EPO-TEK® 353ND

Technical Data Sheet

For Reference Only

High Temperature Epoxy

Number of Components:	Two
Mix Ratio By Weight:	10:1
Specific Gravity:	
Part A	1.20
Part B	1.02
Pot Life:	3 – 4 Hours
Shelf Life:	One year at room temperature

Minimum Bond Line Cure Schedule*:

150°C	1 Minute
120°C	5 Minutes
100°C	10 Minutes
80°C	30 Minutes

*Note: Container(s) should be kept closed when not in use. *Please see Applications Note available on our website.*

- TOTAL MASS SHOULD NOT EXCEED 25 GRAMS -

Product Description:

EPO-TEK® 353ND is a two component, high temperature epoxy designed for semiconductor, hybrid, fiber optic, and medical applications. It is one of the most popular EPO-TEK® brand products, and is known throughout the world for its performance and reliability.

EPO-TEK® 353ND Advantages & Application Notes:

- Reasonable pot-life that allows for low temperature curing to be realized. It has an amber color change upon cure.
- NASA approved, low outgassing epoxy - http://outgassing.nasa.gov/
- Semiconductor suggested applications: wafer-wafer bonding of CSP; fabrication of MEMs devices; flip chip underfill.
- Hybrid suggested applications: providing near hermetic seals in sensor devices, resisting high temperature packaging
  - Down-Hole petrochemical fiber optic sensors, resisting >200°C field conditions
- Fiber optic adhesive designed to meet Telecordia 1221 - suggested applications:
  - Sealing fiber into ferrules, transmitting light in the optical pathway from 800- 1550 nm range
  - Fiber component packaging; adhesive for active alignment of optics, environmental seal of opto-package, V-groove arrays
- Medical suggested applications:
  - Potting Fiber Optic bundles into SST ferrules for light guides and endoscopes, resisting sterilization cycles of autoclave, ETO, gamma, H_20_2 plasma.
  - Certified to USP Class VI Biocompatiblility Standards for medical implants; adhesive for catheter devices including stents and guide wires
- Electronics Assembly suggested applications:
  - Used as dielectric layer in the fabrication of capacitors; laminating PZT ferroelectrics found in ultrasound or ink-jetting devices
  - Impregnating and insulating copper coil windings in motors and inductor coils. Bonding ferrite cores and magnets.
  - Structural grade epoxy found in Hard-Disk drive devices; bonding of SST metals, kapton, and magnets

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:** Clear/Colorless **Part B:** Amber	**Weight Loss:**
***Consistency:** Pourable liquid	@ **200°C:** 0.92%
***Viscosity (@ 50 RPM/23°C):** 3,000 – 5,000 cPs	@ **250°C:** 1.24%
Thixotropic Index: N/A	@ **300°C:** 1.83%
***Glass Transition Temp.(Tg):** ≥ 90°C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min)	**Operating Temp:**
	Continuous: - 55°C to 225°C
Coefficient of Thermal Expansion (CTE):	**Intermittent:** - 55°C to 325°C
Below Tg: 54 x 10^{-6} in/in/°C	**Storage Modulus @ 23°C:** 516,912 psi
Above Tg: 206 x 10^{-6} in/in/°C	**Ions:** Cl^- 329 ppm
Shore D Hardness: 85	Na^+
Lap Shear Strength @ 23°C: > 2,000 psi	NH_4^+ 409 ppm
Die Shear Strength @ 23°C: ≥ 15 Kg / 5,100 psi	K^+ 5 ppm
Degradation Temp. (TGA): 420°C	**Particle Size:** N/A
Optical Properties @ 23°C:	
Index of Refraction: 1.5694 @ 589 nm	**Spectral Transmission:** > 50% @ 550 nm > 95% @ 700 – 2500 nm
Electrical & Thermal Properties:	
Thermal Conductivity: N/A	**Volume Resistivity @ 23°C:** ≥ 1.8 x 10^{13} Ohm-cm
Dielectric Constant @ 23°C (1 KHz): 3.17	**Dissipation Factor @ 23°C (1 KHz):** 0.005

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

Epoxies and Adhesives for Demanding Applications™

Rev. XIII
09/2005