

**Date:** September 2017  
**Rev:** VI  
**No. of Components:** Single  
**Mix Ratio by Weight:** N/A  
**Specific Gravity:** 1.68  
**Pot Life:** 28 Days  
**Shelf Life- Bulk:** One year at -40°C

**Recommended Cure: 180°C / 1 Hour**

**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.
- Complies with the requirements of MIL-STD 883/Method 5011.

**Product Description:** EPO-TEK® H65-175MP is a single component, alumina-filled epoxy for hybrid die and component attach. It can also be used for semiconductor and high temperature ceramic and vacuum packaging.

**Typical Properties:** Cure condition: 180°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):	White		
* Consistency:	Smooth paste		
* Viscosity (23°C) @ 2.5 rpm:	80,000-120,000	cPs	
Thixotropic Index:	1.9		
* Glass Transition Temp:	≥ 110	°C	(Dynamic Cure: 20-300°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)
Coefficient of Thermal Expansion (CTE):			
	Below Tg:	38	x 10 <sup>-6</sup> in/in°C
	Above Tg:	136	x 10 <sup>-6</sup> in/in°C
Shore D Hardness:	95		
* Lap Shear @ 23°C:	> 2,000	psi	
Die Shear @ 23°C:	≥ 20	Kg	7,112 psi
Degradation Temp:	397	°C	
Weight Loss:			
	* @ 200°C:	0.10	%
	@ 250°C:	0.16	%
	@ 300°C:	0.30	%
Suggested Operating Temperature:	< 300	°C	(Intermittent)
Storage Modulus:	816,394	psi	
* Ion Content:	Cl <sup>-</sup> : < 200 ppm	Na <sup>+</sup> : < 50 ppm	
	NH <sub>4</sub> <sup>+</sup> : 38 ppm	K <sup>+</sup> : < 50 ppm	
* Particle Size:	≤ 20	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	0.8	W/mK
Volume Resistivity @ 23°C:	≥ 1.2 x 10 <sup>14</sup>	Ohm-cm
Dielectric Constant (1KHz):	5.30	
Dissipation Factor (1KHz):	0.011	

**Epoxyes and Adhesives for Demanding Applications™**

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### **EPO-TEK® H65-175MP Advantages & Suggested Application Notes:**

- Viscosity is suitable for automatic syringe dispensers, although it can be applied by screen printing or manual hand operations.
- Performs exceptionally well as a die-attach for small chips such as GaAs, LEDs and diodes, as well as SMDs.
- Capable of resisting 260°C green reflow process, low outgassing in hermetic lid-seal processes near 300°C, and organic burn-in up to 150°C/1000 hours storage.
- Certified to MIL-STD 883/Test Method 5011 –yields low levels of water extractable monovalent ions such as Chlorides.
- Capable of JEDEC Level II die-attach packaging on die-paddles and lead-frames.
- Widely used epoxy; popular choice for non-silver-filled die-attach epoxies; opto-packaging, hybrids, and many types of substrates including kovar, ceramic, and BT.
- Available in many different viscosity ranges – contact Technical Services at [techserv@epotek.com](mailto:techserv@epotek.com) for best recommendation.
- Can be used as non conductive staking epoxy, in conjunction with EPO-TEK® H35-175MP for attaching SMDs to the hybrid circuit.

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**EPOXY TECHNOLOGY, INC.**

14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782

[www.epotek.com](http://www.epotek.com)