EPOXY TECHNOLOGY

EPO-TEK® E4110

Technical Data Sheet

For Reference Only

Electrically Conductive, Silver Epoxy (formerly EP110)

Number of Components:	Two
Mix Ratio By Weight:	10:1
Specific Gravity:	
Part A	3.10
Part B	0.95
Pot Life:	4 Hours
Shelf Life:	One year at room temperature

Minimum Bond Line Cure Schedule*:

150°C	15 Minutes
100°C	1 Hour
80°C	3 Hours
60°C	6 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 is an electrically conductive, silver-filled epoxy paste. This two component system is designed for low temperature curing from ambient to 80°C, although other heat cures can be used.

EPO-TEK® E4110 Advantages & Application Notes:

- Ease of use: smooth flowing paste allows for automated dispensing, stamping, brushing, or hand applications. In some cases, the low viscosity nature of the paste allows it to be sprayed onto targets.
- Suggested applications include: EMI and Rf shielding, ITO interconnects in LCDs, low temperature cryogenic cooling.
- Exhibits superior adhesion to a wide variety of substrates including most metals, ceramics, glass and plastics.
- Hybrid / Micro-electronic adhesive including die-attach and substrate attach for Rf and Microwave devices.
- Bright and shiny silver epoxy; provides a metallic-like layer after cure.

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:** 0.70%
***Viscosity (@ 100 RPM/23°C):** 800 – 1,600 cPs	**@ 250°C:**
Thixotropic Index: 2.1	**@ 300°C:**
***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: 48×10^{-6} in/in/°C	**Storage Modulus @ 23°C:** 518,756 psi
Above Tg: 150×10^{-6} in/in/°C	**Ions:** Cl^- 151 ppm
Shore D Hardness: 60	Na^+ 23 ppm
Lap Shear Strength @ 23°C: 1,266 psi	NH_4^+ 23 ppm
Die Shear Strength @ 23°C: ≥ 5 Kg / 1,700 psi	K^+ 31 ppm
Degradation Temp. (TGA): 380°C	***Particle Size:** ≤ 45 Microns
Electrical Properties:	
***Volume Resistivity @ 23°C:** ≤ 0.0005 Ohm-cm	
Volume Resistivity @ 23°C (25°C/40-60%RH/3 Day cure): ≤ 0.007 Ohm-cm	
Thermal Properties:	
Thermal Conductivity: 1.37 W/mK	

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