

Date: Apr 2015 **Rev:** XII
No. of Components: Two
Mix Ratio by Weight: 100 : 35
Specific Gravity: Part A: 1.02 Part B: 0.89
Pot Life: 8 Hours
Shelf Life- Bulk: One year at room temperature
Shelf Life- Syringe: Six months at -40°C

Recommended Cure: **80°C / 3 Hours**

Minimum Alternative Cure(s):
may not achieve performance properties below
 23°C / 2 Days

NOTES:

- Container(s) should be kept closed when not in use.
- Filled systems should be stirred thoroughly before mixing and prior to use.
- Performance properties (rheology, conductivity & others) may vary from those stated below when syringe packaging and/or post-processing is required.
- If product crystallizes in storage, place container in warm oven until crystallization disappears. Please refer to Tech Tip #7 on website.

Product Description: EPO-TEK[®] 301-2 is a two component optical, medical and semiconductor grade epoxy resin with low viscosity, long pot-life and good handling characteristics.

Typical Properties: *Cure condition: 80°C/3 Hours *denotes test on lot acceptance basis Data below is not guaranteed. To be used as a guide only, not as a specification. Different batches, conditions & applications yield differing results.*

PHYSICAL PROPERTIES:

* Color (before cure):	Part A: Clear/Colorless Part B: Clear/Colorless		
* Consistency:	Pourable liquid		
* Viscosity (23°C) @ 100 rpm:	225 - 425 cPs		
Thixotropic Index:	N/A		
* Glass Transition Temp:	≥ 80 °C (Dynamic Cure:20-200°C/ISO 25 Min; Ramp -10-200°C @ 20°C/Min)		
Coefficient of Thermal Expansion (CTE):			
Below Tg:	61 x 10 ⁻⁶ in/in°C		
Above Tg:	180 x 10 ⁻⁶ in/in°C		
Shore D Hardness:	80		
Lap Shear @ 23°C:	> 2,000 psi		
Die Shear @ 23°C:	≥ 15 Kg 5,100 psi		
Degradation Temp:	360 °C		
Weight Loss:	@ 200°C	0.01 %	
	@ 250°C	0.46 %	
	@ 300°C	2.19 %	
Suggested Operating Temperature:	< 300 °C (Intermittent)		
Storage Modulus:	298,719 psi		
Ion Content:	Cl:	61 ppm	NA⁺: 104 ppm
	NH₄⁺:	Not detectable	
	K⁺:	Not detectable	
Particle Size:	N/A		

ELECTRICAL AND THERMAL PROPERTIES:

Thermal Conductivity:	N/A W/mK
Volume Resistivity @ 23°C:	≥ 2 X 10 ¹² Ohm-cm
Dielectric Constant (1KHz):	3.80
Dissipation Factor (1KHz):	0.012

OPTICAL PROPERTIES @ 23°C:

Spectral Transmission:	≥ 94% @ 300 nm
	≥ 99% @ 400-1,200 nm
	≥ 98% @ 1,200-1,600 nm
Index of Refraction:	1.5318 @ 589 nm

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EPO-TEK[®] 301-2 Advantages & Suggested Application Notes:

- Suggested for LCD optical lamination and sealing of glass plates. The product can resist yellowing over 17 days of continuous UV light exposure. Suitable for LED encapsulation.
- Ease of use: potting and casting, encapsulation and adhesive.
- Semiconductor applications: underfill for flip chips, glob top encapsulation over wire bonds, spin coating at wafer level including wafer level packaging.
- Compliant adhesive that will be resistant to impact or vibrations. Low stress adhesive for bonding optics inside OEM / Scientific instruments.
- Fiber optic adhesive: bundling fibers, terminating fiber into ferrule, adhesive for mounting optics inside fiber components, bonding glass cover slip over V-groove; spectral transmission of visible and IR light.
- BIOCOMPATIBLE and NON-TOXIC; Complies with ISO 10993 biocompatibility testing and certified for USP Class VI biocompatibility standards.
- Adhesion to glass, quartz, metals, wood and most plastics is very good.
- May also be used for impregnating wooden or porous objects for artifact restoration.
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- NASA approved, low outgassing epoxy – <http://outgassing.nasa.gov/>

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