EPOXY TECHNOLOGY

EPO-TEK® E4110-LV
Technical Data Sheet
For Reference Only
Electrically Conductive, Silver-Filled Epoxy (formerly EP110-LV)

Number of Components:	Two
Mix Ratio By Weight:	10:1
Specific Gravity:	
Part A	3.10
Part B	0.96
Pot Life:	6 Hours
Shelf Life:	One year at room temperature

Minimum Bond Line Cure Schedule*:

150°C	15 Minutes
80°C	3 Hours
23°C	3 Days

A heat cure is recommended to achieve optimum properties.

*Note: Container(s) should be kept closed when not in use. For filled systems, mix the contents of Part A thoroughly before mixing the two parts together. *Please see Applications Note available on our website.*

Product Description:

EPO-TEK® E4110-LV is a two component, silver-filled epoxy used in electronic and circuit assembly applications in semiconductor and optical industries. A low viscosity version of EPO-TEK® E4110.

EPO-TEK® E4110-LV Advantages & Application Notes:

- Very low viscosity, silver-filled epoxy which can be applied by hand, brushing, roll coating, tooth-picking or stamping, or spraying.
- After cure, it has a shiny, almost metallic looking finish. This can be used to repair surface imperfections in metal coating applications such as electroplating or sputtering processes.
- Suggested applications:
  - Electronics - filling vias at the PCB level for top-to-bottom connections; EMI & Rf shielding applications.
  - Hybrids - electrically conductive potting for radar systems. The potting can be self-leveling, trapping no voids, and non-cracking with performance.
  - Optics - die-attaching LED's by the stamping process, or pin-transferring applications.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/

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

Physical Properties:

***Color:** **Part A:** Silver **Part B:** Clear/Colorless	**Weight Loss:**
***Consistency:** Smooth flowing paste	**@ 200°C:** 0.33%
***Viscosity (@ 100 RPM/23°C):** 350 – 850 cPs	**@ 250°C:** 0.65%
Thixotropic Index: 1.9	**@ 300°C:** 1.19%
***Glass Transition Temp.(Tg):** ≥ 40°C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min)	**Operating Temp:** **Continuous:** - 55°C to 150°C
Coefficient of Thermal Expansion (CTE):	**Intermittent:** - 55°C to 250°C
Below Tg: 70×10^{-6} in/in/°C	**Storage Modulus @ 23°C:** 469,744 psi
Above Tg: 287×10^{-6} in/in/°C	**Ions:** Cl^- 148 ppm
Shore D Hardness: 70	Na^+ 18 ppm
Lap Shear Strength @ 23°C: 1,080 psi	NH_4^+ 19 ppm
Die Shear Strength @ 23°C: ≥ 5 Kg / 1,700 psi	K^+ 4 ppm
Degradation Temp. (TGA): 390°C	***Particle Size:** ≤ 45 Microns

Electrical Properties:

***Volume Resistivity @ 23°C:** ≤ 0.0005 Ohm-cm
Volume Resistivity @ 23°C (25°C/40-60%RH/3Day cure): ≤ 0.007 Ohm-cm

Thermal Properties:

Thermal Conductivity: 1.24 W/mK

EPOXY TECHNOLOGY, INC.
14 Fortune Drive, Billerica, MA 01821-3972 **Phone**: 978.667.3805 **Fax**: 978.663.9782
www.EPOTEK.com

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