

Date: September 2017
Rev: VIII
No. of Components: Single
Mix Ratio by Weight: N/A
Specific Gravity: 2.85
Pot Life: 3 Months (closed container)
Shelf Life- Bulk: Six months at -40°C

Recommended Cure: 150°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.
- Failure to ship frozen may result in viscosity growth beyond the range of values herein; customer assumes all risk.

Product Description: EPO-TEK® H31D is a single component, electrically conductive silver epoxy designed for die-bonding of semiconductors, including IC's, resistors, capacitors, transistors, and diodes which may be found in opto-electronics packaging or hybrid micro-electronics.

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):	Silver		
* Consistency:	Smooth thixotropic paste		
* Viscosity (23°C) @ 5 rpm:	40,000-70,000	cPs	
Thixotropic Index:	3.9		
* Glass Transition Temp:	≥ 110	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-250°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):			
	Below Tg:	42	x 10 ⁻⁶ in/in°C
	Above Tg:	178	x 10 ⁻⁶ in/in°C
Shore D Hardness:	85		
Lap Shear @ 23°C:	1,152	psi	
Die Shear @ 23°C:	≥ 5	Kg	1,778 psi
Degradation Temp:	350 °C		
Weight Loss:			
	@ 200°C:	0.08	%
	@ 250°C:	0.18	%
	@ 300°C:	0.43	%
Suggested Operating Temperature:	< 300 °C (Intermittent)		
Storage Modulus:	905,956 psi		
Ion Content:	Cl:	19 ppm	Na ⁺ : 222 ppm
			K ⁺ : 36 ppm
* Particle Size:	≤ 20 microns		

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	3.5	W/mK
* Volume Resistivity @ 23°C:	≤ 0.0005	Ohm-cm
Dielectric Constant (1KHz):	N/A	
Dissipation Factor (1KHz):	N/A	

Epoxyes 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.

EPOXY TECHNOLOGY, INC.

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www.epotek.com

EPO-TEK® H31D Advantages & Suggested Application Notes:

- Rheology provides a soft, smooth, thixotropic paste. The epoxy can be screen printed or applied by hand or spatula.
- Ideal for screen printing applications. Designed for use in machine dispensing where dot sizes as small as 8 mils can be readily deposited.
- Available in lower viscosity versions; contact techserv@epotek.com for your best recommendation.
- Thermal resistance is nearly equivalent to solder die-attach. Suitable for laser diode attach, TE Coolers, and heat-sinking in general.
- Reliability report summarized in Technical Paper #2 from Epoxy Technology - <http://www.epotek.com/technical-papers.asp>.

Epoxy Technology, Inc. is a leading manufacturer of **Epoxyes and Adhesives for Demanding Applications™**

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