

# Solder Paste (Improved Continuous Printing & Wettability)

Switch over from Sn-Ag-Cu type/N<sub>2</sub> Reflow to Atmospheric Reflow. For circuit boards and parts with bad wettability.

## LFM-48 SUC

1. Can stably maintain printing amount and shapes even with continuous printing.
2. Upper wetness is good towards products even with atmospheric reflow. Forms a stable fillet. Reduces N<sub>2</sub> use and can contribute to CO<sub>2</sub> reduction by reducing energy consumed, major running costs.
3. Good wetness even towards metals such as Ni. And of course has an effect against BGA non-wetness.
4. Ensures the reliability of flux. Can freely use without washing on products from a large range of fields.

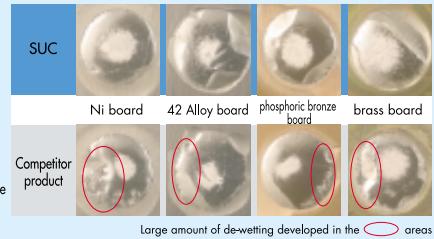


Product Name	Units	LFM-48U SUC	LFM-48W SUC
Alloy Name		LFM-48	←
Alloy Composition		Sn-3.0Ag-0.5Cu	←
Melting Temperature (°C)		217-220	←
Type of Powder		U	W
Powder Size (μm)		10-28	20-38
Flux Name		SUC	←
Flux Content (%)		11.5	←
Viscosity (Pa·s)		220±30	←
Thixotropic value		0.62±30	←

### Wetness on all metals

Goal—Confirm the wetness on metals that don't solder well  
 Conditions—Target Metals: Ni, 42 Alloy (Fe-42Ni)  
 Phosphor bronze (Cu-Sn-P)  
 Brass (Cu-Zn)

Part Shape: 30×30×0.3mm  
 Thick Heating Conditions: Heat up on a 240°C hot plate  
 Printing amount: φ6.5mm, 200μm



Large amount of de-wetting developed in the ○ areas

### Comparison of upper wettability on parts

Goal—Compare upper wettability on leading edge face of parts using atmospheric and N<sub>2</sub> reflow requirements.

Conditions—Printer: Panasonic SP60P-M

Mask: SUS laser (t=120μm)

Squeegee: Metal squeegee

Printing conditions: Printing pressure 12×10<sup>2</sup>

Nprinting speed 30mm/sec

Release speed uniform speed of 10mm/sec

clearance -0.5mm

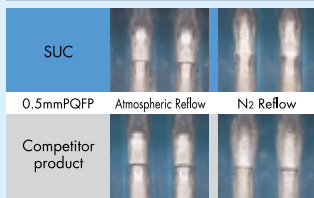
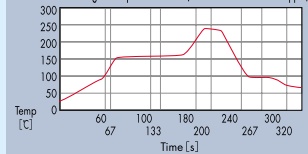
Assessed circuit board: printing assessment use

circuit board

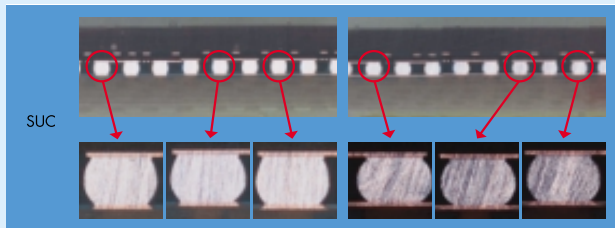
100×100×1.2mm

Prelax treated

Reflow conditions: Right view profile Air N<sub>2</sub> (O<sub>2</sub> concentration of 1000ppm)

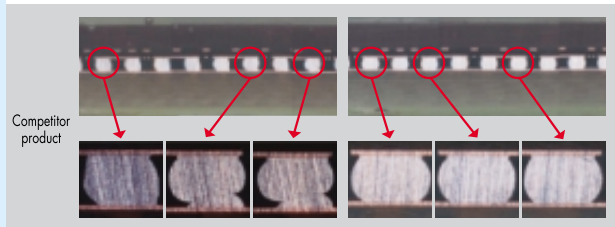


### Oxidized 0.5 pitch BGA (85°C/85RH%24H processing)



Atmospheric Reflow

N<sub>2</sub>Reflow



Competitor product

### Continuous Printability Test

Goal—Confirm the release stability during continuous printing and releasability after temporarily stop printing.

Conditions—Printer: Panasonic SP60P-M

Mask: SUS laser (t=120μm)

Squeegee: Metal squeegee

Printing conditions: Printing pressure (12×10<sup>2</sup>N)

Release speed uniform speed of 10mm/sec

printing speed (30mm/sec)

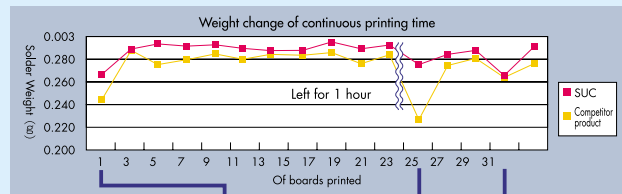
clearance (-0.5mm)

Evaluated circuit board: printing assessment use circuit board 100×100×1.6mm Prelax treated

Evaluated area: φ0.24mm dots, 0.4mm pitch QFP

Of boards printed: 22 boards printed continuously → left for 1 hour → print 6 boards

→ round trip trough the drying system and cleaning → print 4 boards



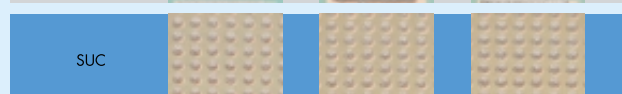
1st board, 1st board after left for 1 hour (23rd board), 1st board after cleaning (29th board)



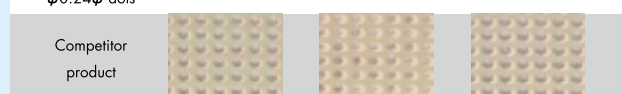
0.4mm pitch QFP



Competitor product

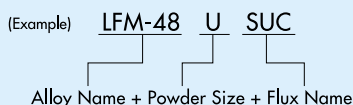


φ0.24φ dots



Competitor product

### Solder Paste Product Names and Structure



### Solder Paste Product Specifications

Flux Name	Alloy composition	Melting Temperature	Powder Size	Flux Content	Viscosity
SUC	LFM-48(Sn-3.0Ag-0.5Cu)	217-220°C	W:20-38μm	11.5%	220Pa·s
			U:10-28μm		

※ LFM-48 and LFM-14 has been sublicensed for JP PAT No.3027441 and US PAT No.5527628. ※ The standard container contains 500 g.

※ When your ordered product is out of stock, please contact our sales representative.

Technology for the future

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