ALPHA® OM-5002

High Speed, Pin Testable Solder Paste

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. **ALPHA OM-5002** can be squeegee or pump printed at high speeds.

READ ENTIRE TECHNICAL DATA SHEET BEFORE USING THIS PRODUCT

FEATURES & BENEFITS

- ALPHA 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).
- ALPHA OM-5002 exhibits long stencil and tack life > 8 hours (25 to 75% RH).

PRODUCT INFORMATION

Alloy:	63Sn/37Pb, 62Sn/36Pb/2Ag
Powder Size:	Type 3 (25 to 45µm), Type 4 3 (20 to 38µm)
Packaging Sizes:	500 gram jars, 6” and 12” cartridges and DEK ProFlo® cassettes.

Note 1: For other alloys, powder size and packaging sizes, contact you local Alpha Sales office.

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. OM-5002 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-004B
Halide Content	Halide-Free (by titration); passed Ag Chromate test	IPC J-STD-004B
Electrical Properties		
SIR (IPC 7 days @ 85° C /85% RH)	**1.7E + 10 ohms**	Pass, IPC J-STD-004B {Pass = 1 x 10^8 ohm}
SIR (Bellcore 96 hours @ 35 °C/85% RH)	**4.3E x 12 ohms**	Pass, Bellcore GR78-CORE {Pass = 1 x 10^{11} ohm}
Electromigration (Bellcore 500 hours @ 65 °C/85° RH)	**Pass**	Pass, Bellcore GR78-CORE 62Sn/36Pb/2Ag {Pass= final> initial/10}
Physical Properties (Typical for 90% Metal, Type #3 Powder)		
Color	Clear, Colorless Flux Residue	
Tack Force vs. Humidity (4 hours)	>1.5 grams/mm^2	IPC J-STD-005
Viscosity	90% metal load, Type 3 and Type 4 powder with typical viscosity of 1300 Poise at 10 rpm	Malcom Spiral Viscometer; J-STD-005
Solderball	Pass	IPC J-STD-005; DIN Standard 32 513
Stencil Life	> 8 hours	@ 50%RH, 74°F (23 °C)
Hot Slump	Pass (25 mil is maximum bridge allowed for pass)	IPC J-STD-005

PROCESSING GUIDELINES

STORAGE-HANDLING	PRINTING	REFLOW	CLEANING
• Refrigerate to guarantee stability @ 1 to 10 °C, (34 to 50 °F). When stored under ther conditions, the shelf life of **ALPHA OM-5002** is 6 months from the manufacturing date. • Paste can be stored for 2 weeks at room temperatures up to 25 °C (77 °F) prior to use. • Working range is 20 °C to 34 °C on the stencil. • When refrigerated, warm-up of paste container to room temperature for up to 4 hours. Paste must be ≥19 °C (66 °F) before processing. Verify paste temperature with a thermometer to ensure paste is at 19 °C (66 °F) or greater before setup of printer. • Do not remove worked paste from stencil and mix with unused paste in jar. This will alter rheology of unused paste. • These are starting recommendations and all process settings should be reviewed independently.	Stencil: Recommend ALPHA CUT or ALPHA FORM stencils @ 0.125 or 0.150 mm (5 or 6mil) thick for 0.016 or 0.020 mil pitch Squeegee: Recommend metal or 90 durometer polyurethane. Pressure: within 0.5 to 0.7 kg/inch of blade length Speed: 1 to 6 inches per second (25 to 150 mm/sec) Paste Roll: 0.5 to 2.0 cm diameter and make additions when roll reaches 1 cm diameter. Maximum roll size will depend upon blade type Stencil Release Speed: 1 to 5 mm/s to determine under microscope LIFT Height/Dwell Height: 10 to 14 mm	Atmosphere: Clean-dry air or nitrogen atmosphere. Reflow to Figure 1 & 2 for typical reflow profiles. NOTE2: The processing guidelines recommended and typical reflow profiles presented were tested in the lab with acceptable performance.	ALPHA OM-5002 residue is designed to remain on the board after reflow. If reflowed residue cleaning is required, a defluxing cleaning step is required: - Manual: ALPHA SM-110, ALPHA SM-110E - Automatic: Dipping, Smooth Spray with ALPHA Autoclean 40. Misprints and stencil cleaning may be with ALPHA SM-110, ALPHA SM-110E, ALPHA BC-2200.

REFLOW PROFILES

Figure 1: Typical Soak Reflow Profile

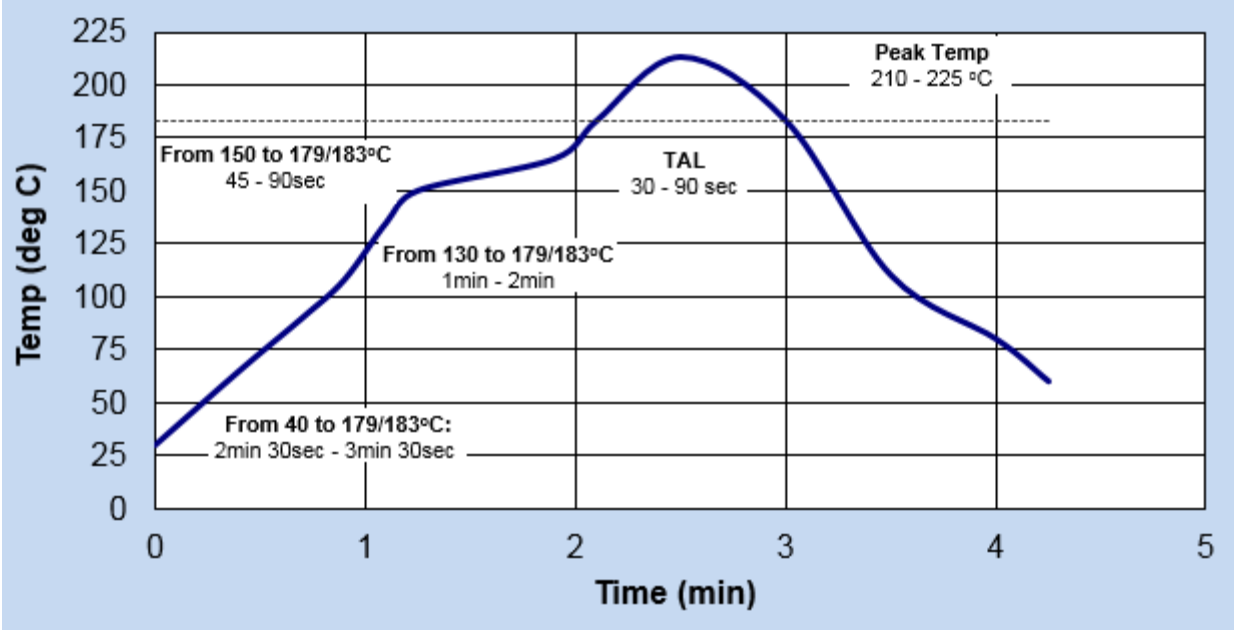
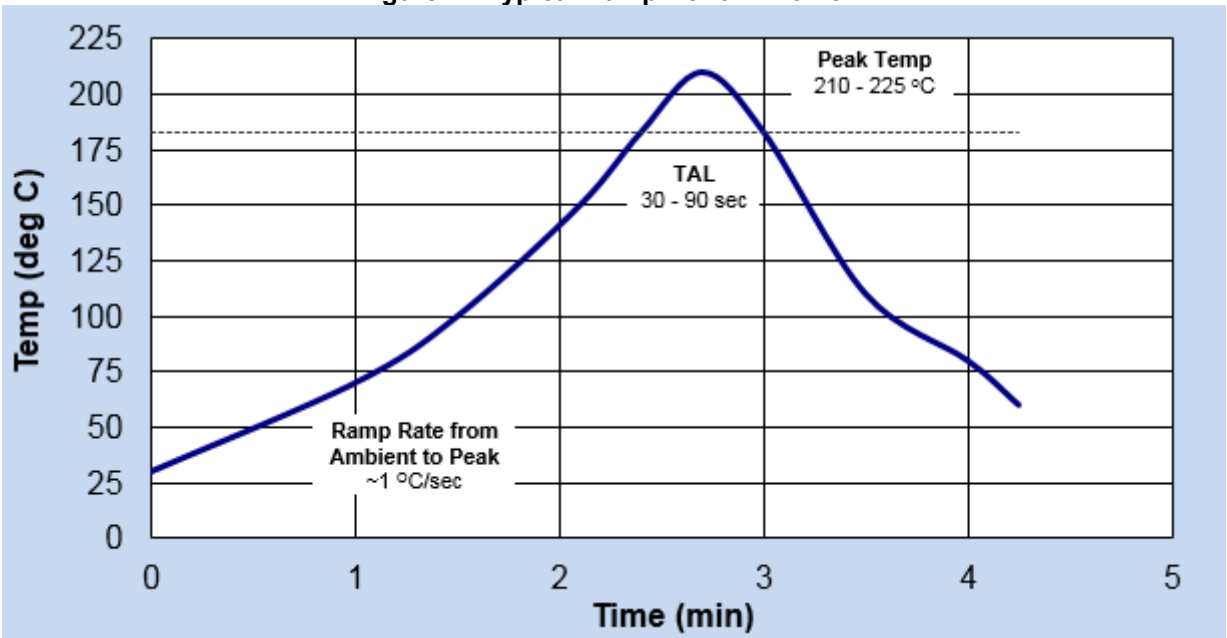


Figure 2: Typical Ramp Reflow Profile



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 MacdermidAlpha.com/assembly-solutions/knowledge-base**

STORAGE

ALPHA OM-5002 should be stored in a refrigerator upon receipt at 0 to 10 °C (32 to 50 °F). ALPHA OM-5002 should be permitted to reach room temperature before unsealing its package prior to use (see handling procedures on Page 3). This will prevent condensation build-up of moisture on the solder paste.

CONTACT INFORMATION

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

www.macdermidalpha.com

North America	Europe	Asia
109 Corporate Blvd. South Plainfield, NJ 07080, USA 800.367.5460	Unit 2, Genesis Business Park Albert Drive Woking, Surrey, GU21 5RW, UK 01483.758400	8/F., Paul Y. Centre 51 Hung To Road Kwun Tong, Kowloon, Hong Kong 852.3190.3100

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