# Product Information Sheet

**MATERIAL ID:** **EPO-TEK® 921-FL**
**Date:** 08/2007 **Per:**
**Rev:** III

| | |
|---|---|
| **Material Description:** | A two component, high Tg, electrically insulating, thermally conductive epoxy designed for thermal management applications found in semiconductor, hybrid microelectronics, PCB, and optical industries. It can be an adhesive for mounting heat sinks and substrates, a seal for many types of packages, or a thermal potting compound. It is a low viscosity version of EPO-TEK® 921. |
| **Number of Components:** | Two |
| **Mix Ratio by weight:** | 100:2.2 |
| **Cure Schedule (minimum)** | 150°C/5 Minutes - 120°C/10 Minutes - 100°C/20 Minutes |
| **Specific Gravity:** | --- Part A: 2.39 Part B: 1.02 |
| **Pot Life:** | 6 Hours |
| **Shelf Life:** | Six months 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

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## 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:

| | | | |
|---|---|---|---|
| ***Color (before cure):** | Part A: Grey Part B: Amber | | |
| ***Consistency:** | Smooth flowing paste | **Die Shear @ 23°C:** | ≥ 20 **Kg** / 6,800 **psi** |
| ***Viscosity (23°C):** | | **Degradation Temp:** | 372 **°C** |
| **@** 20 **rpm** | 9,000 - 15,000 **cPs** | **Weight Loss:** | |
| **Thixotropic Index:** | 2.6 | **@ 200°C:** | 0.32 **%** |
| ***Glass Transition Temp:** | ≥ 90 **°C** (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min) | **@ 250°C:** | 0.50 **%** |
| | | **@ 300°C:** | 1.04 **%** |
| **Coefficient of Thermal Expansion (CTE):** | | **Operating Temp:** | |
| **Below Tg:** | 23 **x $10^{-6}$ in/in°C** | **Continuous:** | - 55**°C to** + 200**°C** |
| **Above Tg:** | 77 **x $10^{-6}$ in/in°C** | **Intermittent:** | - 55**°C to** + 300**°C** |
| **Shore D Hardness:** | 87 | **Storage Modulus @ 23°C:** | 1,557,705 **psi** |
| **Lap Shear @ 23°C:** | 1,312 **psi** | ***Particle Size:** | ≤ 50 **microns** |

### ELECTRICAL AND THERMAL PROPERTIES:

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|---|---|---|---|
| **Thermal Conductivity:** | 1.1 **W/mK** | **Dielectric Constant (1KHz):** | 5.94 |
| **Volume Resistivity @ 23°C:** | ≥ 6 x $10^{13}$ **Ohm-cm** | **Dissipation Factor (1KHz):** | 0.009 |

### OPTICAL PROPERTIES @ 23°C:

| | | | |
|---|---|---|---|
| **Spectral Transmission:** | N/A | **Index of Refraction:** | N/A |

**EPOXY TECHNOLOGY, INC.**
**14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782**
**WEB SITE:** www.epotek.com