EPO-TEK® 301-1

Technical Data Sheet
For Reference Only
Spectrally Transparent Epoxy

Date:	July 2019	
Rev:	IV	
No. of Components:	Two	
Mix Ratio by Weight:	20 : 5	
Specific Gravity:	Part A: 1.14	Part B: 0.87
Pot Life:	1 - 2 Hours	
Shelf Life- Bulk:	One year at room temperature	
Shelf Life- Syringe:	Six months at -40°C	

Recommended Cure: 65°C / 2 Hours

Minimum Alternative Cure(s):
May not achieve performance properties below
65°C / 1 Hour
23°C / 24 Hours

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) of the product may vary from those stated on the data sheet when bi-pak/syringe packaging or post-processing of any kind is performed. Epoxy's warranties shall not apply to any products that have been reprocessed or repackaged from Epoxy's delivered status/container into any other containers of any kind, including but not limited to syringes, bi-paks, cartridges, pouches, tubes, capsules, films or other packages.
- Syringe packaging will impact initial viscosity and effective pot life, potentially beyond stated parameters.
- *TOTAL MASS SHOULD NOT EXCEED 25 GRAMS*

Product Description: EPO-TEK® 301-1 is a two component, room temperature curing epoxy featuring very low viscosity and excellent optical and mechanical properties. It is a lower viscosity version of EPO-TEK® 301.

Typical Properties: Cure condition: 65°C / 2 Hours Different batches, conditions & applications yield differing results.
Data below is not guaranteed. To be used as a guide only, not as a specification. * denotes test on lot acceptance basis

PHYSICAL PROPERTIES:			
* Color (before cure):	Part A: Clear/colorless	Part B: Clear/colorless	
* Consistency:	Pourable liquid		
* Viscosity (23°C) @ 100 rpm:	80 - 100	cPs	
Thixotropic Index:	N/A		
* Glass Transition Temp:	≥ 65	°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:	175	x 10^{-6} in/in°C	
Shore D Hardness:	80		
Lap Shear @ 23°C:	1,100	psi	
Die Shear @ 23°C:	≥ 5	Kg	1,778 psi
Degradation Temp:	390	°C	
Weight Loss:			
@ 200°C:	0.44	%	
@ 250°C:	0.84	%	
@ 300°C:	1.59	%	
Suggested Operating Temperature:	< 300	°C (Intermittent)	
Storage Modulus:	224,700	psi	
Particle Size:	N/A		

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	N/A	
Volume Resistivity @ 23°C:	≥ 3 x 10^{13}	Ohm-cm
Dielectric Constant (1KHz):	4.26	
Dissipation Factor (1KHz):	0.021	

OPTICAL PROPERTIES @ 23°C:		
Spectral Transmission:	> 97% @ 400-1400	nm
	> 92% @ 1400-1600	nm
Refractive Index:	1.5168 @589	nm

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EPO-TEK® 301-1 Advantages & Suggested Application Notes:

- Semiconductor: optical encapsulation as the fill in a dam and fill or as a capillary wicking underfill.

  ○ Great adhesion to glass, metals, solder masks, flexible circuits, ceramic PCBs, and many engineering plastics

- PCB: general potting and protection

- Fiber Optic:
  ○ Strong adhesion to glass and plastic fiber optics. Used to wick into fiber bundles such as patch cords, endoscopes, and sensor devices.

  ○ Seals fiber packaging as well as including in the active pathway as it offers transmission up to 2500 nm.

  ○ Used in terminating fibers into ferrules as well as in fiber coupling and splicing.

- Opto-electronic:
  ○ Optically clear material used in both the active light path as well as general protection. Used as both a low viscosity potting as well as a sealing and encapsulation material. Very low yellowing and shrinkage optimal for precision optics such as prisms, beam splitter cubes, mirrors, and diodes.

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