



Creative Materials, Inc.
12 Willow Road
Ayer, MA 01432

T 978.391.4700
F 978.391.4705

121-47

ELECTRICALLY CONDUCTIVE, VIA FILLING PASTE

DESCRIPTION: 121-47 is a stencil-able, single component, silver filled, no shrink, electrically conductive epoxy paste, suitable for application by stenciling and syringe dispensing. This product is designed for filling vias for subsequent plating operations for PBGAs and PWBs. The 121-47 features excellent electrical and thermal conductivity, as well as adhesion to copper and other laminate materials.

TYPICAL PROPERTIES:

Viscosity, 10/s, CP-51, 25°C (cps)	95,000
Filler	Silver
Percent Silver	> 88
Volume Resistivity (ohm-cm)	0.0001
Solderable	Yes after plating
Hydrolytic Stability	Excellent
Glass transition temperature (°C)	125
Pencil hardness	>4H
Thermal Conductivity (W/m ² K)	>12

SUGGESTED HANDLING & CURING: 121-47 is ready to use as supplied. Apply material into vias by stenciling. Best properties for most applications result when cured for 30 minutes at 150°C. Good properties are obtained on a variety of substrates by curing at temperatures ranging from 120°C to 180°C. End user is advised to experimentally determine temperature and time best suited for individual applications.

STORAGE: Shelf Life – 4 days at 25° or 6 months at –10°C.

SAFETY & HANDLING: Use with adequate ventilation. Keep away from sparks and open flames. Avoid prolonged contact with skin and breathing of vapors. Wash with soap and water to remove from skin.

All technical information is based on data obtained by CMI personnel and is believed to be reliable. No warranty is either expressed or implied with respect to results or possible infringements on patents.

REVISION DATE: 5/13/13 REVISION: D

PROCESSING PROCEDURE FOR 121-47- ELECTRICALLY CONDUCTIVE, VIA FILLING PASTE

The following is a brief overview of the materials and techniques, that have been developed for filling via holes with CMI's electrically conductive, via hole filling paste (121-47) by a stencil application technique.

Stencil

Stencil material: stainless steel or polyester film

Stencil thickness: 5 mils (0.005")

Make holes in the stencil that correspond to the via holes that are 12 – 15 mils (0.0012" – 0.0015") larger in diameter than the actual via holes.

Template Board

The template board can be made from a variety of substrates and is required to let air escape. Make holes in the template board that correspond to the via holes that are 18 – 20 mils (0.0018" – 0.0020") larger in diameter than the actual via holes and at least as deep as the via holes themselves.

Squeegee

Squeegee material: urethane

Squeegee durometer: 70 – 80

Squeegee thickness: 0.79"

Squeegee cut angle: 20° - 30°

Squeegee attack angle: 80° - 85°

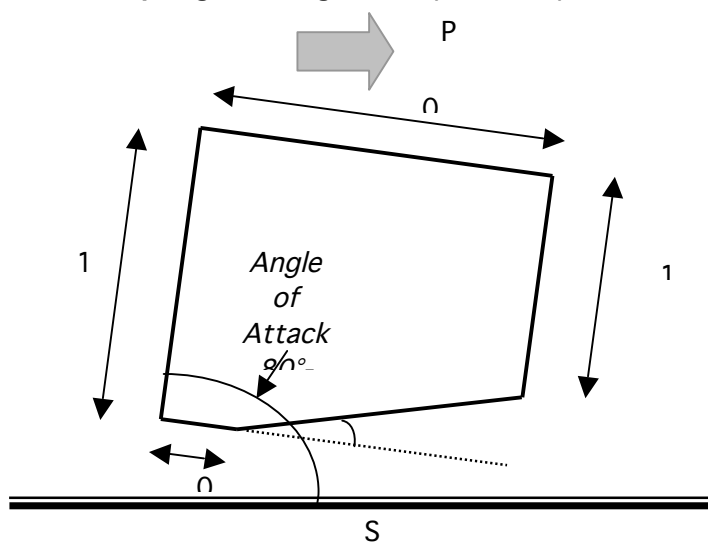
Printing Conditions

Print speed: 5-12 inches / second

Pressure: Adjust as required

Snap off: 10-50 mils (0.01" – 0.05")

Squeegee Configuration (side view)



Processing

1. Align the stencil, the board with via holes and the template board, so that all of the holes are aligned.
2. Using standard stenciling equipment with the squeegee and conditions noted above, stencil the paste into the via holes. Note: It may require two passes to fill the via holes completely.
3. Cure the paste per one of the cure schedules noted on the Technical Data Sheet.
4. The cured paste can now be sanded smooth and plated.

Please note that this process has provided very good results on boards with a variety of different via hole aspect ratios. It is suggested that the end user experimentally determine the best technique, based on the particular boards and via hole aspect ratios to be filled.