

## Product Information Sheet

**MATERIAL ID:**

**EPO-TEK® H70E-1**

**Date:** 04/2008

**Per:**

**Rev:** IV

**Material Description:**

A two component, thermally conductive, electrically insulating epoxy adhesive designed for semiconductor and microelectronic packaging. It is most commonly used for die-attach and heat sinking applications.

**Number of Components:**

Two

**Mix Ratio by weight:**

1:1

**Cure Schedule (minimum)**

175°C/1 Minutes - 150°C/5 Minutes - 120°C/15 Minutes - 80°C/90 Minutes

**Specific Gravity:**

--- Part A: 1.63 Part B: 2.38

**Pot Life:**

2 Days

**Shelf Life:**

Six months at room temperature

*NOTE:* Container(s) should be kept closed when not in use. Filled systems should be stirred thoroughly before mixing and prior to use

**MATERIAL CHARACTERISTICS:** *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

<b>PHYSICAL PROPERTIES:</b>	
<b>*Color (before cure):</b>	Part A: Light Grey Part B: Dark Grey
<b>*Consistency:</b>	Smooth paste
<b>*Viscosity (23°C):</b>	
@ 10 rpm	24,000 - 34,000 cPs
<b>Thixotropic Index:</b>	4.92
<b>*Glass Transition Temp:</b>	≥ 80 °C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min)
<b>Coefficient of Thermal Expansion (CTE):</b>	
Below Tg:	21 x 10 <sup>-6</sup> in/in°C
Above Tg:	105 x 10 <sup>-6</sup> in/in°C
<b>Shore D Hardness:</b>	88
<b>Lap Shear @ 23°C:</b>	1,812 psi
<b>Die Shear @ 23°C:</b>	≥ 5 Kg / 1,700 psi
<b>Degradation Temp:</b>	450 °C
<b>Weight Loss:</b>	
	@ 200°C: 0.06 %
	@ 250°C: 0.34 %
	@ 300°C: 1.20 %
<b>Operating Temp:</b>	
<b>Continuous:</b>	- 55°C to + 200°C
<b>Intermittent:</b>	- 55°C to + 300°C
<b>Storage Modulus @ 23°C:</b>	967,730 psi
<b>Ion Content:</b>	
	Cl <sup>-</sup> :
	NH <sub>4</sub> <sup>+</sup> :
	Na <sup>+</sup> :
	K <sup>+</sup> :
<b>*Particle Size:</b>	≤ 50 microns

<b>ELECTRICAL AND THERMAL PROPERTIES:</b>	
<b>Thermal Conductivity:</b>	0.71 W/mK
<b>Volume Resistivity @ 23°C:</b>	≥ 1.5x10 <sup>13</sup> Ohm-cm
<b>Dielectric Constant (1KHz):</b>	4.47
<b>Dissipation Factor (1KHz):</b>	0.0087

<b>OPTICAL PROPERTIES @ 23°C:</b>	
<b>Spectral Transmission:</b>	N/A
<b>Index of Refraction:</b>	N/A

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