EPOXY TECHNOLOGY

EPO-TEK® H21D

Technical Data Sheet
For Reference Only
Electrically Conductive, Silver Epoxy

Date: Apr 2014
Rev: VI
No. of Components: Two
Mix Ratio by Weight: 10 : 1
Specific Gravity: Part A: 2.45 Part B: 2.14
Pot Life: 15 Horus
Shelf Life: One year at room temperature

Recommended Cure: **150°C / 1 Hour**

Minimum Alternative Cure(s):
may not achieve performance properties below
150°C / 5 Minutes
120°C / 15 Minutes
80°C / 90 Minutes

NOTE: Container(s) should be kept closed when not in use. Filled systems should be stirred thoroughly before mixing and prior to use. Please see Applications Note on our website.

Product Description: EPO-TEK® H21D is a two component, high Tg, silver-filled epoxy designed for chip bonding in microelectronic and optoelectronic applications.

Typical Properties:

To be used as a guide only, not as a specification. Different batches, conditions & applications yield differing results.
Cure condition: 150°C/1 hour * denotes test on lot acceptance basis Data below is not guaranteed.

PHYSCIAL PROPERTIES:			
*	**Color (before cure):**	Part A: Silver	Part B: Silver
*	**Consistency**	Smooth paste	
*	**Viscosity (23°C): @ 20 rpm**	14,000-20,400	**cPs**
	Thixotropic Index:	2.6	
*	**Glass Transition Temp:**	≥ 100	**°C** (Dynamic Cure:20-200°C/ISO 25 Min; Ramp -10-200°C @ 20°C/Min)
	Coefficient of Thermal Expansion (CTE):		
	Below Tg:	42	x 10^{-6} **in/in°C**
	Above Tg:	225	x 10^{-6} **in/in°C**
	Shore D Hardness:	60	
	Lap Shear @ 23°C:	1,504	**psi**
	Die Shear @ 23°C:	≥ 10	**Kg** 3,400 **psi**
	Degradation Temp:	416	**°C**
	Weight Loss: @ 200°C	0.03	**%**
	@ 250°C	0.06	**%**
	@ 300°C	0.17	**%**
	OperatingTemp: : Continuous:	- 55**°C to** 250**°C**	
	Intermittent:	- 55**°C to** 350**°C**	
	Storage Modulus:	802,491	**psi**
	Ion Content: Cl:	64	**ppm**
	NA^+:	72	**ppm**
	NH_4^+:	121	**ppm**
*	**Particle Size:**	≤ 45	**microns**

ELECTRICAL AND THERMAL PROPERTIES:			
	Thermal Conductivity:	1.0	**W/mK**
*	**Volume Resistivity @ 23°C:**	≤ 0.0009	**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.

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EPO-TEK® H21D Advantages & Suggested Application Notes:

- Extended pot-life and can be cured at relatively low temperatures such as 80°C.
- Designed to be used in the 300°C range for applications such as wire bonding operations and eutectic lid-sealing processes.
- Contains no solvents or thinners. NASA approved, low outgassing epoxy – http://outgassing.nasa.gov/
- Also suggested for hybrid - aerospace circuits found in Rf / Microwave devices like cockpits and satellites.
- Paste-like rheology allows for application by commercial dispensing equipment, stamping, screen printing, or by hand with spatula or toothpick.
- Compatible with Au-plated ceramic substrates found in traditional and custom hybrids.

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