EPO-TEK® 301-2

Technical Data Sheet

Optically Transparent Epoxy

Date:	February 2021
Rev:	XVIII
No. of Components:	Two
Mix Ratio by Weight:	100 : 35
Specific Gravity:	Part A: 1.15 Part B: 0.95
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):	23°C / 48 Hours (May not achieve performance properties listed below)

Product Description:

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

Typical Properties:

Cure condition: 80°C / 3 Hours
Different batches, conditions, and applications yield differing results.

Data below is not guaranteed. To be used as a guide only, not as a specification.

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.
- If product crystalizes in storage, place container in warm oven until crystallization disappears. Please refer to Tech Tip #7 on website

*****denotes test on lot acceptance basis.

Physical Properties	Details
*** 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 (5,334 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:	432,279 psi
Ion Content	Cl^-: 61 ppm, Na^+: 104 ppm, NH_4^+: ND, K^+: ND
Particle Size	N/A

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Electrical & Thermal Properties	Details
Thermal Conductivity	N/A
Volume Resistivity @ 23°C	≥ 2 x 10^{12} Ohm-cm
Dielectric Constant (1KHz)	3.80
Dissipation Factor (1KHz)	0.012

Optical Properties @23°C	Details
Spectral Transmission:	≥ 94% @ 320 nm
	≥ 99% @ 400-1,200 nm
Refractive Index:	≥ 98% @ 1,200-1,600 nm
	1.5318 @ 589 nm

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.
- 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.
- NASA approved, low outgassing epoxy – http://outgassing.nasa.gov/

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