

ALPHA[®] OM-347

Ultra-Cleanable, No-Clean, Lead-Free, Zero-Halogen, Ultra-Fine
Feature Printing & Reflow Capable Solder Paste

DESCRIPTION

OM-347 is designed for print and reflow with Type 4 and Type 5 powder for applications requiring ultra-fine feature performance. It has been formulated to enable excellent cleaning of residues after PCBs have been reflowed. Residues can be cleaned with industry leading cleaning chemistries and in a static bath using nPB solvents.

OM-347 has an outstanding reflow process window that delivers good soldering on CuOSP with excellent coalescence on a broad range of deposit sizes, excellent random solder ball and mid-chip solder ball resistance.

FEATURES & BENEFITS

- **No-Clean & Ultra-Clean:** OM-347 is a no-clean solder paste; residue resulted after the reflow process can be safely left on board. If needed, the residue can be very easy cleaned with Aquanox A4241, Alpha BC-3350, or nPB based solvents.
- **HIP performance:** very good HIP performance, comparable with OM-340
- **High Tack Force Life:** ensures high pick-and-place yields, good self-alignment
- **Long Stencil Life:** engineered for consistent performance, reducing variations in print performance and paste dry-out
- **Wide Reflow Profile Window:** enables quality soldering of complex, high density PCB assemblies in both air and N₂
- **Excellent Coalescence and Wetting Performance:** coalesces well for down to 100 μ using 50 μ stencil, N₂ reflow low soak profile environment
- **Excellent Solder Joint and Flux Residue Cosmetics:** residue does not char or burn after reflow soldering, even when using long/high thermal soaking
- **Excellent Voiding Performance:** Pass IPC7095 Class III requirement for BGA.
- **Halogen Content:** Zero-Halogen
- **Safe and Environmentally Friendly:** Materials comply with ROHS, TOSCA, EINECS and Zero-Halogen requirements

PRODUCT INFORMATION

Alloys:	SAC305 & Sn96Ag4, other alloys available on request
Powder Size:	IPC Type 4 & Type 5
Packaging Sizes:	500 gram jars, 6" & 12" cartridges,
Flux Gel:	Alpha OM-347 Flux
Lead Free:	Complies with RoHS Directive 2002/95/EC.

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TECHNICAL DATA

CATEGORY	RESULTS	PROCEDURES/REMARKS
CHEMICAL PROPERTIES		
Activity Level	ROM0	IPC J-STD-004B
Halide Content	Halide free (by titration), < 0.05%	IPC J-STD-004B
Fluoride Spot Test	Pass	JIS-Z-3197-1999 8.1.4.2.4
Halogen Test	Pass, Zero Halogen - No halogen intentionally added	EN14582, by oxygen bomb combustion, Non-detectable (ND) at < 50 ppm
ELECTRICAL PROPERTIES		
SIR (7 days, 40°C/90%RH, 12 V bias)	Pass	IPC J-STD-004B TM-650 2.6.3.7 (Pass ≥ 1 x 10 ⁸ oh
PHYSICAL PROPERTIES		
Color	Clear, Colorless Flux Residue	
Tack Force vs. Humidity	Pass	JIS Z-3284-1994, Annex 9
	Pass	IPC J-STD-005 TM-650 2.4.44
Viscosity Stability at 25°C for 14 days	Pass	Malcom Spiral Viscometer
Coalescence Test -, 50µm stencil , N ₂ reflow low soak profile environment	100 µm	Internal Test Method
Solder Ball	Preferred	IPC J-STD-005B TM-650 2.4.43
Spread	>80%	JIS-Z-3198-3
Residue Dryness	Residue is not sticky	Internal Dryness Test
Stencil Life	>8 hours	@ 50% RH 23°C (74°C)
Hot Slump	No bridge for 0.2 mm space	IPC J-STD-005 TM-650 2.4.35

SAFETY

While the OM-347 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 SDS (available at www.AlphaAssembly.com) for all safety information.

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PROCESSING GUIDELINES

STORAGE & HANDLING	PRINTING	REFLOW	CLEANING
<p>1. Refrigerate to guarantee stability @ 0-10°C (32-50°F). When stored under these conditions, the shelf life of OM-347 is 6 months.</p> <p>2. Paste can be stored for 2 weeks at room temperature up to 25°C(77°F) prior to use</p> <p>3. When refrigerated, warm up 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 set up of printer.</p> <p>4. Paste can be manually stirred before use. A rotating/Centrifugal force mixing operation is not required. If a rotating/centrifugal force mixing is used, 30 - 60 seconds at 300 RPM is adequate.</p> <p>5. Do not remove worked paste from stencil and mix with unused paste in jar. This will alter the rheology of unused paste.</p> <p>6. These are starting recommendations and all process settings should be reviewed independently.</p>	<p>STENCIL: Recommend ALPHA CUT, ALPHA NICKEL-CUT, ALPHA TETRABOND®, or ALPHA FORM stencils @ 0.100mm - 0.150 mm (4-6 mil) thick for 0.4 - 0.5 mm (0.016" or 0.020") pitch. Stencil design is subject to many process variables. Contact your local Alpha stencil site for advice.</p> <p>SQUEEGEE: Metal (recommended)</p> <p>PRESSURE: 0.21 - 0.36 kg/cm of blade (1.25 -2.0 lbs/inch)</p> <p>SPEED: 25 – 150 mm per second (1 – 6 inches per second).</p> <p>PASTE ROLL: 1.5-2.0 cm diameter and make additions when roll reaches 1-cm (0.4") diameter (min). Max roll size will depend upon blade.</p> <p>STENCIL RELEASE SPEED: 1 – 5 mm/sec.</p> <p>LIFT HEIGHT: 8 – 14mm (0.31- 0.55")</p>	<p>ATMOSPHERE: Clean-dry air or nitrogen atmosphere.</p> <p>PROFILE: Soak: 130 – 200 °C 90-110 sec Peak: 240°C 60Sec TAL profiles have been determined to give optimal results</p> <p>NOTE 1: This is a suggested reflow profile. Desired results may be achieved using other profiles.</p>	<p>ALPHA OM-347 residue is designed to remain on the board after reflow. If post reflow residue cleaning is required a broad range of cleaners may be used. Alpha recommends Alpha BC-3350, Aquanox A4241 & nPB based solvents.</p> <p>For best cleaning results, Alpha suggests using some agitation (mechanical stirring, ultrasonic bath, etc) to clean OM-347 residue reflowed in air.</p>

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REFLOW

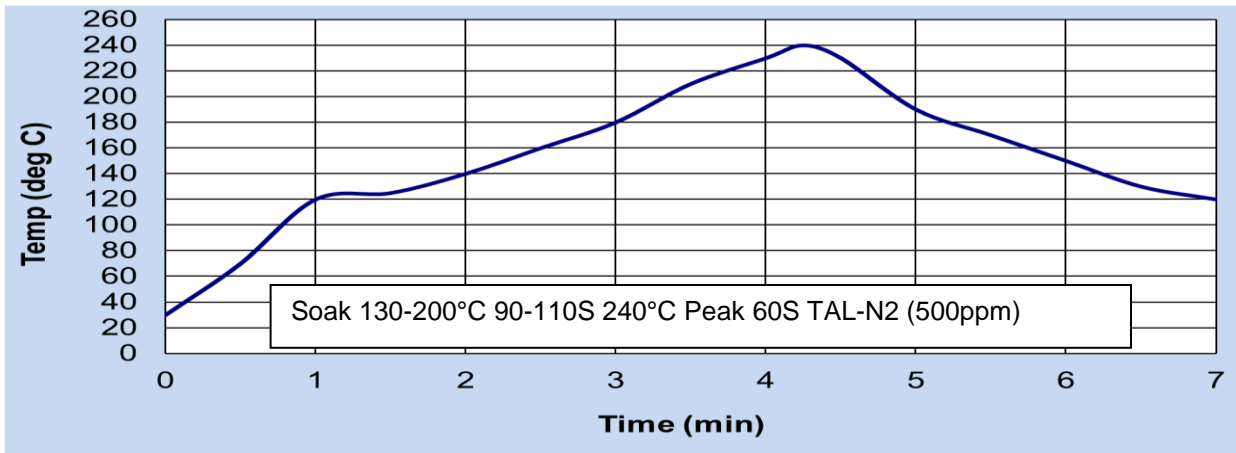


Fig 1: Suggested Soak Reflow Profile

CONTACT INFORMATION

To confirm this is the most recent issue, please contact Alpha Assembly Solutions

AlphaAssembly.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 directory assistance Chemtrec 1 - 800 - 424 - 9300.

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