

ALPHA[®] OM-5000

High Speed, Pin Testable Solder Paste

DESCRIPTION

ALPHA OM-5000 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. **ALPHA OM-5000** can be squeegee or pump printed at high speeds.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- ALPHA OM-5000 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).
- ALPHA OM-5000 exhibits long stencil and tack life > 8 hours (25-75% RH).

PRODUCT INFORMATION

<u>Alloy:</u>	63Sn/37Pb, 62Sn/36Pb/2Ag
<u>Rheology:</u>	Squeegee & Pump Printing (MPM Rheopump and DEK ProFlow [®])
<u>Metal Percentage:</u>	90%
<u>Powder Size:</u>	Type #3 (-325+500 mesh per IPC J-STD-006)
<u>Packaging Sizes:</u>	Small and large jars, 6" and 12" cartridges and ProFlow [®] cassettes.

APPLICATION GUIDELINES

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. ALPHA OM-5000 is especially suitable for printing on assemblies that will receive in circuit test probing.

TECHNICAL DATA

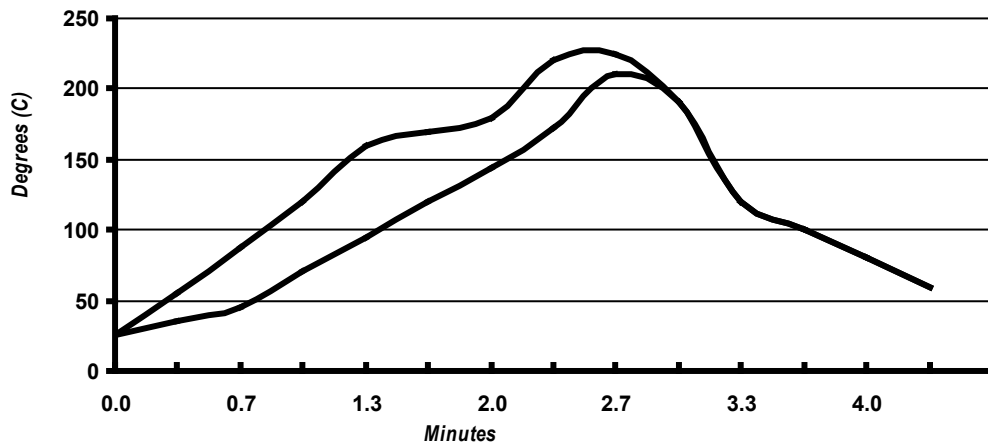
Category	Results	Procedures/Remarks
Chemical Properties		
Activity Level	ROL-0 = J-STD Classification	IPC J-STD-004
Halide Content	Halide free (by titration). Passes Ag Chromate Test	IPC J-STD-004
Bono Testing	Pass (Sn 63/Pb 37)	Bonn Testing Standard
Electrical Properties		
SIR (IPC 7 days @ 85 °C/85% RH)	4.8 x 10 ⁹ ohms	Pass, IPC J-STD-004 {Pass = 1 x 10 ⁸ ohm min}
SIR (Bellcore 96 hours @ 35 °C/85% RH)	1.5 x 10 ¹² ohms	Pass, Bellcore GR78-CORE {Pass = 1 x 10 ¹¹ ohm min}
Electromigration (Bellcore 500 hours @ 65 °C/85% RH)	initial 1.7 x 10 ¹⁰ ohms, final 1.2 x 10 ¹⁰ ohms	Pass, Bellcore GR78-CORE 62Sn/36Pb/2Ag {Pass= final > initial/10}
Physical Properties		Using 90% Metal, Type #3 Powder
Color & Specific Gravity	Clear, Colorless Flux Residue; 4.6 g/cc paste	63Sn/37Pb alloy
Tack Force vs. Humidity (4 hours)	1.7 g/mm ² at 25%RH, 2.1 g/mm ² at 50%RH 1.8 g/mm ² at 75 % RH	IPC J-STD-005
Viscosity	90% metal load designated M13 is suitable for all typical stencil printing applications.	Malcom Spiral Viscometer; J-STD-005
Solderball	Pass < 10 count (62Sn/36Pb/2Ag and 63Sn/37Pb alloy)	Pass IPC J-STD-005
	Class 2, 1 hour Pass (Sn63/Pb37)*	DIN Standard 32 513, 4.4 * Preliminary Results
Stencil Life	> 8 hours	@ 50%RH, 74 °F (23 °C)
Slump	Hot Slump max bridge fine pitch aperture = 10 to 15 mil(25 mil is maximum bridge allowed for pass rating)	IPC J-STD-005
	0.2 mm	DIN Standard 32 513, 5.3

PROCESSING GUIDELINES

Storage-Handling	Printing	Reflow (See Figure #1)	Cleaning
<ul style="list-style-type: none"> • Refrigerate to guarantee stability @35 to 45 °F (3 to 7 °C) Shelf life of refrigerated paste is six months. Unopened Alpha OM-5000 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 74 °F (23 °C) before processing. Verify paste temperature with a thermometer to ensure paste is at 74 °F (23 °C or greater) before setup. Printing can be performed at temperatures up to 85 °F (30 °C). • Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology of unused paste. 	<p><u>Stencil:</u> Recommend Alpha laser cut stencil @ 0.005 or 0.006 inch thick for 0.016 or 0.020 mil pitch</p> <p><u>Squeegee:</u> Recommend metal or 90 durometer polyurethane.</p> <p><u>Pressure:</u> 1.0 to 2.0 pounds per linear inch of squeegee length.</p> <p><u>Speed:</u> 1 to 8 inches (25mm to 200 mm) per second.</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> OM-5000 is suitable for use in both MPM RheoPump® and DEK ProFlow® systems.</p>	<p><u>ATMOSPHERE:</u> Clean-dry air or nitrogen atmosphere.</p> <p><u>PROFILE (Sn 63 alloy):</u> A straight ramp profile @ 0.8 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:</p> <ul style="list-style-type: none"> - Ramp @ 60 to 120 °C /min. (1 to 2 °C/sec) to 145 to 160 °C. - Dwell @ 145 to 160 °C for 0.5 to 2.0 minutes. - Ramp @ 1 to 2 °C/sec to 210 to 225 °C peak temp. Time Above 183 °C = 45 to 70 secs - Ramp down to R.T. @ 1.5 to 2 °C per second. 	<p>ALPHA OM-5000 residue is designed to remain on the board after reflow.</p> <p>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.</p>

REFLOW PROFILES

Figure #1 – Reflow Envelope



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.**

STORAGE

ALPHA OM-5000 is shipped in thermally controlled boxes and should be stored refrigerated upon receipt at 32 to 50 °F (0 to 10 °C). This will be sufficient to maintain a nominal shelf life of six months. ALPHA OM-5000 must be permitted to reach room temperature before unsealing its package prior to use (74 °F (23 °C)). Prolonged storage at nominal room temperature is attainable for unused material.

CONTACT INFORMATION

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

www.macdermidalpha.com

<p>North America 109 Corporate Blvd. South Plainfield, NJ 07080, USA 1.800.367.5460</p>	<p>Europe Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 44.01483.758400</p>	<p>Asia 8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100</p>
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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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