# EPO-TEK® 301

**Technical Data Sheet**
**For Reference Only**
*Spectrally Transparent Epoxy*

| | | |
|---|---|---|
| **Date:** | October 2019 | |
| **Rev:** | XII | |
| **No. of Components:** | Two | |
| **Mix Ratio by Weight:** | 20 : 5 | |
| **Specific Gravity:** | Part A: 1.15 | Part B: 0.87 |
| **Pot Life:** | 1-2 Hours | |
| **Shelf Life- Bulk:** | One year at room temperature | |

**Recommended Cure: 65°C / 2 Hours**

Minimum Alternative Cure(s):
*May not achieve performance properties listed 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 is a two component, room temperature curing epoxy featuring very low viscosity, and excellent optical-mechanical properties.

**Typical Properties:** Cure condition: Varies as required  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: | ≥ 65 | °C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min) | |
| Coefficient of Thermal Expansion (CTE): | | | |
| Below Tg: | 39 | x $10^{-6}$ in/in°C | |
| Above Tg: | 98 | x $10^{-6}$ in/in°C | |
| Shore D Hardness: | 85 | | |
| Lap Shear @ 23°C: | > 2,000 | psi | |
| Die Shear @ 23°C: | ≥ 10 | Kg | 3,556 psi |
| Degradation Temp: | 430 | °C | |
| Weight Loss: | | | |
| @ 200°C: | 0.12 | % | |
| @ 250°C: | 0.13 | % | |
| @ 300°C: | 0.39 | % | |
| Suggested Operating Temperature: | < 300 | °C (Intermittent) | |
| Storage Modulus: | 436,249 | psi | |
| * Particle Size: | N/A | | |

| ELECTRICAL AND THERMAL PROPERTIES: | | |
|---|---|---|
| Thermal Conductivity: | N/A | |
| Volume Resistivity @ 23°C: | ≥ 1 x $10^{13}$ | Ohm-cm |
| Dielectric Constant (1KHz): | 4.00 | |
| Dissipation Factor (1KHz): | 0.016 | |

| OPTICAL PROPERTIES @ 23°C: | | |
|---|---|---|
| Spectral Transmission: | ≥ 99% @ 382-980 | nm |
| | ≥ 97% @ 980-1,640 | nm |
| | ≥ 95% @ 1,640-2,040 | nm |
| Refractive Index: | 1.519 @ 589 | nm |



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

- Semiconductor: optical glob top or underfill; adhesion to common wafer passivation, solder mask and flex circuits; compatible with LED die, Si, GaAs.
- PCB: general potting and protection over FR4, flex, or ceramic PCBs.
- Fiber Optic:
  - Adhesive for glass and plastic fibers; wicking into fiber bundles used in patch cords, endoscopes or sensor devices; adhesive/seal/encapsulant used for fiber packaging and components; transmission of IR up to 2500 nm; terminating fibers into ferrules; fiber coupling and splicing.
- Opto-electronic:
  - LCD/LED adhesive for laminating glass layers; adhesion to PET plastic; general potting, encapsulation, and protection; spectral transmission in VIS and IR light; adhesive/encapsulant for VCSEL's packaged devices; resisting yellowing per ASTM D1925; adhesive for precision optics including lens, prism, beam splitter cubes, mirrors, and diodes, found in medical, university, or research communities.
- NASA approved, low outgassing epoxy - http://outgassing.nasa.gov/



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