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SILVERBRAZE 63 (BAg-21)

TECHNICAL DATA

NOMINAL COMPOSITION	**Silver**	63.0% ± 1.0
	Copper	28.5% ± 1.0
	Tin	6.0% ± 0.5
	Nickel	2.5% ± 0.5
	Other Elements Total	0.15% Max
PHYSICAL PROPERTIES	**Color**	White
	Solidus	1275°F (690°C)
	Liquidus	1475°F (801°C)
	Recommended Brazing Temperature	1575 -1750°F (857-954°C)
	Density (Troy oz/in^3)	5.19
	Specific Gravity	9.85
	Electrical Conductivity (%IACS)	12.8
	Electrical Resistivity (Microhm-cm)	13.4

USES

Silver Braze 63 is a low temperature brazing filler metal developed for use on 400 serious stainless steels for maximum resistance to interface corrosion. It can be used on 200, 300 and 400 serious stainless steels and other alloys for combined brazing/heat treatment with flux, or in protective atmosphere (including vacuum) furnaces. It is used in vacuum applications, and in joints where greater oxidation resistance than the other silver brazing alloys is required. It is also used in surgical and food-handling equipment requiring cadmium free alloys. Silver Braze 63 can be used on joints exposed to conditions favoring dezincification of zinc-coating alloys such as salt-water at elevated temperatures.

BRAZING CHARACTERISTICS

Silver Braze 63 is very sluggish because of its wide melting range, and will bridge wide or irregular clearances. To avoid liquidation (separation and flow of the low-melting components) the joint and alloy pre-placement should be designed for a minimum distance of flow (pre-placed sheet-preforms), particularly when slow heating will occur through the melting range. Fast heating or application of the alloy after the joint is at temperature will minimize liquation. Heating the assemblies above 1700F (925C), as in brazing/heating-treatment, will improve the fluidity of the brazing alloy and accelerate the heating rate in the alloy's melting range. Flux is recommended for us with Silver braze 63 when brazing the 400 serious stainless steels with torch, air-gas burner, or RF induction coil. Joint clearances of 0.002" – 0.010" (.05mm-.25mm) are recommended. Silver Braze 63 can be used in protective atmosphere (including vacuum) furnace brazing without flux. Excellent joints with good smooth fillets can be obtained on stainless steels at furnace temperatures of 1700-1850F (925-1010C) with H2N2 atmosphere having a dew point of -50F or lower and joint clearances of 0.002"-0.007" (0.5mm-0.18mm).

PROPERTIES OF BRAZED JOINTS

It has been found that joints on the 400 series stainless steels, when made with nickel-free silver brazing alloys and flux are subject to failure from interface corrosion with exposure to moisture. Silver Braze 63 was developed for the specific purpose of minimizing this difficulty, and when properly used, will give joints on the 400 serious stainless steels which are practically immune from interface corrosion caused by exposure to moisture. The corrosion resistance of joints with Silver Braze 63 appears to be the result of the deposition of a continuous thick nickel-rich layer on the surface of the steel during solidification of the brazing filler metal. When used for brazing in air, Silver Braze 63 is a sluggish alloy and forms relatively thick fillet edges. Thin nickel layer filler edges are formed with most other silver brazing filler metal, or when flux is used. The thin layer is insufficient to prevent interface corrosion. The addition of tin and nickel leads to improved oxidation and general corrosion resistance over the silver-copper and the silver-copper-zinc filler metals.

SPECIFICATIONS

Silver Braze 63 conforms to: Unified Numbering System (UNS) P07630, American Welding Society (AWS) A5.8/A5.8M BAg-21, Society of Automotive Engineers (SAE) AMS 4774

SB63 is manufactured to meet AWS & AMS standards making it suitable for use in brazing of medical devices and implants where the device manufacturer deems appropriate.

AVAILABLE FORMS

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

Individuals requiring further information and Engineering Specification Documents may wish to contact the Engineering Society for Advanced Mobility, Land Sea Air and Space, The Society of Automotive Engineers http://www.sae.org/ (SAE AMS) or The American Welding Society (AWS) http://aws.org/

NOTE:

DISCLAIMER