LucasMilhaupt®
A Handy & Harman Company
Global Brazing Solutions®

# Technical Data Sheet

## FOS-FLO® 6

### *NOMINAL COMPOSITION*

| | |
|---|---|
| Phosphorus | 5.90% - 6.40% |
| Copper | Balance |
| Other Elements (Total) | 0.15% Max |

### *PHYSICAL PROPERTIES*

| | |
|---|---|
| Color | Steel Gray |
| Melting Point (Solidus) | 1310°F (710°C) |
| Flow Point (Liquidus) | 1570°F (854°C) |
| Brazing Temperature Range | 1570°F - 1670°F (854°C - 910°C) |
| Specific Gravity | 7.21 |
| Density (lbs/in$^3$) | 0.260 |
| Electrical Conductivity (%IACS) [(1)] | 7.20 |
| Electrical Resistivity (Microhm-cm) | 24.1 |

[(1)] IACS = International Annealed Copper Standard

### *PRODUCT USES*

Fos-Flo 6 is a copper-base, moderately free-flowing brazing filler metal that is free flowing and self-fluxing on copper by virtue of its phosphorus content. It forms a more ductile joint and liquates only slightly more than a 7% phosphorus-copper alloy when the two are heated rapidly under identical conditions. Heating slowly through the melting range tends to accentuate the degree of liquation. The liquating property may be used to advantage in bridging wide gap joints and forming desirable fillets. The self-fluxing feature of Fos-Flo 6 is effective on copper only. With copper-base alloys, such as brass or bronze, the joints should be fluxed with Handy Flux®. Fos-Flo 6 should not be used on ferrous metals or nickel-base alloys, because the phosphorus produces brittle iron or nickel phosphides at the joint interface.

### *CORROSION RESISTANCE*

The corrosion resistance of Fos-Flo 6 is comparable to that of copper except when the joint is exposed to sulfur-containing gas or oil at elevated temperatures as in a cooking range. Under these conditions, it is expected that Fos-Flo 6 will undergo progressive deterioration, as would all other phosphorus-copper brazing alloys with or without silver.

### *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. The following data is available on the tensile strength of butt joints made with 3/8" diameter rods of OFHC copper. All joints were hand fed and the resultant joint clearance was 0.004 in. to 0.006 in. (0.10 mm - 0.15 mm).


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## *PROPERTIES OF BRAZED JOINTS (CONT.)*

| Braze Alloy | Tensile Strength (lbs/in$^2$) | Elongation (% in 2 in.) |
|---|---|---|
| Sil-Fos 5 | 33,000 | 29.0 |
| Fos-Flo 6 | 31,000 | 20.0 |
| Fos-Flo 7 | 18,000 | 6.00 |

## *AVAILABLE FORMS*

Wire, powder and paste.

## *SPECIFICATIONS*

Fos-Flo 6 alloy conforms to the following specifications: N/A

## *APPLICABLE PRODUCT CODE(S)*

The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 69-060.

## *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 Fos-Flo 6.

## *WARRANTY CLAUSE*

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