

Epoxy Technology EPO-TEK® 353ND Black High Temperature Epoxy

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

Material Notes:

Product Description: EPO TEK® 353ND Black is a two component, high temperature epoxy designed for semiconductor, hybrid, fiber optic, and medical applications. **Advantages & Application Notes:** EPO TEK® 353ND-BLACK has been color-coded black for optical applications requiring opacity against light in IR and VIS region. Reasonable pot-life that allows for low temperature curing to be realized.

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. **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 **Down-Hole petrochemical fiber optic sensors,** resisting >200 C field conditions **Medical suggested applications:** Potting Fiber Optic bundles into SST ferrules for light guides and endoscopes, resisting sterilization cycles of autoclave, ETO, gamma, H2O2 plasma **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** **Information Provided by Epoxy Technology**

Order this product through the following link:

http://www.lookpolymers.com/polymer_Epoxy-Technology-EPO-TEK-353ND-Black-High-Temperature-Epoxy.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.02 g/cc	1.02 g/cc	Part B
	1.22 g/cc	1.22 g/cc	Part A
Viscosity	3000 - 5000 cP	3000 - 5000 cP	50 rpm
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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

Thermal Properties	Metric	English	Comments
CTE, linear	54.0 µm/m-°C	30.0 µin/in-°F	Below Tg
	206 µm/m-°C	114 µin/in-°F	Above Tg
Maximum Service Temperature, Air	225 °C	437 °F	Continuous

Thermal Properties	Metric	English	Comments
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	420 °C	788 °F	Degradation Temperature

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.60e+13 ohm-cm	>= 1.60e+13 ohm-cm	
Dielectric Constant	3.09	3.09	
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dissipation Factor	0.0050	0.0050	
	@Frequency 1000 Hz	@Frequency 1000 Hz	

Chemical Properties	Metric	English	Comments
Ionic Impurities - Na (Sodium)	52 ppm	52 ppm	
Ionic Impurities - K (Potassium)	16 ppm	16 ppm	
Ionic Impurities - Cl (Chloride)	595 ppm	595 ppm	

Processing Properties	Metric	English	Comments
Cure Time	1.00 min	0.0167 hour	Minimum Bond Line
	@Temperature 150 °C	@Temperature 302 °F	
	5.00 min	0.0833 hour	Minimum Bond Line
	@Temperature 120 °C	@Temperature 248 °F	
	10.0 min	0.167 hour	Minimum Bond Line
	@Temperature 100 °C	@Temperature 212 °F	
	30.0 min	0.500 hour	Minimum Bond Line
	@Temperature 80.0 °C	@Temperature 176 °F	
Pot Life	180 - 240 min	180 - 240 min	
Shelf Life	12.0 Month	12.0 Month	
	@Temperature 25.0 °C	@Temperature 77.0 °F	

Descriptive Properties	Value	Comments
Color	Amber	Part B
	Black	Part A
Consistency	Pourable liquid	
Ionic Impurities NH4	1149 ppm	
Mix Ratio By Weight	10:1	
Number of Components	Two	
Weight Loss	0.92%	200°C
	1.24%	250°C
	1.83%	300°C

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