

Date: February 2023
Rev: XIII
No. of Components: Single
Mix Ratio by Weight: N/A
Specific Gravity: 3.34
Pot Life: 2 Weeks **Dry Time:** ≤ 1 Day
Shelf Life- Bulk: One year at -40°C
Shelf Life- Syringe: One year at -40°C

Recommended Cure:
150°C / 1 Hour plus 200°C / 1 Hour (post cure)

Minimum Alternative Cure(s):
May not achieve performance properties listed below
 200°C / 30 Minutes
 125°C / 2 Hours

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.

Product Description: EPO-TEK® EK1000 is a silver-filled adhesive that exhibits exceptional thermal and electrical conductivity along with a shiny silver appearance designed for the demanding requirements of high power LED die attach applications. It is the single component version of EPO-TEK® EK2000.

Typical Properties: Cure condition: Varies as required 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) @ 100 rpm:	1,800 - 3,600	cPs	
Thixotropic Index:	3.6		
* Glass Transition Temp:	≥ 80 °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 ⁻⁶ in/in°C	
Above Tg:	94	x 10 ⁻⁶ in/in°C	
Shore D Hardness:	66		
Lap Shear @ 23°C:	1,010	psi	
Die Shear @ 23°C (Initial):	≥ 10	Kg	3,556 psi
Die Shear @ 23°C (after 1000 hrs 85°C/85% RH):	≥ 5	Kg	1,778 psi
Die Shear @ 23°C (125°C/2 Hours):	≥ 5	Kg	1,778 psi
Degradation Temp:	357	°C	
Weight Loss:			
@ 200°C:	0.19	%	
@ 250°C:	0.94	%	
@ 300°C:	1.70	%	
Suggested Operating Temperature:	< 300 °C (Intermittent)		
Storage Modulus:	273,528	psi	
Ion Content:	Cl ⁻ : ≤ 10 ppm	Na ⁺ :	2 ppm
	NH ₄ ⁺ : 6 ppm	K ⁺ :	0 ppm
* Particle Size:	≤ 45 microns		

ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity (150°C/1 Hour):	12.6	W/mK
Thermal Conductivity (150°C/1 Hour + 200°C/1 Hour):	26.3	W/mK
Thermal Conductivity (125°C/2.5 Hours+150°C/36 Min+ 200°C/15 Min):	35.5	W/mK
Thermal Conductivity (125°C/2 Hours):	5.56	W/mK
* Volume Resistivity @ 23°C (150°C/1 Hour + 200°C/1 Hour):	≤ 0.00009	Ohm-cm
Volume Resistivity @ 23°C (125°C/2 Hours):	0.00007	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® EK1000 Advantages & Suggested Application Notes:

- Low viscosity and high thixotropy make it ideal for a wide range of application techniques including syringe dispensing
- Extreme thermal management in high power and high brightness LED die attach.
- Resistant to thermal cycling and impact resistance in high power microwave communications die attach.
- Available in a Mil-STD-883 Test Method 5011 version: EPO-TEK® EK1000-MP.
- Concentrated PV solar cells (CPV):
 - Die attach of triple junction, III-V semiconductor chips, offering the lowest thermal resistance.
 - Favorable performance with respect to solder devices.
 - Replacing vacuum preform solder manufacturing with low temperature/low stress with a proven low temperature/low stress, high volume dispensing process.
- Alternative step cures can result in improved thermal management. Contact techserv@epotek.com for selecting the best multi-step curing process.

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