

Number of Components:	Two	Minimum Bond Line Cure Schedule*:	
Mix Ratio By Weight:	1:1	120°C	15 Minutes
Specific Gravity:		80°C	1 Hour
Part A	1.61	50°C	12 Hours
Part B	2.02		
Pot Life:	2.5 Days		
Shelf Life:	One year at room temperature		

Note: Container(s) should be kept closed when not in use. For filled systems, mix contents of each container (A & B) thoroughly before mixing the two together. \*Please see Applications Note available on our website.

### Product Description:

EPO-TEK<sup>®</sup> H70E-4 is a two component, thermally conductive, electrically insulating epoxy adhesive for semiconductor, micro-electronic and opto-electronic packaging. It may be used for heat sinking power devices in the form of hybrid circuits or at the SMD / PCB level.

### EPO-TEK<sup>®</sup> H70E-4 Advantages & Application Notes:

- Thixotropic epoxy which is paste-like and non-flowing. It has adhesive strength before cure.
- Paste-like rheology allows it to be applied by automated dispensing or screen printing techniques. Other methods, including by tooth-pick, are acceptable.
- Suggested Applications:
  - PCB:
    - Bonding heat sinks; Adhesion to Al, Cu, most metals and plastics
    - Bonding SMDs to PCB; Adhesion to FR4, flex PCB, active and passive SMT packages; staking SMDs to PCB for double sided circuits
    - Bonding ferrites and magnets for electronic sub-assemblies
  - Semiconductor: die attach onto substrates; COB and direct-chip attach
  - Hybrid: bonding heat sinks and substrate attach to metal case
  - Opto-electronic: active alignment of optics and fiber optic components
- Contact [techserv@epotek.com](mailto:techserv@epotek.com) for your best viscosity selection; there are many alternatives available.
- User friendly 1:1 mix ratio allows for static mixing, or specialty packaging, with lengthy pot-life available.

**Typical Properties:** (To be used as a guide only, not as a specification. Data below is not guaranteed. Different batches, conditions and applications yield differing results; Cure condition: 150°C/1 hour; \* denotes test on lot acceptance basis)

Physical Properties:	
*Color: Part A: Dark Grey Part B: Dark Grey	Weight Loss:
*Consistency: Smooth thixotropic paste	@ 200°C: 0.57%
*Viscosity (@ 10 RPM/23°C): 20,000 – 40,000 cPs	@ 250°C: 1.49%
Thixotropic Index: 3.2	@ 300°C: 3.09%
*Glass Transition Temp.(Tg): ≥ 80°C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -40—200°C @ 20°C/Min)	Operating Temp:
Coefficient of Thermal Expansion (CTE):	Continuous: - 55°C to 200°C
Below Tg: 17 x 10 <sup>-6</sup> in/in/°C	Intermittent: - 55°C to 300°C
Above Tg: 77 x 10 <sup>-6</sup> in/in/°C	Storage Modulus @ 23°C: 416,749 psi
Shore D Hardness: 67	Ions: Cl <sup>-</sup>
Lap Shear Strength @ 23°C: 1,070 psi	Na <sup>+</sup>
Die Shear Strength @ 23°C: ≥ 5 Kg / 1,700 psi	NH <sub>4</sub> <sup>+</sup>
Degradation Temp. (TGA): 432°C	K <sup>+</sup>
	*Particle Size: ≤ 20 Microns
Thermal Properties:	
Thermal Conductivity: 0.57 W/mK	
Electrical Properties:	
Dielectric Constant (1KHz): 4.81	Volume Resistivity @ 23°C: ≥ 2.5 x 10 <sup>13</sup> Ohm-cm
Dissipation Factor (1KHz): 0.0179	

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