

# ALPHA<sup>®</sup> OM-6106

## Ultra-Fine Pitch Solder Paste

### DESCRIPTION

**ALPHA OM-6106**, is a low residue, no-clean solder paste designed to maximize SMT line throughput and yields. The flux vehicle is rheologically formulated to provide excellent ultra-fine pitch and high-speed printing properties. The **ALPHA OM-6106** activation system has been optimized to enhance joint solderability, solderballs and other soldering defects while maintaining long term reliability.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

### FEATURES & BENEFITS

- ALPHA OM-6106 is suitable for ultra-fine pitch applications such as 0.5 mm (20 mil) pitch Flip-Chip and 0201 assembly.
- Excellent print repeatability to 0.25 mm (10 mil) circles at high print speeds (based upon a 0.125 mm (5 mil) stencil thickness)
- Excellent response to pause performance, generating less defects due to start up.
- Uses universally available Type 3 powder
- High print speed, up to 200 mm/sec (8 inch/sec) and fast release speed to give rapid print cycle times
- Low residue level with minimal spread for reliable underfilling processes and results
- Excellent solderballing characteristics
- Excellent reliability properties, halide-free material

### PRODUCT INFORMATION

<u>Alloys:</u>	62Sn/36Pb/2Ag and 63Sn/37Pb
<u>Powder Size:</u>	Type 3, (25 to 45 µm per IPC J-STD-005) Type 4, (20 to 38 µm per IPC J-STD-005)
<u>Packaging Sizes:</u>	500 gram jars, 6 inch and 12 inch cartridges, DEK ProFlow <sup>®</sup> Cassettes
<u>Flux Gel:</u>	Available in 10 cc and 30 cc syringes for rework applications

**TECHNICAL DATA**

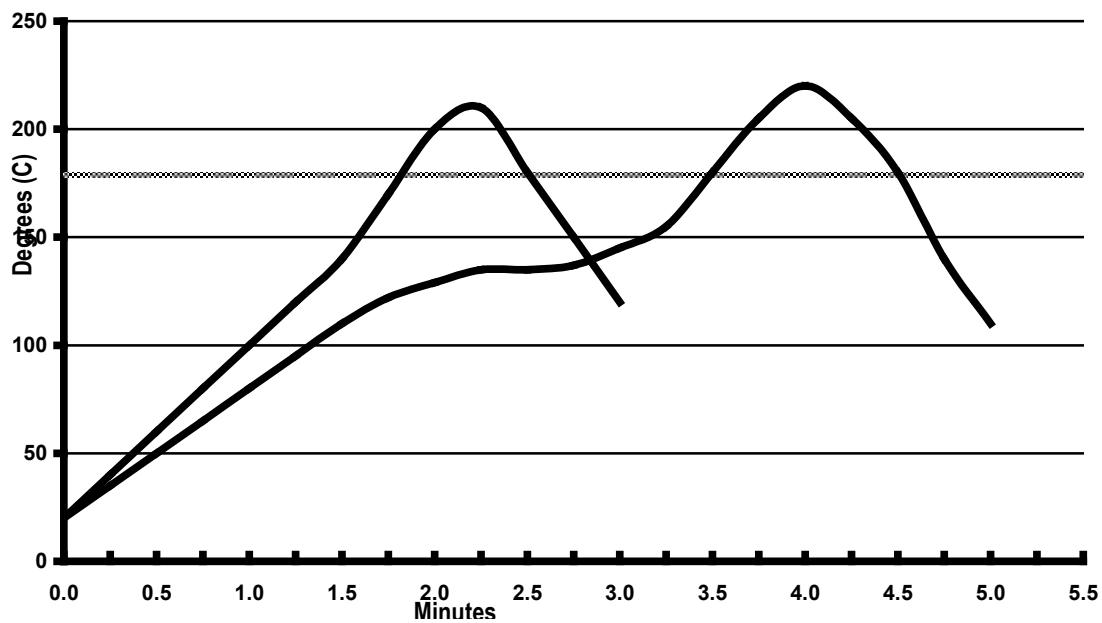
Category	Results	Procedures/Remarks
<b>Chemical Properties</b>		
Activity Level	REL-0 = J-STD Classification (Corrosivity Cu Mirror Pass (L))	IPC J-STD-004
Halide Content	Halide free (by titration). Passes Ag Chromate Test	IPC J-STD-004
Bono Testing	Pass (Corrosion and Residue)	Bono Testing Standard
<b>Electrical Properties</b>		
SIR (IPC 7 days @ 85 °C /85% RH)	2.6 x 10 <sup>9</sup> ohms	Pass, IPC J-STD-004 {Pass = 1 x 10 <sup>8</sup> ohm min, uncleaned}
SIR (Bellcore 96 hrs @ 35 °C /85% RH)	1.9 x 10 <sup>12</sup> ohms	Pass, Bellcore GR78-CORE {Pass = 1 x 10 <sup>11</sup> ohm min}
Electromigration (Bellcore 500 hrs @65 °C/85% RH)	initial 1.4 x 10 <sup>9</sup> ohms, final 9.3 x 10 <sup>9</sup> ohms	Pass, Bellcore GR78-CORE 62Sn/36Pb/2Ag {Pass= final > initial/10}
<b>Physical Properties</b>		
Color	Clear, Colourless Flux Residue	
Tack Force	Less than 1 g/mm <sup>2</sup> change at 25%, 50% and 75% RH	IPC J-STD-005
Coalescence Test	Able to reflow at 170 µm circle size in Nitrogen process	Internal coalescence test
Solder Ball	Pass < 10 count (62Sn/36Pb/2Ag and 63Sn/37Pb alloy)  Class 2, 1 hour Pass, 72 hour Pass	IPC J-STD-005B TM-650 2.4.43 DIN Standard 32 513, 4.4

**PROCESSING GUIDELINES**

Storage & Handling	Printing	Reflow (See Fig. 1)	Cleaning
<ol style="list-style-type: none"> <li>1. Refrigerate to guarantee stability @ 0 to 10 °C (32 to 50 °F)</li> <li>2. Shelf life of refrigerated paste is six months.</li> <li>3. Paste can be stored for 4 weeks at room temperatures up to 25 °C (77 °F).</li> <li>4. When refrigerated, warm-up of paste container to room temperature for up to 8 hours. Paste must be <math>\geq 18</math> °C (64 °F) before processing. Verify paste temperature is above 18 °C (64 °F) or greater before setup. Printing can be performed at temperatures up to 28 °C (81 °F).</li> <li>5. Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology of unused paste.</li> <li>6. These are starting recommendations and all process settings should be reviewed independently.</li> </ol>	<p><u>Stencil:</u> Recommend Alpha Material ALPHA CUT OR ALPHA FORM stencils @ 0.100 to 0.150 mm (4 to 6 mil) thick for 0.4 to 0.5 mm (0.016 to 0.020 inch) pitch. Stencil design is subject to many process variables. Contact your local Alpha site for advice.</p> <p><u>Squeegee:</u> Metal</p> <p><u>Pressure:</u> 0.15 to 0.3 kg per cm (0.8 to 1.5 pounds per linear inch) of squeegee length</p> <p><u>Speed:</u> 1 to 8 inches (25 to 200 mm) per sec</p> <p><u>Paste Roll:</u> 1.5 to 2.0 cm diameter and make additions when roll reaches 1 cm diameter. Maximum roll size will depend upon blade type.</p> <p><u>Print Pump Head:</u> ALHA OM-6106 is suitable for use in both MPM® RheoPump and DEK ProFlo® systems.</p>	<p><u>Atmosphere:</u> Clean-dry air or nitrogen atmosphere.</p> <p><u>Profile (Sn 62 alloy):</u> A straight ramp profile @ 0.8 to 1.2 °C per sec ramp rate is recommended with a 30 to 90 sec TAL and 210 to 220 °C peak.</p> <p>High density assemblies may require preheating as follows:</p> <ul style="list-style-type: none"> <li>- Ramp @ 60 to 120 °C /min to 145 to 160 °C.</li> <li>- Dwell @ 145 to 160 °C for 0 to 1.0 min</li> <li>- Ramp @ 60 to 120 °C /min to 210 to 220 °C peak</li> <li>- Time above 178 °C = 30 to 90 sec</li> <li>- Ramp down to R.T. @ 60 to 150 °C/min</li> </ul>	<p>Misprints and soft flux residues remaining after rework may be removed with available solvent and aqueous cleaners.</p>

REFLOW PROFILES

Figure #1 – Typical Reflow Profile



*Note: These are only recommendations. Equipment and assembly factors may require adjustments to be made to the reflow profile.*

**RECYCLING SERVICES**

We provide safe and efficient recycling services to help companies meet their environmental and legislative requirements and at the same time, maximize the value of their waste streams.

Our service collects solder dross, solder scrap, and various forms of solder paste waste. Please contact your local sales representative for recycling capabilities in your area or [link here](#).



**SAFETY & WARNING**

It is recommended that the company/operator read and review the Safety Data Sheets for the appropriate health and safety warnings before use. **Safety Data Sheets are available at [MacdermidAlpha.com/assembly-solutions/knowledge-base](http://MacdermidAlpha.com/assembly-solutions/knowledge-base).**

**CONTACT INFORMATION**

**To confirm this document is the most recent version, please contact [Assembly@MacDermidAlpha.com](mailto:Assembly@MacDermidAlpha.com)**

[www.macdermidalpha.com](http://www.macdermidalpha.com)

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency safety directory assistance: US 1 202 464 2554, Europe + 44 1235 239 670, Asia + 65 3158 1074, Brazil 0800 707 7022 and 0800 172 020, Mexico 01800 002 1400 and (55) 5559 1588

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