EPO-TEK® 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.

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: Clear/Colorless	Part B: Dark amber	
* Consistency:	Pourable liquid		
* Viscosity (23°C) @ 50 rpm:	4,000 - 6,000	cPs	
Thixotropic Index:	N/A		
* Glass Transition Temp:	≥ 95	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)	
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:	≥ 10	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:	< 350	°C (Intermittent)	
Storage Modulus:	356,376	psi	
Ion Content:	Cl^-: 81 ppm	Na^+: 17 ppm	
	NH_4^+: 300 ppm	K^+: 9 ppm	
* Particle Size:	N/A		

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	N/A	
Volume Resistivity @ 23°C:	≥ 2 x 10^{13}	Ohm-cm
Dielectric Constant (1KHz):	3.48	
Dissipation Factor (1KHz):	0.004	

OPTICAL PROPERTIES:		
Spectral Transmission:	> 96% @ 600	nm
	> 99% @ 800	nm
Refractive Index (uncured):	1.5734 @ 589	nm

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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 red-amber 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® 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.

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