EPOXY TECHNOLOGY

EPO-TEK® H31LV

Technical Data Sheet
For Reference Only
Electrically Conductive, Silver Epoxy

Date: February 2019
Rev: VIII
No. of Components: Single
Mix Ratio by Weight: N/A
Specific Gravity: 1.57
Pot Life: 3 Days
Shelf Life: 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® H31LV is a single component, silver-filled, electrically conductive epoxy designed for semiconductor die attach applications found in hybrids, JEDEC, and opto-electronic packaging. Low viscosity version of EPO-TEK® H31.

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, pourable paste		
* Viscosity (23°C) @ 100 rpm:		2,000 - 3,500	cPs	
Thixotropic Index:		1.8		
* Glass Transition Temp:		≥ 110	°C (Dynamic Cure: 20-250°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):				
Below Tg:		26	x 10^{-6} in/in°C	
Above Tg:		148	x 10^{-6} in/in°C	
Shore D Hardness:		85		
Lap Shear @ 23°C:		1,400	psi	
Die Shear @ 23°C:		≥ 5	Kg	1,778 psi
Degradation Temp:		387	°C	
Weight Loss:				
@ 200°C:		0.13	%	
@ 250°C:		0.27	%	
@ 300°C:		1.05	%	
Suggested Operating Temperature:		< 300	°C (Intermittent)	
Storage Modulus:		257,143	psi	
Ion Content:	Cl^-:	14 ppm	Na^+:	380 ppm
	NH_4^+:	8 ppm	K^+:	47 ppm
* Particle Size:		≤ 45	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	0.6	W/mK
* Volume Resistivity @ 23°C:	≤ 0.008	Ohm-cm

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.
EPOXY TECHNOLOGY, INC.
14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782
www.epotek.com

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EPO-TEK® H31LV Advantages & Suggested Application Notes:

- Bright /shiny silver provides high reflectance, especially good for enhancing LED overall brightness.
- Rheology described as pourable paste:
  - Allows for high volume dispensing, wafer-level stamping, and pin transfer methods of application.
  - It is capable of spray coating or paint brush coating.
- Suggested Applications:
  - Semiconductor: die attach chips onto lead-frames for JEDEC Level III and II packaging. Adhesion to Ag-spot lead frame.
  - Hybrids: GaAs and Si die attach, adhesion to Au-plated chips, general electrical contacts for ceramic circuits, substrate attach to ground package.
  - Opto-electronic: single LED packaging in TO-cans, LED arrays on PCB or substrate, adhesion to ITO in LCDs, and sensor device/OEM instrumentation.
  - PCB/General: EMI or Rf shielding of electronics
- Available in several different viscosity versions. Contact techserv@epotek.com for your best recommendation.

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