EPO-TEK® 930-4

Technical Data Sheet
For Reference Only
Thermally Conductive Epoxy

Date:	September 2017		
Rev:	VI		
No. of Components:	Two		
Mix Ratio by Weight:	100 : 3.3		
Specific Gravity:	Part A: 1.31 Part B: 1.02	**Syringe:** 1.63	
Pot Life:	1 Day	**Syringe:** 6 Hours	
Shelf Life- Bulk:	One year at room temperature		
Shelf Life- Syringe:	Six months at -40°C		

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
150°C / 10 Minutes
100°C / 4 Hours
80°C / 6 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.

Product Description: EPO-TEK® 930-4 is a two component, thermally conductive epoxy, formulated with a very fine boron-nitride filler particle. Also available in a single component frozen syringe.

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: Ivory	Part B: Amber
* Consistency:	Smooth paste	
* Viscosity (23°C) @ 20 rpm:	12,000-17,000	cPs
Thixotropic Index:	2.4	
* Glass Transition Temp:	≥ 90	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):		
Below Tg:	27	x 10^{-6} in/in°C
Above Tg:	136	x 10^{-6} in/in°C
Shore D Hardness:	85	
Lap Shear @ 23°C:	1,927	psi
Die Shear @ 23°C:	≥ 15	Kg 5,334 psi
Degradation Temp:	425	°C
Weight Loss:		
@ 200°C:	0.10	%
@ 250°C:	0.33	%
@ 300°C:	0.73	%
Suggested Operating Temperature:	< 325	°C (Intermittent)
Storage Modulus:	607,651	psi
* Particle Size:	≤ 20	microns

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	1.7	W/mK
Volume Resistivity @ 23°C:	≥ 2 x 10^{13}	Ohm-cm
Dielectric Constant (1KHz):	3.73	
Dissipation Factor (1KHz):	0.004	

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EPO-TEK® 930-4 Advantages & Suggested Application Notes:

- Recommended for applications where heat dissipation and insulating properties are essential; attaching heat sinks on PCB; heat-sinking in hybrids such as DIP or TO-cans; kovar, aluminum or ceramic packaging.
- Semiconductor applications: die-attach inside plastic IC packages using JEDEC format; die bonding power devices; thermally conductive underfill and glob top for flip-chip assembled die.
- Adhesion to ferrous and non-ferrous metals, ceramic, glass, semiconductor materials and most plastics is excellent.
- Designed for many production methods such as screen printing techniques, automated dispensing, pin transfer or manual applications by hand or spatula.
- Ease of use: long pot-life with low temperature cure of 80°C possible.
- Color change characteristic that indicates the epoxy has reached optimum cure - it goes from an off-white color to an amber color - depending on cure cycle and epoxy thickness.

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