

Date: May 2013
Rev: VI
No. of Components: Two
Mix Ratio by Weight: 1 : 1
Specific Gravity: Part A: 3.44 Part B: 4.39
Pot Life: 2.5 Days
Shelf Life: One year at room temperature

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
may not achieve performance properties below
 175°C / 30 Minutes

NOTE: Container(s) should be kept closed when not in use. Filled systems should be stirred thoroughly before mixing and prior to use.

Product Description: EPO-TEK[®] H20E-HC is a two component, 100% solids silver-filled epoxy system designed specifically for chip bonding in microelectronic and optoelectronic applications. It is also used extensively for thermal management applications due to its high thermal conductivity. Also available in a single component frozen syringe. This is an increased thermal conductivity version of EPO-TEK[®] H20E.

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.*

PHYSICAL PROPERTIES:

* Color (before cure):	Part A: Silver	Part B: Silver
* Consistency	Smooth thixotropic paste	
* Viscosity (23°C): @ 50 rpm	3,500 - 6,000 cPs	
Thixotropic Index:	3.48	
Glass Transition Temp:	N/A	
Coefficient of Thermal Expansion (CTE):		
Below Tg:	53 x 10 ⁻⁶ in/in°C	
Above Tg:	80 x 10 ⁻⁶ in/in°C	
Shore D Hardness:	93	
Lap Shear @ 23°C:		
Die Shear @ 23°C:	≥ 5 Kg	1,700 psi
Degradation Temp:	372 °C	
Weight Loss:		
@ 200°C	0.14 %	
@ 250°C	0.42 %	
@ 300°C	1.05 %	
OperatingTemp:		
: Continuous:	- 55°C to 175°C	
Intermittent:	- 55°C to 275°C	
Storage Modulus:	572,750 psi	
Ion Content:		
Cl:	34 ppm	NA ⁺ : 24 ppm
NH ₄ ⁺ :	45 ppm	K ⁺ : 17 ppm
* Particle Size:	≤ 45 microns	

ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity (150°C/1Hr):	10.9 W/mK
Thermal Conductivity (150°C/1Hr + 200°C/1Hr):	23 W/mK
* Volume Resistivity @ 23°C:	≤ 0.00008 Ohm-cm

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EPO-TEK[®] H20E-HC Advantages & Suggested Application Notes:

- Processing info - it can be applied by many dispensing, stamping and screen printing techniques.
 - ◇ Dispensing: compatible with pressure/time delivery, auger screws, fluid jetting and G27 needles, in a single-component fashion.
 - ◇ Screen Printing: best using >200 metal mesh with polymer squeegee blade with 80D hardness.
 - ◇ Stamping: small dots 6 mil in diameter can be realized.
- Miscellaneous/Other notes:
 - ◇ Versatility in curing techniques including box oven, SMT style tunnel oven, heater gun, hot plate, IR, convection, or inductor coil.
- Suggested applications:
 - ◇ LED – HB LED industry; light engines for HD-TV; LCD color projection.
 - ◇ Solar, die-attach epoxy for CPV chips onto ceramic carriers; thermal epoxy for ceramic to aL finned heat sink.

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EPOXY TECHNOLOGY, INC.

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

www.epotek.com