# Product Information Sheet

**MATERIAL ID:** **EPO-TEK® 320NC-2**
**Date:** 10/2006 **Per:**
**Rev:** II

| | |
|---|---|
| **Material Description:** | A two component, black colored and optically opaque epoxy designed for optical, medical, and opto-electronic packaging of semiconductor devices and components. It is a modification of EPO-TEK® 320 for increased electrical insulation. It is also more viscous and thixotropic. Can be used for adhesion, sealing, potting and encapsulation. |
| **Number of Components:** | Two |
| **Mix Ratio by weight:** | 10:1 |
| **Cure Schedule (minimum)** | 70°C/1 Hour - 23°C/24 Hours |
| **Specific Gravity:** | --- Part A: 2.43 Part B: 0.87 |
| **Pot Life:** | 30 Minutes |
| **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: varies as required*

* denotes test on lot acceptance basis

### PHYSICAL PROPERTIES:

| | | | |
|---|---|---|---|
| ***Color (before cure):** | Part A: Black Part B: Clear/Colorless | | |
| ***Consistency:** | Slightly thixotropic paste | **Die Shear @ 23°C:** | ≥ 10 **Kg** / 3,400 **psi** |
| ***Viscosity (23°C):** | | **Degradation Temp:** | 340 **°C** |
| **@** 100 **rpm** | 1,500 - 3,000 **cPs** | **Weight Loss:** | |
| **Thixotropic Index:** | 3.2 | **@ 200°C:** | 0.17 **%** |
| ***Glass Transition Temp:** | ≥ 50 **°C** (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min) | **@ 250°C:** | 0.35 **%** |
| | | **@ 300°C:** | 0.98 **%** |
| **Coefficient of Thermal Expansion (CTE):** | | **Operating Temp:** | |
| **Below Tg:** | 20 **x $10^{-6}$ in/in°C** | **Continuous:** | - 55**°C to** + 175**°C** |
| **Above Tg:** | 82 **x $10^{-6}$ in/in°C** | **Intermittent:** | - 55**°C to** + 275**°C** |
| **Shore D Hardness:** | 89 | **Storage Modulus @ 23°C:** | 684,864 **psi** |
| **Lap Shear @ 23°C:** | 1,576 **psi** | ***Particle Size:** | ≤ 20 **microns** |

### ELECTRICAL AND THERMAL PROPERTIES:

| | | | |
|---|---|---|---|
| **Thermal Conductivity:** | N/A **W/mK** | **Dielectric Constant (1KHz):** | 9.75 |
| **Volume Resistivity @ 23°C:** | ≥ 0.1 x $10^{14}$ **Ohm-cm** | **Dissipation Factor (1KHz):** | 0.033 |

### OPTICAL PROPERTIES @ 23°C:

| | | | |
|---|---|---|---|
| **Spectral Transmission:** | < 1 **% @** 300-2500 **nm** | **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