

## Product Information Sheet

### EPO-TEK<sup>®</sup> U300-2

Date: Nov 2015

Rev: X

**Material Description:**

A two component epoxy designed for capillary underfill of semiconductor chips and SMDs. Long pot-life, high Tg, and optical clarity are a few of its traits. NASA approved low outgassing epoxy (<http://outgassing.nasa.gov>) suitable for electronic applications such as smart cards, RFIDs, medical implants and wafer level camera optics.

**Number of Components:** Two

**Mix Ratio by Weight:** 10 : 1

**Recommended Cure:** 150°C/1 Hour

**Specific Gravity:** Part A; 1.20 Part B: 1.10

**Pot Life:** 2 Days

**Shelf Life- Bulk:** One year at room temperature

**Shelf Life- Syringe:** One year at -40°C

Minimum Alternative Cure(s):  
*may not achieve performance properties below:*  
 120°C / 90 Minutes  
 80°C / 3 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) may vary from those stated below when syringe packaging and/or post-processing is required.
- **TOTAL MASS SHOULD NOT EXCEED 25 GRAMS**

**MATERIAL CHARACTERISTICS:** Cure condition: 150°C/ \*Testing on lot acceptance basis Data below is not guaranteed.

*To be used as a guide only, not as a specification. Different batches, conditions and applications yield differing results.*

**PHYSICAL PROPERTIES:**

<b>* Color (before cure):</b>	Part A: Clear/Colorless Part B: Amber		
<b>* Consistency:</b>	Pourable liquid		
<b>* Viscosity (23°C) @ 20 rpm:</b>	3,700 - 6,700 cPs		
<b>Thixotropic Index:</b>	N/A		
<b>* Glass Transition Temp:</b>	≥ 115 °C (Dynamic Cure:20-200°C/ISO 25 Min; Ramp -10-200°C @ 20°C/Min)		
<b>Coefficient of Thermal Expansion (CTE):</b>			
<b>Below Tg:</b>	55 x 10 <sup>-6</sup> in/in°C		
<b>Above Tg:</b>	184 x 10 <sup>-6</sup> in/in°C		
<b>Shore D Hardness:</b>	80		
<b>Lap Shear @ 23°C:</b>	1568 psi		
<b>Die Shear @ 23°C:</b>	≥ 20 Kg	6,800 psi	
<b>Degradation Temp:</b>	425 °C		
<b>Weight Loss:</b>	<b>@ 200°C</b>	< 0.05 %	
	<b>@ 250°C</b>	< 0.05 %	
	<b>@ 300°C</b>	0.15 %	
<b>Suggested Operating Temperature:</b>	325 °C (Intermittent)		
<b>Storage Modulus:</b>	268,482 psi		
<b>Ion Content:</b>	<b>Cl:</b>	100 ppm	<b>NA<sup>+</sup>:</b> 14 ppm
	<b>NH<sub>4</sub><sup>+</sup>:</b>	274 ppm	<b>K<sup>+</sup>:</b> 6 ppm
<b>* Particle Size:</b>	N/A		

**ELECTRICAL AND THERMAL PROPERTIES:**

<b>Thermal Conductivity:</b>	N/A
<b>Volume Resistivity @ 23°C:</b>	≥ 3 x 10 <sup>13</sup> Ohm-cm
<b>Dielectric Constant (1KHz):</b>	3.04
<b>Dissipation Factor (1KHz):</b>	0.011

**OPTICAL PROPERTIES @ 23°C:**

<b>Spectral Transmission:</b>	≥ 97% @ 600 - 2,100 nm
<b>Refractive Index (uncured):</b>	1.5746 @ 589 nm

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