**EPO-TEK® 301-2FL**

Technical Data Sheet

For Reference Only

Low Stress, Optical Epoxy

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**Date:** April 2020  
**Recommended Cure:** 80°C / 3 Hours  
**Rev:** IX  
**No. of Components:** Two  
**Mix Ratio by Weight:** 100 : 35  
**Specific Gravity:** Part A: 1.15  
**Minimum Alternative Cure(s):**  
**Part B: 0.95**  
**23°C / 3 Days**  
**Pot Life:** 10 Hours  
**Shelf Life- Bulk:** One year at room temperature

**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 crystallizes in storage, place container in warm oven until crystallization disappears. Please refer to Tech Tip #7 on website.

**Product Description:** EPO-TEK® 301-2FL is a two component optical and semiconductor grade epoxy resin. It is a more flexible version of EPO-TEK® 301-2.

**Typical Properties:** Cure condition: 80°C / 3 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:** | 100 - 200 cPs |  
| **Thixotropic Index:** | N/A |  
| **Glass Transition Temp:** | ≥ 45°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min) |  
| **Coefficient of Thermal Expansion (CTE):** | Below Tg: 56 x 10^-6 in/in°C | Above Tg: 211 x 10^-6 in/in°C |  
| **Suggested Operating Temperature:** | < 250°C (Intermittent) |  
| **Storage Modulus:** | 318,685 psi |  
| **Ion Content:** | Cl-: 105 ppm  
| **Na+: 58 ppm** |  
| **NH4+: 8 ppm** |  
| **K+: 19 ppm** |  
| **Particle Size:** | N/A |  
| **Temperature:** |  
| **Weight Loss:** | @ 200°C: 0.50% |  
| **@ 250°C:** | 0.96% |  
| **@ 300°C:** | 3.52% |  
| **Degradation Temp:** | 325°C |  

**ELECTRICAL AND THERMAL PROPERTIES:**  
**Thermal Conductivity:** N/A  
**Volume Resistivity @ 23°C:** ≥ 0.6 x 10¹² Ohm-cm  
**Dielectric Constant (1KHz):** 3.54  
**Dissipation Factor (1KHz):** 0.013

**OPTICAL PROPERTIES @ 23°C:**  
**Spectral Transmission:** ≥ 97% @ 1,000-1,600 nm  
**@ 99% @ 400-1,000 nm**  
**Refractive Index:** 1.5102 @ 589 nm
**EPO-TEK® 301-2FL 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.

- 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.

- Capable of both heat cure and room temperature cure.