LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

Technical Data Sheet

SIL-FOS® 2M
(SILVALOY® 2M)

NOMINAL COMPOSITION

Silver	2.0% ± 0.20%
Phosphorus	6.5% ± 0.20%
Copper	Remainder
Other Elements (Total)	0.15% Max

PHYSICAL PROPERTIES

Color	Gray
Melting Point (Solidus)	1190°F (643°C)
Flow Point [(1)]	1350°F (704°C)
Brazing Temperature Range	1350°F - 1600°F (704°C - 871°C)
Specific Gravity	8.03
Density (Lbs/in^3)	0.29
Electrical Conductivity (%IACS) [(2)]	N/A
Electrical Resistivity (Microhm-cm)	N/A

[(1)] The true liquidus of this alloy is 1495°F (813°C). The alloy will flow freely and make strong joints at 1350°F (704°C).
[(2)] IACS = International Annealed Copper Standard

PRODUCT USES

Sil-Fos 2M was developed primarily for use on copper, but its use has extended to other non-ferrous copper base alloys. Sil-Fos 2M is used on refrigeration units, air conditioning, electrical conductors, copper and brass pipe fitting, and other copper and brass type equipment.

BRAZING CHARACTERISTICS

Sil-Fos 2M is a copper-rich, intermediate temperature alloy that is self-fluxing on copper by virtue of its phosphorus content. The self-fluxing property of this alloy is effective on copper only. With copper base alloys, such as brass or bronze the joints should be fluxed with Handy® Flux. Sil-Fos 2M should not be used on nickel-base or ferrous alloys, as phosphorus reacts with nickel or iron to form brittle compounds at the interface of the joints. Sil-Fos 2M is recommended where close clearances cannot be maintained or where large fillets are required. This alloy has tendency to liquate if heated slowly through the melting range.

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 2M 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 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 2M is comparable to that of copper except when exposed to sulphur containing compounds, especially at elevated temperatures. Under these conditions Sil-Fos 2M 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 2M alloy conforms to the following specifications: N/A

APPLICABLE PRODUCT CODE(S)

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 71-017, 35502.

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 2M.

WARRANTY CLAUSE

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