

Product Information Sheet

MATERIAL ID:

EPO-TEK® H21

Date: 08/2005

Per:

Rev: II

Material Description:

A two component, silver-filled, electrically conductive epoxy designed for hybrid micro-electronic packaging and assemblies. It can be used for die-attach or SMD attach onto ceramic substrates as well as package grounding or EMI/Rf shielding.

Number of Components:

Two

Mix Ratio by weight:

100/3.5

Cure Schedule (minimum)

150°C/1 Hour

Specific Gravity:

--- Part A: 2.45 Part B: 1.06

Pot Life:

23 Hours

Shelf Life:

One year at room temperature

NOTE: Container(s) should be kept closed when not in use. Filled systems should be stirred thoroughly before mixing and prior to use

MATERIAL CHARACTERISTICS: *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:	
<p>*Color (before cure): Part A: Silver Part B: Amber</p> <p>*Consistency: Smooth Paste</p> <p>*Viscosity (23°C): @ 10 rpm 20,000 - 40,000 cPs</p> <p>Thixotropic Index: 2.0</p> <p>*Glass Transition Temp: ≥ 100 °C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min)</p> <p>Coefficient of Thermal Expansion (CTE): Below Tg: 22 x 10⁻⁶ in/in°C Above Tg: 105 x 10⁻⁶ in/in°C</p> <p>Shore D Hardness: 78</p> <p>Lap Shear @ 23°C: 1,568 psi</p> <p>Die Shear @ 23°C: ≥ 5 Kg / 1,700 psi</p> <p>Degradation Temp: 433 °C</p>	<p>Weight Loss:</p> <p>@ 200°C: 0.02 % @ 250°C: 0.07 % @ 300°C: 0.20 %</p> <p>Operating Temp: Continuous: - 55°C to + 250°C Intermittent: - 55°C to + 350°C</p> <p>Storage Modulus @ 23°C: 619,687 psi</p> <p>Ion Content: Cl⁻: 27 ppm NH₄⁺: 96 ppm Na⁺: 23 ppm K⁺: 9 ppm</p> <p>*Particle Size: ≤ 45 microns</p>

ELECTRICAL AND THERMAL PROPERTIES:	
<p>Thermal Conductivity: 0.93 W/mK</p> <p>*Volume Resistivity @ 23°C: ≤ 0.001 Ohm-cm</p>	<p>Dielectric Constant (1KHz): N/A</p> <p>Dissipation Factor (1KHz): N/A</p>

OPTICAL PROPERTIES @ 23°C:	
<p>Spectral Transmission: N/A</p>	<p>Index of Refraction: N/A</p>