Technical Data Sheet

For Reference Only

Electrically Conductive Modified Polyimide

Date: July 2019

Recommended Cure:
- Pre-Bake: 30 Minutes @ 80°C (max)
- Cure: 1 Hour @ 150°C (with or without vacuum)
- Post-cure: 90 Minutes @ 285°C

No. of Components: Single

Mix Ratio by Weight: N/A

Specific Gravity: 2.39

Pot Life: N/A  Dry Time: 7 Days

Shelf Life- Bulk: One year at room temperature

Shelf Life- Syringe: Six months at -40°C

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® P1011 is a single component, modified polyimide, silver-filled adhesive designed for chip bonding in microelectronic and optoelectronic applications.

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 slightly thixotropic paste
* Viscosity (23°C) @ 20 rpm: 8,000 - 12,000 cPs
* Thixotropic Index: 1.9
* Glass Transition Temp: ≥ 100 °C (Ramp 40°C/Min to 300°C)

**Coefficient of Thermal Expansion (CTE):**
- Below Tg: 32 x 10^-6 in/in°C
- Above Tg: 225 x 10^-6 in/in°C

Shore D Hardness: 61

Lap Shear @ 23°C: N/A

Die Shear @ 23°C: ≥ 5 Kg  1,778 psi

Degradation Temp: 389 °C

Weight Loss:
- @ 200°C: 0.06 %
- @ 250°C: 0.08 %
- @ 300°C: 0.15 %

Suggested Operating Temperature: < 325 °C (Intermittent)

Storage Modulus: Upon request

Ion Content:
- Cl-: 114 ppm  Na+: 39 ppm
- NH4+: 27 ppm  K+: 18 ppm
* Particle Size: ≤ 20 microns

### ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity: > 2.7 W/mK
* Volume Resistivity @ 23°C: ≤ 0.0005 Ohm-cm
Dielectric Constant (1KHz): N/A
Dissipation Factor (1KHz): N/A
EPO-TEK® P1011 Advantages & Suggested Application Notes:

- Low stress die-attach adhesive that is very effective for bonding quartz crystal oscillators used in Rf / Microwave wireless devices.

- Designed specifically for screen printing and machine dispensing applications. A lower viscosity version, called P1011S is available for die-stamping processes.

- Recommended for screen printing applications; long dry time.

- Good electrical and thermal conductivity.

- Suggested for ceramic and DIP packaging of hybrids, as well as TO-Cans.