

EPO-TEK<sup>®</sup> 354 Technical Data Sheet For Reference Only High Temperature Epoxy

Date:	September 2017		Recommended Cure: 150°C / 1 Hour
Rev:	VII		
No. of Components:	Two		Minimum Alternative Cure(s):
Mix Ratio by Weight:	10 : 1		May not achieve performance properties listed below
Specific Gravity:	Part A: 1.20	Part B: 1.15	150°C / 10 Minutes
Pot Life:	3 Days		120°C / 30 Minutes
Shelf Life- Bulk:	One year at room	temperature	80°C / 2 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.

• TOTAL MASS SHOULD NOT EXCEED 25 GRAMS

Product Description: EPO-TEK® 354 is a two component, high Tg epoxy designed for semiconductor packaging in medical, fiber optic and optoelectronic assemblies. It is an electrically and thermally insulating epoxy.

<u>Typical Properties:</u> 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

• Color (before cure): 	PHYSICAL PROPERTIES:							
<sup>+</sup> Viscosity ( $2^{3}$ °C) @ 50 rpm: 4,000 - 6,000 cPs Thixotropic Index: N/A Glass Transition Temp: ≥ 96 Coefficient of Thermal Expansion (CTE): Below Tg: 96 x 10° 6 in/in°C Above Tg: 175 x 10° 6 in/in°C Shore D Hardness: 82 Lap Shear @ 23°C: 1,668 psi Die Shear @ 23°C: 210 Kg 3,556 psi Degradation Temp: 487 °C Weight Loss: @ 200°C: 0.50 % @ 250°C: 0.70 % @ 300°C: 0.85 % Suggested Operating Temperature: < 356 °C (Intermittent) Storage Modulus: 356,376 psi Ion Content: CI: 81 ppm Na <sup>+</sup> : 17 ppm NH₄ <sup>+</sup> : 300 ppm <sup>+</sup> Particle Size: N/A ELECTRICAL AND THERMAL PROPERTIES: Thermal Conductivity: N/A Volume Resistivity @ 23°C: 2 2 x 10 <sup>13</sup> Dielectric Constant (1KHz): 3.48 Dissipation Factor (1KHz): 0.004					Part B: Dark amber			
Thixotropic Index:N/A* Glass Transition Temp: $\geq$ 9°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @ 20°C/Min)Coefficient of Thermal Expansion (CTE):Below Tg:96 $\times$ 10-6 in/in °CBelow Tg:96 $\times$ 10-6 in/in °CAbove Tg:175 $\times$ 10-6 in/in °CShore D Hardness:82Lap Shear @ 23°C:1,668psiDegradation Temp:477°CWeight Loss: $@$ 200°C:0.50@ 250°C:0.70%@ 300°C:0.85%Suggested Operating Temperature:< 356,376			•					
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> 99% @ 800 nm								
	Spectral Transmission:							
Refractive Index (uncured): 1.5734 @ 589 nm								
	Refractive Index (uncured):	1.5	734 @ 589	nm				

Epoxies 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.

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## **EPO-TEK® 354 Advantages & Suggested Application Notes:**

- Extended pot-life of many days which allows low waste between manufacturing shifts.
- Built-in color change upon cure. Users can determine cure by visual means due to a redamber color change from slight yellow.
- Suggested Applications:
  - Semiconductor: capillary underfill below flip chip mounted die or SMDs.
  - Opto-electronic: %Transmission in the IR from 800 2000 nm range, adhesion to Si, glass, ceramic and metals.
  - Fiber Optic: sealing fiber into ferrules, optical connectors, adhesion to quartz, Au, kovar, stainless steel, packaging of Fiber Optic components.
- Designed to be a longer pot-life alternative to EPO-TEK<sup>®</sup> 353ND, it may be used in similar applications and devices.
- Capable of being syringe dispensed in mass production. Its medium viscosity lends itself to adhesive, sealing, potting and encapsulation.