EPO-TEK® H70E-2

Technical Data Sheet
For Reference Only
Thermally Conductive, Electrically Insulating Epoxy

Date:	February 2022	
Rev:	X	
No. of Components:	Two	
Mix Ratio by Weight:	1 : 1	
Specific Gravity:	Part A: 1.50	Part B: 2.30
Pot Life:	2 Days	
Shelf Life- Bulk:	One year at room temperature	
Shelf Life- Syringe:	One year at -40°C	

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
175°C / 1 Minute
150°C / 5 Minutes
120°C / 15 Minutes

80°C / 90 Minutes

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-2 is a two component, thermally conductive electrically insulating epoxy designed for glob-top chip protection in TAB and COB die-attach technologies. It is used to prevent chips from being mechanically damaged during micro-package assembly and handling.

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: Black Part B: Cream	
* Consistency:	Smooth thixotropic paste	
* Viscosity (23°C) @ 20 rpm:	9,000 - 15,000	cPs
Thixotropic Index:	1.7	
* 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:	20	x 10^{-6} in/in°C
Above Tg:	112	x 10^{-6} in/in°C
Shore D Hardness:	65	
Lap Shear @ 23°C:	> 2,000	psi
Die Shear @ 23°C:	≥ 5	Kg 1,778 psi
Degradation Temp:	447	°C
Weight Loss:		
@ 200°C:	0.10	%
@ 250°C:	0.30	%
@ 300°C:	0.70	%
Suggested Operating Temperature:	< 300	°C (Intermittent)
Storage Modulus:	1,214,415	psi
Ion Content:	Cl^-: 267 ppm	
* Particle Size:	≤ 50	microns

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	1.0	W/mK
Volume Resistivity @ 23°C:	≥ 8 x 10^{12}	Ohm-cm
Dielectric Constant (1KHz):	5.19	
Dissipation Factor (1KHz):	0.007	

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.

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EPO-TEK® H70E-2 Advantages & Suggested Application Notes:

- The epoxy exhibits resistance against moisture, contamination and solvents which make it an ideal glob top. See Technical Paper #24 in our library for process flow in TAB packaging and reliability study – http://www.epotek.com/technical-papers.asp.
- A slightly thixotropic paste with excellent handling characteristics, pot life and short curing cycles. The rheology provides a dot-shape or dome configuration over wire-bonded die. Capable of glob-top DAM-and-FILL, or single-dot glob-top.
- Suitable for mass production as semiconductor encapsulant; low temp cure 80°C capable, controlled viscosity. Capable of many packages including TAB, COB, CSPs, BGAs, DIP and TO-cans.
- Excellent adhesion to PCB, ferrous and non-ferrous metals, glass, ceramic, epoxy package shells and semiconductor materials.
- Recommended for chip bonding, circuit repair, reinforce lead-frames, LSI chip packaging and good heat dissipation.

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