



EPO-TEK® 353ND

Technical Data Sheet

For Reference Only

High Temperature Epoxy

Number of Components: Minimum Bond Line Cure Schedule*: Two

Mix Ratio By Weight: 10:1 150°C 1 Minute Specific Gravity: 120°C 5 Minutes

Part A 1.20 100°C 10 Minutes Part B 80°C 1.02 30 Minutes

Pot Life: 3 - 4 Hours

Shelf Life: One year at room temperature

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/cgi/sectionb/sectionb html.sh
- 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, H₂O₂ 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 **Operating Temp:**

20—200°C /ISO 25 Min: Ramp -10—200°C @ 20°C/Min) 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 lons: Cl 329 ppm Shore D Hardness: 85 Na⁺

Lap Shear Strength @ 23°C: > 2,000 psi

NH₄⁺ 409 ppm Die Shear Strength @ 23°C: ≥ 15 Kg / 5,100 psi Κ[†] 5 ppm Particle Size: N/A Degradation Temp. (TGA): 420°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 10¹³ Ohm-cm Dielectric Constant @ 23°C (1 KHz): 3.17 Dissipation Factor @ 23°C (1 KHz): 0.005

EPOXY TECHNOLOGY, INC.

Optical Properties @ 23°C:

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