#### **Epoxy Technology EPO-TEK® 353ND High Temperature Epoxy**

Category : Polymer , Thermoset , Epoxy , Epoxy, High Temperature

#### Material Notes:

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. Advantages & 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 cureSemiconductor 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 packagingDown-Hole petrochemical fiber optic sensors, resisting >200°C field conditionsFiber 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 arraysMedical suggested applications:Potting fiber optic bundles into ferrules for light guides and endoscopes; capable of resisting several sterilization techniques including ETO, gamma, ION beam, H202 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 CIDEX® 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 magnetsInformation Provided by Epoxy Technology

#### Order this product through the following link:

http://www.lookpolymers.com/polymer\_Epoxy-Technology-EPO-TEK-353ND-High-Temperature-Epoxy.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.02 g/cc	1.02 g/cc	Part B
	1.18 g/cc	1.18 g/cc	Frozen Syringe
	1.20 g/cc	1.20 g/cc	Part A
Viscosity	3000 - 5000 cP	3000 - 5000 cP	50 rpm
	@Temperature 23.0 °C	@Temperature 73.4 °F	oo ipin

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	85	85	
Tensile Modulus	3.56 GPa	517 ksi	Storage
Shear Strength	>= 13.8 MPa	>= 2000 psi	Lap
	>= 35.2 MPa	>= 5100 psi	Die

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Thermal Properties	Metric	English	Comments
CTE, linear	54.0 μm/m-°C	30.0 µin/in-°F	Below Tg
	206 µm/m-°С	114 µin/in-°F	Above Tg
Maximum Service Temperature, Air	250 °C	482 °F	Continuous
	350 °C	662 °F	Intermittent
Minimum Service Temperature, Air	-55.0 °C	-67.0 °F	Continuous
	-55.0 °C	-67.0 °F	Intermittent
Glass Transition Temp, Tg	>= 90.0 °C	>= 194 °F	Dynamic Cure 20—200°C /ISO 25 Min; Ramp 10—200°C @ 20°C/Min
Decomposition Temperature	412 °C	774 °F	Degradation Temperature

Optical Properties	Metric	English	Comments
Refractive Index	1.5694	1.5694	uncured
	@Wavelength 589 nm	@Wavelength 589 nm	
Transmission, Visible	<= 80 %	<= 80 %	Sportral
	@Wavelength 550 nm	@Wavelength 550 nm	Spectral
	<= 95 %	<= 95 %	Spectral
	@Wavelength 800 - 1000 nm	@Wavelength 800 - 1000 nm	
	<= 98 %	<= 98 %	
	@Wavelength 1100 - 1600 nm	@Wavelength 1100 - 1600 nm	Spectral

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.80e+13 ohm-cm	>= 1.80e+13 ohm-cm	
Dielectric Constant	3.17	3.17	
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dissinction Easter	0.0050	0.0050	
@Frequency 1000 Hz	@Frequency 1000 Hz		

Chemical Properties	Metric	English	Comments
Ionic Impurities - K (Potassium)	5.0 ppm	5.0 ppm	

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Chemical Properties	329 npm Metric	329 ppm English	Comments
Processing Properties	Metric	English	Comments
	1.00 min	0.0167 hour	Minimum Bond Line
Cure Time	@Temperature 150 °C	@Temperature 302 °F	
	5.00 min	0.0833 hour	
	@Temperature 120 °C	@Temperature 248 °F	Minimum Bond Line
	10.0 min	0.167 hour	Minimum Dand Line
	@Temperature 100 °C	@Temperature 212 °F	Minimum Bond Line
	30.0 min	0.500 hour	Minimum Rond Line
	@Temperature 80.0 °C	@Temperature 176 °F	Minimum Bond Line
Pot Life	120 min	120 min	
	<= 120 min	<= 120 min	Frozen Syringe
Shelf Life	12.0 Month	12.0 Month	
	@Temperature 25.0 °C	@Temperature 77.0 °F	

Descriptive Properties	Value	Comments
Color	Amber	Gardner <18, Part B
	Clear	Gardner <5, Part A
Consistency	Pourable liquid	
Ionic Impurities NH4	409 ppm	
Mix Ratio By Weight	10:1	
Number of Components	Тwo	
Weight Loss	0.22%	200°C
	0.39%	250°C
	0.87%	300°C

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