Lucas-Milhaupt SIL-FOS Silver/ Copper/ Phosphorus Alloy

Category : Metal , Nonferrous Metal , Copper Alloy , Solder/Braze Alloy

Material Notes:

Applications: Sil-Fos was developed primarily for use on copper, but their 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. Characteristics: Sil-Fos is copper rich, filler metals that are self-fluxing on copper by virtue of their phosphorus content. Sil-Fos, because of its higher phosphorus content, is more fluid than Sil-Fos 5 when heated rapidly to its flow point. Sil-Fos has less tendency to form large fillets or to fill poorly fitted joints with large clearances cannot be maintained or where fillets are specified.The self-fluxing of these filler metals is effective on copper only. With copper-base alloys, such as bass or bronze, the joints should be fluxed with Handy-Flux. Sil-Fos should not be used on nickel-base alloys, as the phosphorus reacts with the nickel or iron to form brittle compounds at the interface of the joints. Both Sil-Fos is mutually soluble with copper and copper alloy base metals. This metal has a strong tendency to liquate (i.e. to separate 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 unmelted alloy behind which may objectionable from the standpoint of appearance. In furnace brazing it is preferable to preplace the alloys inside the joint where the skull is not visible. Specifications:This filler metal conform to the following specifications: AWS A5.8 BCuP-5, ASME Boiler & Pressure Vessel Code, Sec II-C, SFA5.8 BCuP-5

Information provided by Lucas-Milhaupt, Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Lucas-Milhaupt-SIL-FOS-Silver-Copper-Phosphorus-Alloy.php

Physical Properties	Metric	English	Comments
Density	8.44 g/cc	0.305 lb/inÂ³	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	207 - 241 MPa	30000 - 35000 psi	Copper butt joint
	241 - 276 MPa	35000 - 40000 psi	Brass butt joint
	241 - 276 MPa	35000 - 40000 psi	Nickel-Silver butt joint
	80.0 MPa @Temperature 427 Â°C	11600 psi @Temperature 800 Â°F	Brass butt joint
	109 MPa @Temperature 427 Â°C	15800 psi @Temperature 800 Â°F	Copper butt joint
	163 MPa @Temperature 260 Â°C	23600 psi @Temperature 500 Â°F	Copper butt joint
	197 MPa @Temperature 260 Â°C	28500 psi @Temperature 500 Â°F	Brass butt joint
	221.0 MPa	32050 psi	

Mechanical Properties	Metric	English	Comments
	@Temperature 93.3 Â°C	@Temperature 200 Â°F	Copper butt joint
	234 MPa @Temperature 93.3 Â°C	34000 psi @Temperature 200 Â°F	Brass butt joint
Elongation at Break	2.0 - 5.0 %	2.0 - 5.0 %	% in 2", Nickel-Silver butt joint
	15 - 20 %	15 - 20 %	% in 2", Copper butt joint
	20 - 25 %	20 - 25 %	% in 2", Brass butt joint
	2.9 % @Temperature 427 Â°C	2.9 % @Temperature 800 Â°F	in 2", Brass butt joint
	9.4 % @Temperature 427 Â°C	9.4 % @Temperature 800 Â°F	in 2", Copper butt joint
	19.2 % @Temperature 260 Â°C	19.2 % @Temperature 500 Â°F	in 2", Brass butt joint
	19.2 % @Temperature 93.3 Â°C	19.2 % @Temperature 200 Â°F	in 2", Brass butt joint
	24.5 % @Temperature 260 Â°C	24.5 % @Temperature 500 Â°F	in 2", Copper butt joint
	32.8 % @Temperature 93.3 Â°C	32.8 % @Temperature 200 Â°F	in 2", Copper butt joint

Thermal Properties	Metric	English	Comments
Melting Point	640.6 - 801.7 Â°C	1185 - 1475 Â°F	
Solidus	640.6 Â°C	1185 Â°F	Melting Point
Liquidus	801.7 Â°C	1475 Â°F	Flow Point

Component Elements Properties	Metric	English	Comments
Copper, Cu	79 - 81 %	79 - 81 %	
Other, total	<= 0.15 %	<= 0.15 %	
Phosphorous, P	4.8 - 5.2 %	4.8 - 5.2 %	
Silver, Ag	14.5 - 15.5 %	14.5 - 15.5 %	

Component Elements Properties	Metric	English	Comments
Electrical Properties	**Metric**	**English**	**Comments**
Electrical Resistivity	0.0000174 ohm-cm	0.0000174 ohm-cm	

Processing Properties	Metric	English	Comments
Processing Temperature	704 - 816 Â°C	1300 - 1500 Â°F	Brazing Range

Descriptive Properties	Value	Comments
Color	Gray	

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