EPO-TEK® H70E-4

Technical Data Sheet

For Reference Only

Thermally Conductive Epoxy

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® 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® 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 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:**
	Continuous: - 55°C to 200°C
Coefficient of Thermal Expansion (CTE):	**Intermittent:** - 55°C to 300°C
Below Tg: 17 x 10^{-6} in/in/°C	**Storage Modulus @ 23°C:** 416,749 psi
Above Tg: 77 x 10^{-6} in/in/°C	**Ions:** Cl^-
Shore D Hardness: 67	Na^+
Lap Shear Strength @ 23°C: 1,070 psi	NH_4^+
Die Shear Strength @ 23°C: ≥ 5 Kg / 1,700 psi	K^+
Degradation Temp. (TGA): 432°C	***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^{13} Ohm-cm
Dissipation Factor (1KHz): 0.0179	

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Rev. IV
09/2005