

Date: Feb 2014

Rev: XXVIII

No. of Components: Two

Mix Ratio by Weight: 10 : 1

Specific Gravity:

Part A: 1.20

Part B: 1.02

Pot Life: ≤ 3 Hours

Shelf Life: One year at 23°C

Recommended Cure:

150°C / 1 Hour

Frozen Syringe

1.18

2 Hours

Six months at -40°C

Minimum Alternative Cure(s):

may not achieve

performance properties below

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. - TOTAL MASS SHOULD NOT EXCEED 25 GRAMS -

-- IF PART A CRYSTALLIZED IN STORAGE, PLACE CONTAINER IN A WARM OVEN UNTIL CRYSTALLIZATION

DISAPPEARS. ALLOW TO COOL TO ROOM TEMPERATURE BEFORE MIXING WITH THE PART B HARDENER --

*Please refer to Tech Tip #7 on our website

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. Also available in a single component frozen syringe.

Typical Properties:

To be used as a guide only, not as a specification. Different batches, conditions & applications yield differing results.

Cure condition: 150°C/1 Hour * denotes test on lot acceptance basis Data below is not guaranteed.

PHYSICAL PROPERTIES:

* Color (before cure):	Part A: Clear (Gardner <5)	Part B: Amber (Gardner <18)
* Consistency	Pourable liquid	
* Viscosity (23°C): @ 50 rpm	3,000 - 5,000 cPs	
Thixotropic Index:	N/A	
* Glass Transition Temp:	≥ 90 °C (Dynamic Cure:20-200°C/ISO 25 Min; Ramp -10-200°C @ 20°C/Min)	
Coefficient of Thermal Expansion (CTE):		
Below Tg:	54 x 10 ⁻⁶ in/in°C	
Above Tg:	206 x 10 ⁻⁶ in/in°C	
Shore D Hardness:	85	
Lap Shear @ 23°C:	> 2,000 psi	
Die Shear @ 23°C:	≥ 15 Kg	5,100 psi
Degradation Temp:	412 °C	
Weight Loss:		
@ 200°C	0.22 %	
@ 250°C	0.39 %	
@ 300°C	0.87 %	
OperatingTemp: : Continuous:	- 55°C to 250°C	
Intermittent:	- 55°C to 350°C	
Storage Modulus:	516,912 psi	
Ion Content:		
Cl:	329 ppm	
NH ₄ ⁺ :	409 ppm	K ⁺ : 5 ppm
* Particle Size:	N/A	

ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity:	N/A
Volume Resistivity @ 23°C:	≥ 1.8 x 10 ¹³ Ohm-cm
Dielectric Constant (1KHz):	3.17
Dissipation Factor (1KHz):	0.005

OPTICAL PROPERTIES @ 23°C:

Spectral Transmission:	≥ 50% @ 550 nm	≥ 98% @ 800 - 1,000 nm
	≥ 95% @ 1,100 - 1,600 nm	
Index of Refraction (uncured):	1.5694 @ 589 nm	

Epoxyes and Adhesives for Demanding Applications™

This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.

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EPO-TEK[®] 353ND Advantages & Suggested Application Notes:

- Reasonable pot-life that allows for low temperature curing to be realized. It has an amber color change upon cure.
- Passes NASA low outgassing standard ASTM E595 with proper cure - <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.
 - ◇ Adhesive for catheter devices including stents and guide wires.
 - ◇ Certified to USP Class VI and ISO 10993 biocompatibility standards for medical implants.
 - ◇ Compatible with CIDE[®]OPA sterilization.
- 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.

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