

Date: November 2019
Rev: VII
No. of Components: Two
Mix Ratio by Weight: 1 : 1
Specific Gravity: Part A: 1.61 Part B: 2.02
Pot Life: 2.5 Days
Shelf Life- Bulk: One year at room temperature

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
 120°C / 15 Minutes
 80°C / 1 Hour
 50°C / 12 Hours

NOTES:

- Container(s) should be kept closed when not in use.
- Filled systems should be stirred thoroughly before mixing and prior to use.
- Performance properties (rheology, conductivity, others) of the product may vary from those stated on the data sheet when bi-pak/syringe packaging or post-processing of any kind is performed. Epoxy's warranties shall not apply to any products that have been reprocessed or repackaged from Epoxy's delivered status/container into any other containers of any kind, including but not limited to syringes, bi-paks, cartridges, pouches, tubes, capsules, films or other packages.

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.

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

PHYSICAL PROPERTIES:			
* Color (before cure):	Part A: Dark grey	Part B: Dark grey	
* Consistency:	Smooth thixotropic paste		
* Viscosity (23°C) @ 10 rpm:	20,000-40,000	cPs	
Thixotropic Index:	3.2		
* Glass Transition Temp:	≥ 80	°C	(Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):			
	Below Tg:	17	x 10 ⁻⁶ in/in°C
	Above Tg:	77	x 10 ⁻⁶ in/in°C
Shore D Hardness:	67		
Lap Shear @ 23°C:	1,070	psi	
Die Shear @ 23°C:	≥ 5	Kg	1,778 psi
Degradation Temp:	432	°C	
Weight Loss:			
	@ 200°C:	0.57	%
	@ 250°C:	1.49	%
	@ 300°C:	3.09	%
Suggested Operating Temperature:	< 300	°C	(Intermittent)
Storage Modulus:	416,749	psi	
* Particle Size:	≤ 20	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	0.6	W/mK
Volume Resistivity @ 23°C:	≥ 2.5 x 10 ¹³	Ohm-cm
Dielectric Constant (1KHz):	4.81	
Dissipation Factor (1KHz):	0.018	

Epoxyes and Adhesives for Demanding Applications™

This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.

EPOXY TECHNOLOGY, INC.

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www.epotek.com

EPO-TEK® H70E-4 Advantages & Suggested 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.

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