

Ceramic Filled High Tg Polyimide Hole Fill Compound

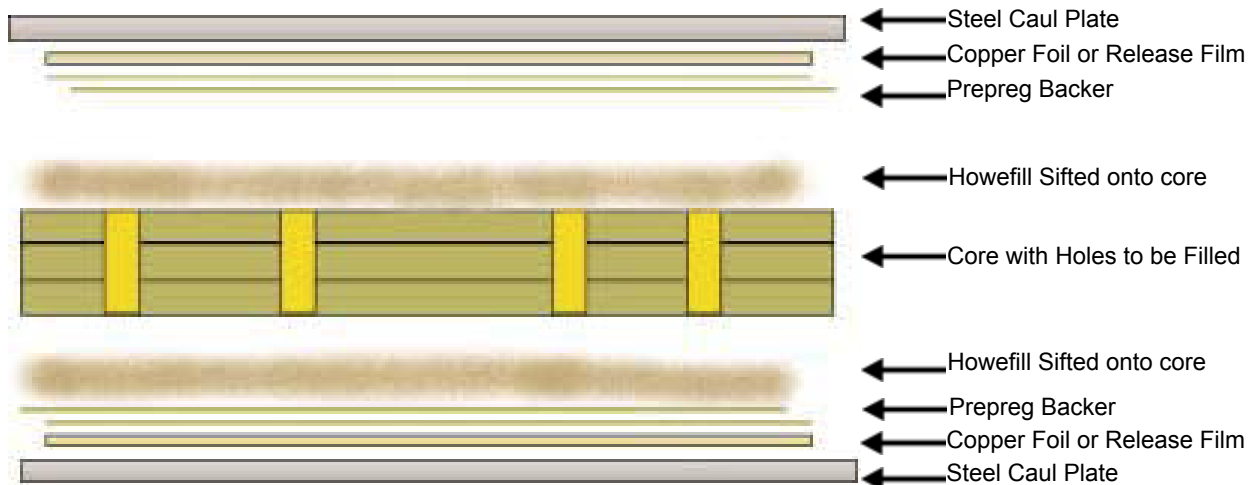
Howefill® HF 50 is a polyimide compound for use in filling clearance holes in metal core printed wiring boards, providing the user with an optimized material to fill holes that have been drilled through the metal for through hole interconnections. Based on a unique polyimide chemistry, this material provides full compatibility with other Arlon polyimide materials and processes. HF 50 has been formulated to improve thermal conductivity, crack resistance, and minimal resin shrinkage back into the holes.

Features:

- Tg greater than 250°C
- Non-MDA Polyimide
- Low Z-axis CTE (26 PPM/°C)
- Low Shrinkage
- Excellent Thermal Conductivity

Typical Applications:

- Compatible with 33N, 35N, 84N, 85N , 85HP Polyimide Products
- Use with heavy metal cores in PWB's
 - Copper-Invar-Copper
 - Copper Cores
 - Aluminum Cores



HF-50

Typical Properties:

Property	Units	Value	Test Method
Electrical Properties			
Electrical Strength	Volts/mil (kV/mm)	1000	IPC TM-650 2.5.6.2
Thermal Properties			
Glass Transition Temperature (Tg)			
TMA	°C	260	IPC TM-650 2.4.24C
CTE (Z)	ppm/°C	26	IPC TM-650 2.4.24C
Physical Properties			
Water Absorption (0.062")	%	0.4	IPC TM-650 2.6.2.1A
Thermal Conductivity	W/mK	>0.5	ASTM E-1225

Results listed above are typical properties, provided without warranty, expressed or implied, and without liability. Properties may vary, depending on design and application. Arlon reserves the right to change or update these values.

Recommended Process Conditions:

HF 50 is a free-flowing powder. It is advised that the sample be tumbled prior to use to ensure thorough distribution of contents after receipt, as some settling may occur during shipping or storage. Bonds to metal can be enhanced by treating copper surfaces with an oxide process and aluminum surfaces by passivation and chemical film deposition.

1) Howefill should be sifted onto the package on both sides of the core to be filled. Sift the HF 50 onto the material at the bottom of the core board as shown, above. Sift additional HF-50 on top of the core board itself, concentrating on the areas with holes or cutouts as required. A template may help with this. Level the surface.

2) Use of one or more pieces of prepreg on either side of the sifted HF-50, (illustrated on page 1), drive the powder uniformly into the holes.

3) Laminate as standard polyimide. Heatup rate should be controlled at 4.5-6.5 °C/min (8-12 °F/min) between 95 and 150 °C (200-300 °F). Apply full pressure, 300-400 psi, depending on panel size.

Cure at 218 °C (425 °F) for 120 minutes. When laminating a full package (core board plus laminate and prepreg) follow laminating instructions for the specific polyimide system being used to ensure full cure of all components.

4) Cool very slowly in the press after cure. Suggested cooling rate is 2-4 degrees F per minute.

5) Panel can be ground or sanded if needed prior to subsequent operations. Plating, drilling and other post-processing will be similar to polyimide.

