Date: September 2017
Rev: VIII
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

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

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/Mn)

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
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
NH4+: 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

* Volume Resistivity @ 23°C: ≤ 0.00009 Ohm-cm

Dielectric Constant (1kHz): N/A

Dissipation Factor (1kHz): N/A
### 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.