LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

Technical Data Sheet

SIL-FOS® 6i

NOMINAL COMPOSITION

Silver	6.0% ± 0.25%
Phosphorus	6.5% ± 0.25%
Copper	Remainder
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Gray
Melting Point (Solidus)	1190°F (645°C)
Flow Point (Liquidus)	1425°F (774°C)
Brazing Temperature Range	1425°F - 1600°F (774°C - 871°C)
Specific Gravity	8.07
Density (lbs/in^3)	.292
Electrical Conductivity (%IACS) [(1)]	N/A
Electrical Resistivity (Microhm-cm)	N/A

[(1)] IACS = International Annealed Copper Standard

PRODUCT USES

Sil-Fos 6i is a low cost brazing filler metal suitable for joining copper to copper and copper to copper alloys where critical impact or vibration stresses are not encountered in service. It should only be used on assemblies where good fit-up can be maintained.

BRAZING CHARACTERISTICS

Sil-Fos 6i is a copper-rich, intermediate temperature, brazing filler metal that is free-flowing and self-fluxing on copper by virtue of its phosphorus content. This alloy is extremely fluid when heated rapidly to its flow point and will penetrate joints with very little clearance. Best results are obtained with joint clearances of 0.001 in. - 0.003 in. (0.025 mm - 0.075 mm). Sil-Fos 6i liquates (i.e. separates into high and low melting constituents) if heated slowly through its melting range. The self-fluxing property of Sil-Fos 6i is effective on copper only. Copper base alloys, such as brass or bronze, may be brazed with Sil-Fos 6i if the joints are coated with Handy Flux®. Sil-Fos 6i should not be used on ferrous metals or nickel base alloys, since the phosphorus produces brittle iron or nickel phosphorus at the joint interface.

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. Joints made with Sil-Fos 6i are entirely satisfactory on copper and soft copper alloys if good fit-up and adequate shear area are maintained. If poor fit-up prevails, or shear area is marginal, a lower phosphorus content silver-copper-phosphorus alloy such as Sil-Fos® 15 or Sil-Fos® 5 may be preferred, particularly if the joints are to be subjected to impact or vibration in service.

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CORROSION RESISTANCE

The corrosion resistance of Sil-Fos 6i is comparable to that of copper except when exposed to sulfur-containing compounds, especially at elevated temperatures. Under these conditions Sil-Fos 6i undergoes progressive deterioration. Exposure to pressurized steam can also result in accelerated corrosion.

AVAILABLE FORMS

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

SPECIFICATIONS

Sil-Fos 6i alloy conforms to the following specifications: N/A.

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 71-063, 35542.

Distribution P/N: 95180, 95181.

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 Sil-Fos 6i.

WARRANTY CLAUSE

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