PREMABRAZE® 399

NOMINAL COMPOSITION

<table>
<thead>
<tr>
<th>Element</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>37.5% ± 0.5%</td>
</tr>
<tr>
<td>Copper</td>
<td>Remainder</td>
</tr>
<tr>
<td>Zinc</td>
<td>0.001% Max</td>
</tr>
<tr>
<td>Cadmium</td>
<td>0.001% Max</td>
</tr>
<tr>
<td>Lead</td>
<td>0.002% Max</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.002% Max</td>
</tr>
<tr>
<td>Carbon</td>
<td>0.005% Max</td>
</tr>
<tr>
<td>Other high vapor pressure elements each (1)</td>
<td>0.001% Max</td>
</tr>
<tr>
<td>Total all high vapor pressure elements (Including zinc, cadmium, and lead)</td>
<td>0.010% Max</td>
</tr>
<tr>
<td>Total all other impurity elements</td>
<td>0.010% Max</td>
</tr>
</tbody>
</table>

(1) Elements with a vapor pressure higher than 10⁻⁷ Torr (1.3 x 10⁻⁵ Pa) at 932°F (500°C)

PHYSICAL PROPERTIES

- Color: Red Brass
- Melting Point (Solidus): 1815°F (991°C)
- Flow Point (Liquidus): 1860°F (1016°C)
- Brazing Temperature Range: 1860°F - 1960°F (1016°C - 1071°C)
- Specific Gravity: 11.2
- Density (Troy oz/in³): 5.90
- Electrical Conductivity (%IACS) (2): 20.3
- Electrical Resistivity (Microhm-cm): 8.50

(2) IACS = International Annealed Copper Standard

PRODUCT USES

Premabraze 399 can be used on any of the common ferrous and non-ferrous alloys. This alloy exhibits good wetting characteristics on metallized ceramics. Typical applications include brazing of electron tubes, vacuum tubes, wave guides in electronic industry.

BRAZING CHARACTERISTICS

Premabraze 399 is generally used in reducing, vacuum, or inert atmosphere. It is a less ductile alloy than standard gold-copper-nickel alloys. The composition of the alloy allows for use in applications where braze filler metals low in volatile constituents are required. Due to its narrow plastic range, Premabraze 399 exhibits free flowing characteristics.

PROPERTIES OF BRAZED JOINTS

The properties of a brazed joint are dependent upon the base metal, joint design and brazing technique. For controlled atmosphere brazing or vacuum brazing the recommended radial joint clearance for gold base alloys fall within 0.000 in. - 0.002 in. (0.00 mm - 0.05 mm) range.
AVAILABLE FORMS
Wire, strip, engineered preforms, specialty preforms per customer specification, powder and paste.

SPECIFICATIONS
Premabraze 399 alloy conforms to the following specifications:

- American Welding Society (AWS) A5.8/A5.8M BAu-1

APPLICABLE PRODUCT CODE(S)
The applicable Lucas-Milhaupt product code(s) for this technical data sheet: 18-399.

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 Premabraze 399.

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