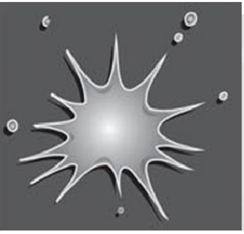

SOLDER CONNECTION

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Technical Bulletin

NC273LT Low Temperature Solder Paste

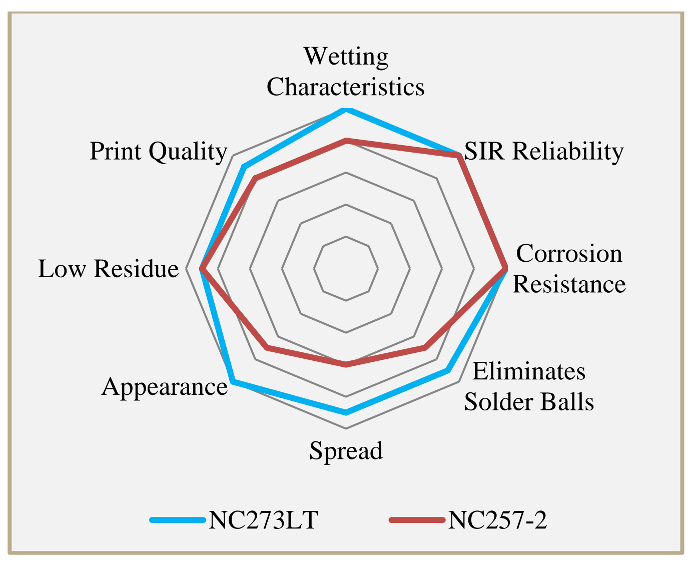
DESCRIPTION

The revolutionary activator system in AIM's NC273LT low temperature solder paste improves the wetting performance of bismuth alloys to RoHS compliant plating and surface finishes. NC273LT provides long stencil life, excellent transfer efficiencies and minimizes solder balling common to high bismuth alloys. When thermal exposure during the assembly process is a limitation, NC273LT is an excellent RoHS compliant replacement. Bismuth bearing solder pastes reduce peak reflow temperature requirements to as low as 170°C-185°C (338°F-365°F). As with any bismuth containing alloy the assembly must be completely lead-free.

FEATURES AND BENEFITS

- Designed for Low Temperature Applications
- RoHS Compliant
- Improved Wetting for Bismuth Alloys
- Minimizes Solder Balling
- >8 Hour Stencil Life
- Halogen Free

CHARACTERISTICS



STORAGE & SHELF LIFE

Do not add used paste to unused paste. Store used paste separately; keep unused paste tightly sealed with internal plug or end cap in place. After opening, solder paste shelf life is environment and application dependent. See AIM's paste handling guidelines for further information. Alloy and storage conditions may affect shelf life. Please refer to NC273LT Certificate of Analysis for product specific information.

PARAMETER	TIME	TEMPERATURE
Sealed Frozen Shelf Life	6 Months	< 0°C (32°F)
Sealed Refrigerated Shelf Life	4 Months	0°C-12°C (32°F-55°F)
Sealed Unrefrigerated Shelf Life	2 Weeks	< 25°C (< 77°F)

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CLEANING

Pre-Reflow: AIM DJAW-10 effectively removes NC273LT solder paste from stencils while in process. DJAW-10 can be hand applied or used in under stencil wipe equipment. DJAW-10 will not dry NC273LT and will enhance transfer properties. Do not over-apply DJAW-10. Do not apply DJAW-10 to stencil topside. Isopropanol (IPA) is not recommended in process, but may be used as a final stencil rinse.

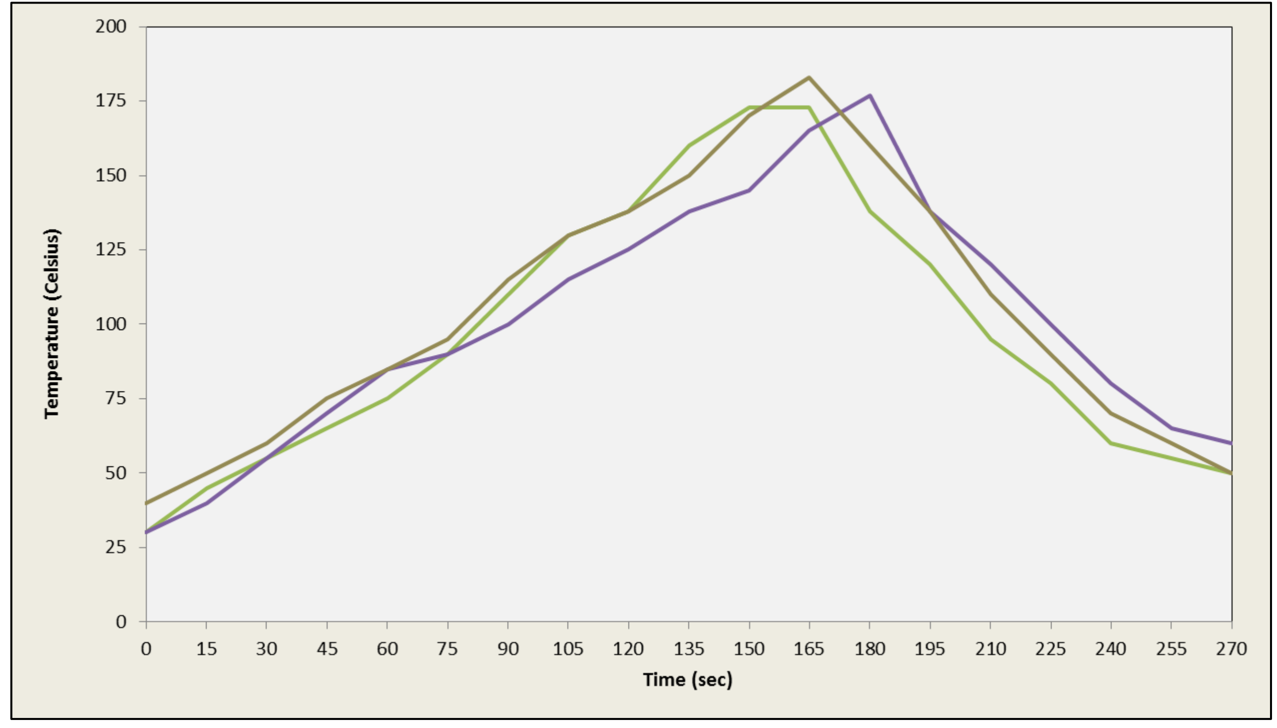
Post-Reflow Flux Residue: NC273LT residues can remain on the assembly after reflow and do not require cleaning. Where cleaning is mandated, AIM has worked closely with industry partners to ensure that NC273LT residues can be effectively removed with common defluxing agents. Contact AIM for cleaning compatibility information.

HEALTH & SAFETY

Use with adequate ventilation and proper personal protective equipment. Refer to the accompanying Safety Data Sheet for any specific emergency information. Do not dispose of any hazardous materials in non-approved containers.

REFLOW PROFILE

The shaded area below indicates the profile process window, your profile may differ. Component limitations, oven efficiency, board size/mass, component type and density will influence the optimized reflow profile. These recommendations are guidelines.



RATE OF RISE 1-3° C/SEC MAX	RAMP TO 100° C (212° F)	PROGRESS THROUGH 100° C-140° C (212° F-284° F)	TO PEAK TEMP 170° C-185° C (338° F-365° F)	TIME ABOVE 138° C (280° F)	COOLDOWN ≤ 4 ° C/SEC	TIME TO SPIKE
	≤ 75 Sec	30-60 Sec	45-75 Sec	50-80 Sec	45± 15 Sec	2.75-3.5 Min

PRINTING

RECOMMENDED INITIAL PRINTER SETTINGS - DEPENDENT ON PCB AND PAD DESIGN	
Parameter	Recommended Initial Settings
Squeegee Pressure	0.9 -1.5 lbs/inch of blade
Squeegee Speed	0.5 - 6 inches/second
Snap-off Distance	On Contact 0.00 mm
PCB Separation Distance	0.75 - 2.0 mm
PCB Separation Speed	3 - 20 mm/second

PRINTING

NAME	TEST METHOD	RESULTS	
IPC Flux Classification	J-STD-004 3.2.3.1	ROL0	
IPC Flux Classification	J-STD-004B 3.3.1.2.1	ROL1	
NAME	**TEST METHOD**	**TYPICAL RESULTS**	**IMAGE**
Copper Mirror	J-STD-004B 3.4.1.1 IPC-TM-650 2.3.32	LOW	
Corrosion	J-STD-004B 3.4.1.2 IPC-TM-650 2.6.15	PASS	Before After
Quantitative Halides	J-STD-004B 3.4.1.3 IPC-TM-650 2.3.28.1	Br: 0.23% Cl: 0.0% Typical	
Halogen Content	EN14582	<900ppm Br/Cl <1500ppm Combined	Halogen Free
Qualitative Halides, Silver Chromate	J-STD-004B 3.5.1.1 IPC-TM-650 2.3.33	PASS	
Qualitative Halides, Fluoride Spot	J-STD-004B 3.5.1.2 IPC-TM-650 2.3.35.1	No Fluoride	
Surface Insulation Resistance	J-STD-004B 3.4.1.4 IPC-TM-650 2.6.3.7	PASS	
Flux Solids, Nonvolatile Determination	J-STD-004B 3.4.2.1 IPC-TM-650 2.3.34	3.17 Typical	
Acid Value Determination	J-STD-004B 3.4.2.2 IPC-TM-650 2.3.13	159.4 mg KOH/ g flux	
Flux Specific Gravity Determination	J-STD-004B 3.4.2.3 ASTM D-1298	0.98 Typical	

NAME	TEST METHOD	TYPICAL RESULTS	IMAGE
Viscosity	J-STD-005A 3.5.1 IPC-TM-650 2.4.34	Print Formula: 750kcps Typical Dispense Formula: 400kcps Typical	
Visual	J-STD-004B 3.4.2.5	Gray, Smooth, Creamy	
Slump	J-STD-005A 3.6 IPC-TM-650 2.4.35	PASS	
Solder Ball	J-STD-005A 3.7 IPC-TM-650 2.4.43	PASS	
Tack	J-STD-005A 3.8 IPC-TM-650 2.4.44	55.3gf Typical	
Wetting	J-STD-005A 3.9 IPC-TM-650 2.4.45	PASS	

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