**DESCRIPTION**

Alpha OM 5002 is a no-clean solder paste formulated for optimum performance in a wide variety of applications. The semi-soft, highly reliable residues provide a very low incidence of first probe false readings. OM 5002 can be squeegee or pump printed at high speeds.

**FEATURES & PROCESS BENEFITS**

- **OM-5002** prints at squeegee speeds up to 200mm/sec with consistent print volumes and definition after pauses up to 7 hours.
- Excellent resistance to hot and cold slump for (Contour stability) minimizing bridge formation.
- Excellent wetting characteristics and cosmetics on all types of pad finishes (incl. OSP) even after multiple reflow excursions.
- Penetrable post reflow flux residues to maximize pin testability (ICT).
- **OM-5002** exhibits long stencil and tack life > 8 hours (25-75% RH).

**AVAILABILITY**

- **Alloy:** 63Sn/37Pb, 62Sn/36Pb/2Ag
- **Rheology:** Squeegee & Pump Printing such as MPM Rheopump
- **Metal Percentage:** 90%
- **Powder Size:** Type #3 (-325+500 mesh per IPC J-STD-006)
- **Packaging Sizes:** Small jars, 700g / 1.4Kg cartridges and ProFlo™ cassettes.

**APPLICATION**

Formulated for standard and fine pitch printing through stencil apertures as small as 0.007 inches (0.2 mm). Suitable for use across a wide variety of process settings. **OM 5002** is especially suitable for printing on assemblies that will receive in circuit test probing.

**SAFETY**

While the **OM 5002** flux system is not considered toxic, its use in typical reflow will generate a small amount of reaction and decomposition vapors. These vapors should be adequately exhausted from the work area. Consult the MSDS for additional safety information, and for toxicity data on alloys containing lead and silver.

**SHIPPING & STORAGE**

**OM 5002** should be stored refrigerated upon receipt at 35°-45°F (3°-7°C). This will be sufficient to maintain a nominal shelf life of six months. **OM 5002** must be permitted to reach room temperature before unsealing its package prior to use (68°F (20°C)). Prolonged storage at nominal room temperature is attainable for unused material.

(TECHNICAL DATA ON PAGE 2)
### Alpha OM 5002 TECHNICAL DATA

<table>
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<tr>
<th>CATEGORY</th>
<th>RESULTS</th>
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<tr>
<td><strong>CHEMICAL PROPERTIES</strong></td>
<td></td>
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<tr>
<td>Activity Level</td>
<td>ROL-0 = J-STD Classification</td>
<td>IPC J-STD-004</td>
</tr>
<tr>
<td>Halide Content</td>
<td>Halide free (by titration). Passes Ag Chromate Test</td>
<td>IPC J-STD-004</td>
</tr>
<tr>
<td>Bono Testing</td>
<td>Pass (Sn 63/Pb 37)</td>
<td>Bono Testing Standard</td>
</tr>
<tr>
<td><strong>ELECTRICAL PROPERTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIR (IPC 7 days @ 85° C/85% RH)</td>
<td>1.7E (+10) ohms</td>
<td>Pass, IPC J-STD-004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(\text{Pass} = 1 \times 10^8 \text{ohm min})</td>
</tr>
<tr>
<td>SIR (Bellcore 96 hours @ 35°C/85% RH)</td>
<td>4.3E (+12) ohms</td>
<td>Pass, Bellcore GR78-CORE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(\text{Pass} = 1 \times 10^{11} \text{ohm min})</td>
</tr>
<tr>
<td>Electromigration (Bellcore 500 hours @ 65°C/85% RH)</td>
<td>Pass</td>
<td>Pass, Bellcore GR78-CORE 62Sn/36Pb/2Ag  (\text{Pass} = \text{final} &gt; \text{initial}/10)</td>
</tr>
<tr>
<td><strong>PHYSICAL PROPERTIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color &amp; Specific Gravity</td>
<td>Clear, Colorless Flux Residue; 4.6 g/cc paste</td>
<td>63Sn/37Pb alloy</td>
</tr>
<tr>
<td>Tack Force vs. Humidity (4 hours)</td>
<td>&gt;1.5 grams/mm(^2)</td>
<td>IPC J-STD-005</td>
</tr>
<tr>
<td>Viscosity</td>
<td>90% metal load designated M13 is suitable for all typical stencil printing applications.</td>
<td>Malcom Spiral Viscometer; J-STD-005</td>
</tr>
<tr>
<td>Solderball</td>
<td>Pass</td>
<td>Pass IPC J-STD-005</td>
</tr>
<tr>
<td>Soldering Life</td>
<td>&gt; 8 hours</td>
<td>DIN Standard 32 513, Pass</td>
</tr>
<tr>
<td>Slump</td>
<td>Hot Slump pass (25 mil is maximum bridge allowed for pass rating)</td>
<td>IPC J-STD-005</td>
</tr>
</tbody>
</table>

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Alpha OM 5002 Processing Guidelines

**STORAGE-HANDLING**

- Refrigerate to guarantee stability @35-45°F (3-7°C)
- Shelf life of refrigerated paste is six months. Unopened OMNIX 5002 can be stored at Room Temp (up to 77°F, 25°C) for up to 1 month.
- Required warm-up of paste container to room temperature for approx. 4 to 6 hours. Paste must be 71°F (20°C) before processing. Verify paste temperature with a thermometer to ensure paste is at 71°F (20°C or greater) before setup.
- Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology of unused paste.

**PRINTING**

| STENCIL: Recommend Alpha Cut laser cut stencil @ 0.125 or 0.150 mm (5 or 6 mil) thick for 0.016 or 0.020 mil pitch |
| SQUEEgee: Recommend metal or 90 durometer polyurethane. PRESSURE: 0.2 – 0.4 Kg/cm of squeegee length. SPEED: 1 to 6 inches per second (25-150 mm/sec). PASTE ROLL: 1.5-2.0 cm diameter and make additions when roll reaches 1 cm diameter. Maximum roll size will depend upon blade type. PRINT PUMP HEAD: OMNIX 5002 is suitable for use in MPM RheoPump™ |

**REFLOW (See Figure #1)**

| ATMOSPHERE: Clean-dry air or nitrogen atmosphere. |
| PROFILE (Sn 63 alloy): A straight ramp profile @ 0.8°C to 1.2°C per second ramp rate is recommended. High density assemblies may require preheating within the profile and may be accomplished as follows: - Ramp @ 60-120°C/min. to 145-160°C. - Dwell @ 145-160°C for 0.5-2.0 minutes. - Ramp @ 1-2°C/sec to 210-225°C peak temp. Time above 183°C=45-70 secs - Ramp down to R.T. @ 1.5 to 2°C per second. |

**CLEANING**

Alpha OM 5002 residue is designed to remain on the board after reflow.

Misprints and soft flux residues remaining after rework may be removed with Bioact™ SC-10 & SC-10E solvents and Hydrex™ Aqueous cleaners available from Alpha Metals.

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RheoPump™ is a trademark of the Speedline Technologies, Hydrex™ is registered trademark of Petroferm, Inc. ProFlow™ is a trademark of the DEK Corporation.

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