flow Point (Liquidus)	1325°F (718°C)
Brazing Temperature Range	1325°F - 1550°F (718°C - 843°C)
Specific Gravity	9.58
Density (Troy oz/in <sup>3</sup> )	5.05
Electrical Conductivity (%IACS) <sup>(3)</sup>	7.10
Electrical Resistivity (Microhm-cm)	24.1

<sup>(3)</sup>IACS = International Annealed Copper Standard

### ***PRODUCT USES***

---

Silvaloy 603 are often used in brazing of ferrous and non-ferrous alloys in a controlled atmosphere or vacuum furnace applications without the use of flux. Silvaloy 603 is recommended for brazing of heat exchanges exposed to salt water in marine environment. Salt water exposure may cause dezincification in braze alloys containing zinc, particularly in joints involving copper-nickel tubing.

Silvaloy 603 can be used where low volatiles is not a requirement. Silvaloy 604, a VTG version of Silvaloy 603, is designed for vacuum systems and particularly applications which require the use of filler material free from volatile constituents.

### ***BRAZING CHARACTERISTICS***

---

Silvaloy 603 can be used successfully to braze in hydrogen atmospheres without the use of flux. The tin content of this filler metal improves its wetting characteristics on ferrous base alloys over in comparison to binary silver copper braze filler metals. The addition lowers the melting range versus binary silver copper compositions. There is some tendency for the filler metal to liquate, but this is minimized by rapid heating to brazing temperature.

### ***PROPERTIES OF BRAZED JOINTS***

---

The properties of a brazed joint are dependent upon the base metal, joint design and brazing technique. For controlled atmosphere brazing or vacuum brazing the recommended radial joint clearance for silver base alloys fall within 0.0015 in. - 0.002 in. (0.038 mm - 0.051 mm.) range.

### ***CORROSION RESISTANCE***

---

Silvaloy 603 showed satisfactory performance when exposed to marine environment where exposure to salt water is imminent, or where dezincification of zinc containing filler metals is likely to occur.

## ***AVAILABLE FORMS***

---

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

## ***SPECIFICATIONS***

---

Silvaloy 603 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAg-18
- ASME Boiler & Pressure Vessel Code, Sec II-C, SFA-5.8 BAg-18
- Society of Automotive Engineers (SAE) / AMS 4773

## ***APPLICABLE PRODUCT CODE(S)***

---

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 32-603, 6601.

## ***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 Silvaloy 603.

## ***WARRANTY CLAUSE***

---

Lucas-Milhaupt, Inc. believes the information contained herein to be reliable. However, the information is given by Lucas-Milhaupt, Inc. without charge and the user shall use such information at its own discretion and risk. This information is provided on an "AS IS" AND "AS AVAILABLE" basis and Lucas-Milhaupt, Inc. specifically disclaims warranties of any kind, either express or implied, including, but not limited to, warranties of title or implied warranties of merchantability or fitness for a particular purpose. No oral advice or written or electronically delivered information given by Lucas-Milhaupt, Inc. or any of its officers, directors, employees, or agents shall create any warranty. Lucas-Milhaupt, Inc. assumes no responsibility for results obtained or damages incurred from the use of such information in whole or in part.