



PFP 353ND

Technical Data Sheet

High Temperature Epoxy

Number of Components:	<u>Two</u>	<u>Frozen Syringe</u>	Minimum Bond Line Cure Schedule*:	
Mix Ratio By Weight:	10:1		150°C	1 Minute
Specific Gravity:		1.18	120°C	5 Minutes
Part A	1.20		100°C	10 Minutes
Part B	1.02		80°C	30 Minutes
Pot Life:	3 - 4 Hours	2 Hours		
Shelf Life:	One year at 23°C	Six months at -40°C		

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 -- IF PART A CRYSTALLIZES IN STORAGE, PLACE CONTAINER IN A WARM OVEN UNTIL CRYSTALIZATION DISAPPEARS. ALLOW TO COOL TO ROOM TEMPERATURE BEFORE MIXING WITH THE PART B HARDENER --

Description:

PFP 353ND is a two component, high temperature epoxy designed for semiconductor, hybrid, fiber optic, and medical applications. Also available in a single component frozen syringe.

PFP 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 and UHV 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 ferrules for light guides and endoscopes; capable of resisting several sterilization techniques including ETO, gamma, ION beam, H2O2 plasma, and >200 autoclave steam cycles; excellent adhesion to surfaces including SST, diamond, titanium, brass, ceramics, glass and most plastics
- Certified to USP Class VI Biocompatibility 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.

This product has been tested and satisfies low halogen requirements.



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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 (Gardner <5) Part B: Amber (Gardner <18)	Weight Loss:
*Consistency: Pourable liquid	@ 200°C: 0.22%
*Viscosity (@ 50 RPM/23°C): 3,000 - 5,000 cPs	@ 250°C: 0.39%
Thixotropic Index: N/A	@ 300°C: 0.87%
*Glass Transition Temp.(Tg): ≥ 90°C (Dynamic Cure 20 – 200°C /ISO 25 Min; Ramp -10 – 200°C @ 20°C/Min)	Operating Temp:
Coefficient of Thermal Expansion (CTE):	Continuous: - 55°C to 250°C
Below Tg: 54 x 10 ⁻⁶ in/in/°C	Intermittent: - 55°C to 350°C
Above Tg: 206 x 10 ⁻⁶ in/in/°C	Storage Modulus @ 23°C: 516,912 psi
Shore D Hardness: 85	Ions: Cl ⁻ 329 ppm
Lap Shear Strength @ 23°C: > 2,000 psi	Na ⁺
Die Shear Strength @ 23°C: ≥ 15 Kg / 5,100 psi	NH ₄ ⁺ 409 ppm
Degradation Temp. (TGA): 412°C	K ⁺ 5 ppm
	Particle Size: N/A
Optical Properties @ 23°C:	
Refractive Index @ 23°C (uncured): 1.5694 @ 589 nm	Spectral Transmission: > 50% @ 550 nm; > 98% @ 800-1000 nm > 95% @ 1100 - 1600 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

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