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SILVERPHOS 5 (BCuP-3)

TECHNICAL DATA

NOMINAL COMPOSITION	Copper	89.0% ± 1.0
	Phosphorus	6.0% ± 0.2
	Silver	5.0% ± 0.2
	Other Elements, Total	0.15% Max
PHYSICAL PROPERTIES	Color	Gray
	Solidus	1190°F (643°C)
	Liquidus	1495°F (812°C)
	Recommended Brazing Temperature	1545-1595°F (840-868°C)
	Density (lbs./in³)	0.29
	Specific Gravity	8.14
	Electrical Conductivity (%IACS)	9.60
Electrical Resistivity (Microhm-cm)	18.1	

USES

Silverphos 5 was developed primarily for use on copper, but its use has extended to other nonferrous copper base alloys. It is used extensively on refrigeration units, air conditioning apparatus, electrical conductors, copper and brass pipe fittings, and other copper and brass equipment.

BRAZING CHARACTERISTICS

Silverphos 5 is a copper rich, filler metal that is self-fluxing on copper by virtue of its phosphorus content. The self-fluxing property of this filler metal is effective on copper only. With copper-base alloys, such as brass or bronze, the joints should be fluxed. Silverphos 5 should not be used on nickel-base and iron-base alloys, as the phosphorus reacts with the nickel or iron to form brittle compounds at the interface of the joints. Silverphos 5, because of its higher phosphorus content, is more when heated rapidly to its flow point. Silverphos has less tendency to form large fillets or to fill poorly fitted joints.

Silverphos has a strong tendency to liquate (separation into low and high melting constituents) if heated slowly through its melting range, as normally occurs in furnace brazing. The results in leaving a "skull" of un-melted alloy behind may be objectionable from the standpoint of appearance. In furnace brazing it is preferable to pre-place the alloys inside the joint where the skull is not visible. Normally, the corrosion resistance of Silverphos 5 is of the same order as copper, but under certain conditions may corrode more rapidly. Silverphos 5 should not be used where the joints are exposed to sulfur compounds, especially in gasses or oils at temperatures above normal room temperature. As the corrosion by sulfur is cumulative, even very small percentages will eventually cause failure of the joint disintegration. Exposure to pressured steam can also result in accelerated corrosion.

**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.

SPECIFICATIONS

Silverphos 5 alloy conforms to: Unified Numbering System (UNS) C55281 and American Welding Society (AWS) A5.8/A5.8M BCuP-3

AVAILABLE FORMS

Wire, 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

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