

ALPHA® 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 0.5mm (20 mil) pitch Flip-Chip and 0201 assembly.
- Excellent print repeatability to 0.25mm (10 mil) circles at high print speeds (based upon a 0.125mm (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 200mm/sec (8/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 mm per IPC J-STD-005)
<u>Packaging Sizes:</u>	500 gram jars, 6" and 12" cartridges, DEK ProFlow® Cassettes.
<u>Flux Gel:</u>	Available in 10cc and 30cc syringes for rework applications.

TECHNICAL DATA

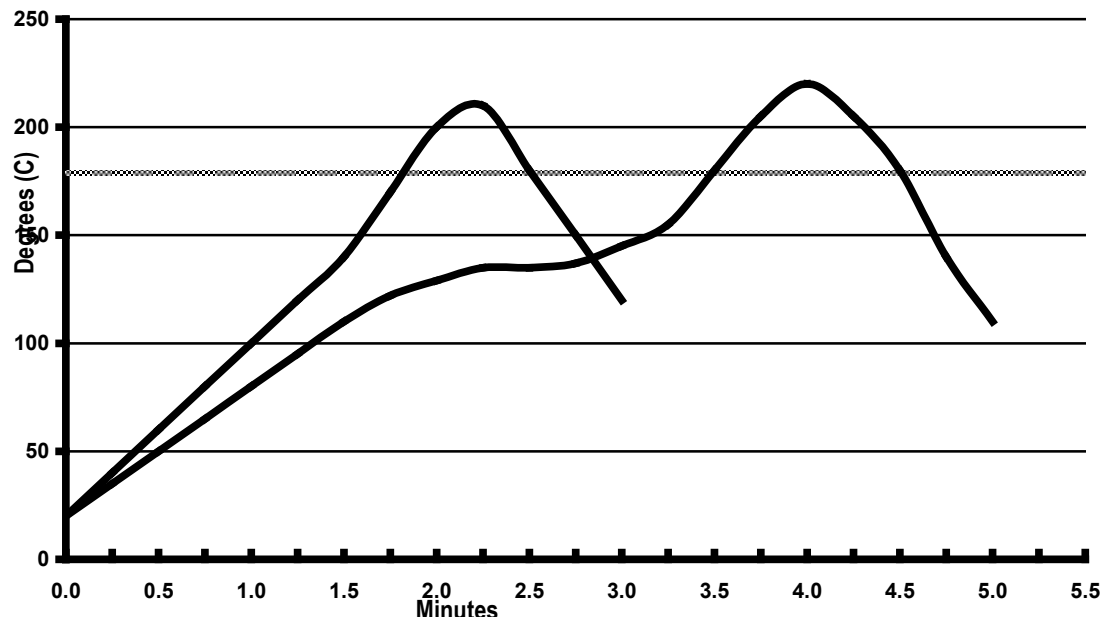
Category	Results	Procedures/Remarks
Chemical Properties		
Activity Level	REL-0 = J-STD Classification (Corrosivity Cu Mirror Pass (L))	IPC J-STD-004
Halide Content	Halide free (by titration). Passes Ag Chromate Test	IPC J-STD-004
Bono Testing	Pass (Corrosion and Residue)	Bono Testing Standard
Electrical Properties		
SIR (IPC 7 days @ 85 °C /85% RH)	2.6×10^9 ohms	Pass, IPC J-STD-004 {Pass = 1×10^8 ohm min, uncleaned}
SIR (Bellcore 96 hrs @ 35 °C /85% RH)	1.9×10^{12} ohms	Pass, Bellcore GR78-CORE {Pass = 1×10^{11} ohm min}
Electromigration (Bellcore 500 hours @65 °C/85°RH)	initial 1.4×10^9 ohms, final 9.3×10^9 ohms	Pass, Bellcore GR78-CORE 62Sn/36Pb/2Ag {Pass= final > initial/10}
Physical Properties		
Color	Clear, Colourless Flux Residue	
Tack Force	Less than 1 g/mm ² change at 25%, 50% and 75% RH	IPC J-STD-005
Viscosity	89.5% metal load designated M14 for printing applications.	Malcom Spiral Viscometer; J-STD-005
Coalescence Test	Able to reflow at 170µm 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
1. Refrigerate to guarantee stability @ 0 to 10 °C (32 to 50 °F) 2. Shelf life of refrigerated paste is six months. 3. Paste can be stored for 4 weeks at room temperatures up to 25 °C (77 °F). 4. When refrigerated, warm-up of paste container to room temperature for up to 8 hours. Paste must be ≥18 °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). 5. Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology of unused paste. 6. These are starting recommendations and all process settings should be reviewed independently.	<u>Stencil:</u> Recommend Alpha Material ALPHA CUT OR ALPHA FORM stencils @ 0.100 to 0.150mm (4 to 6 mil) thick for 0.4 to 0.5mm (0.016 to 0.020") pitch. Stencil design is subject to many process variables. Contact your local Alpha site for advice. <u>Squeegee:</u> Metal. <u>Pressure:</u> 0.15 to 0.3 kg per cm (0.8 to 1.5 pounds per linear inch) of squeegee length. <u>Speed:</u> 1 to 8 inches (25 to 200 mm) per second. <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. <u>Print Pump Head:</u> ALPHA OM-6106 is suitable for use in both MPM® RheoPump and DEK ProFlo® systems.	<u>Atmosphere:</u> Clean-dry air or nitrogen atmosphere. <u>Profile (Sn 62 alloy):</u> A straight ramp profile @ 0.8 to 1.2 °C per second ramp rate is recommended with a 30 to 90 sec TAL and 210 to 220 °C peak. High density assemblies may require preheating as follows: - Ramp @ 60 to 120 °C /min. to 145 to 160 °C. - Dwell @ 145 to 160 °C for 0 to 1.0 minutes. - Ramp @ 60 to 120 °C /min to 210 to 220 °C peak - Time above 178 °C = 30 to 90 secs - Ramp down to R.T. @ 60 to 150 °C/min.	Misprints and soft flux residues remaining after rework may be removed with ALPHA Electronic Cleaners Bioact SC-10 & SC-10E solvents and Hydrex® SP Aqueous cleaners available from Alpha.

REFLOW PROFILES

Figure #1 – Typical Reflow Profile



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 AlphaAssembly.com**

CONTACT INFORMATION

To confirm this document is the most recent version, please contact
Assembly@MacDermidAlpha.com

www.macdermidalpha.com

North America 300 Atrium Drive Somerset, NJ 08873, USA 800.367.5460	Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 01483.758400	Asia 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100
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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 directory assistance: Chemtrec 1 - 800 - 424 - 9300.

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