

|                       |                               |                                   |         |
|-----------------------|-------------------------------|-----------------------------------|---------|
| Number of Components: | Two                           | Minimum Bond Line Cure Schedule*: |         |
| Mix Ratio By Weight:  | 100:35                        | 80°C                              | 3 Hours |
| Specific Gravity:     |                               | 23°C                              | 3 Days  |
| Part A                | 1.06                          |                                   |         |
| Part B                | 0.89                          |                                   |         |
| Pot Life:             | 10 Hours                      |                                   |         |
| Shelf Life:           | One year at room temperature. |                                   |         |

Note: Container(s) should be kept closed when not in use. \*Please see Applications Note available on our website.

-IF PART A CRYSTALLIZES IN STORAGE, PLACE CONTAINER IN A WARM OVEN UNTIL CRYSTALLIZATION DISAPPEARS. ALLOW TO COOL TO ROOM TEMPERATURE BEFORE MIXING WITH THE PART B HARDENER \*Please refer to Tech Tip #7 on our website --

### Product Description:

EPO-TEK<sup>®</sup> 301-2FL is a two component optical, medical, and semiconductor grade epoxy resin. It is a more flexible version of EPO-TEK<sup>®</sup> 301-2.

### EPO-TEK<sup>®</sup> 301-2FL Advantages & 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.
- BIOCOMPATIBLE and NON-TOXIC; complies with USP Class VI biocompatibility standards for medical devices and implantation applications.
- 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.

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

| Physical Properties:  |   |
|---|---|
| *Color: Part A: Clear/Colorless Part B: Clear/Colorless   | Weight Loss:  |
| *Consistency: Pourable Liquid   | @ 200°C: 0.50%                                      |
| *Viscosity (@ 100 RPM/23°C): 100 – 200 cPs  | @ 250°C: 0.96%                                      |
| Thixotropic Index: N/A  | @ 300°C: 3.52%                                      |
| *Glass Transition Temp.(Tg): ≥ 45°C (Dynamic Cure<br>20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min) | Operating Temp:                                     |
| Coefficient of Thermal Expansion (CTE):   | Continuous: - 55°C to 150°C                         |
| Below Tg: 56 x 10 <sup>-6</sup> in/in/°C  | Intermittent: - 55°C to 250°C                       |
| Above Tg: 211 x 10 <sup>-6</sup> in/in/°C   | Storage Modulus @ 23°C: 152,946 psi                 |
| Shore D Hardness: 70  | Ions: Cl <sup>-</sup> 105 ppm                       |
| Lap Shear Strength @ 23°C: > 2,000 psi  | Na <sup>+</sup> 58 ppm                              |
| Die Shear Strength @ 23°C: ≥ 10 Kg / 3,400 psi  | NH <sub>4</sub> <sup>+</sup> 8 ppm                  |
| Degradation Temp. (TGA): 325°C  | K <sup>+</sup> 19 ppm                               |
|   | Particle Size: N/A                                  |
| Optical Properties @ 23°C:  |   |
| Refractive Index @ 23°C (uncured): 1.5115 @ 589 nm  | Spectral Transmission: > 97% @ 1000 – 1600 nm       |
|   | > 99% @ 400 – 1000 nm                               |
| Electrical & Thermal Properties:  |   |
| Thermal Conductivity: N/A   | Volume Resistivity: ≥ 0.6 x 10 <sup>12</sup> Ohm-cm |
| Dielectric Constant (1 KHz): 3.54   | Dissipation Factor (1 KHz): 0.013                   |

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