EPOXY TECHNOLOGY

EPO-TEK® H70E-2
Technical Data Sheet
For Reference Only
Thermally Conductive, Electrically Insulating Epoxy

Number of Components:	Two	Minimum Bond Line Cure Schedule*:	
Mix Ratio By Weight:	1:1	175°C	1 Minute
Specific Gravity:		150°C	5 Minutes
Part A	1.5	120°C	15 Minutes
Part B	2.3	80°C	90 Minutes
Pot Life:	2 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-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.

EPO-TEK® H70E-2 Advantages & 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.

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:** Black **Part B:**Cream	**Weight Loss:**
***Consistency:** Smooth thixotropic paste	**@ 200°C:** 0.10%
***Viscosity (@ 20 RPM/23°C):** 9,000 – 15,000 cPs	**@ 250°C:** 0.30%
Thixotropic Index: 1.69	**@ 300°C:** 0.70%
***Glass Transition Temp.(Tg):** ≥ 80°C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—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: 20 x 10^{-6} in/in/°C	**Storage Modulus @ 23°C:** 1,214,415 psi
Above Tg: 112 x 10^{-6} in/in/°C	**Ions:** **Cl^-** 267 ppm
Shore D Hardness: 65	**Na^+**
Lap Shear Strength @ 23°C: > 2,000 psi	**NH_4^+**
Die Shear Strength @ 23°C: ≥ 5 Kg / 1,700 psi	**K^+**
Degradation Temp. (TGA): 447°C	***Particle Size:** ≤ 50 Microns
Thermal Properties:	
Thermal Conductivity: 1.0 W/mK	
Electrical Properties:	
Dielectric Constant (1KHz): 5.19	**Volume Resistivity:** ≥ 8 x 10^{12} Ohm-cm
Dissipation Factor (1KHz): 0.007	

EPOXY TECHNOLOGY, INC.
14 Fortune Drive, Billerica, MA 01821-3972 **Phone**: 978.667.3805 **Fax**: 978.663.9782
www.EPOTEK.com

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