

**Date:** February 2021  
**Rev:** XII  
**No. of Components:** Two  
**Mix Ratio by Weight:** 10 : 1  
**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

**Recommended Cure: 150°C / 1 Hour**

Minimum Alternative Cure(s):  
*May not achieve performance properties listed 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) 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.
- **TOTAL MASS SHOULD NOT EXCEED 25 GRAMS**

**Product 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, and wafer level camera optics.

**Typical Properties:** Cure condition: 150°C / 1 Hour 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: Amber  |
| * Consistency:                          | Pourable liquid                        |  |
| * Viscosity (23°C) @ 20 rpm:            | 3,700 - 6,700                          | cPs  |
| Thixotropic Index:                      | N/A                                    |  |
| * Glass Transition Temp:                | ≥ 115                                  | °C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min) |
| Coefficient of Thermal Expansion (CTE): |  |  |
| Below Tg:                               | 55                                     | x 10 <sup>-6</sup> in/in°C                                       |
| Above Tg:                               | 184                                    | x 10 <sup>-6</sup> in/in°C                                       |
| Shore D Hardness:                       | 80                                     |  |
| Lap Shear @ 23°C:                       | 1,568                                  | psi  |
| Die Shear @ 23°C:                       | ≥ 20                                   | Kg 7,112 psi   |
| Degradation Temp:                       | 425                                    | °C   |
| Weight Loss:                            |  |  |
| @ 200°C:                                | < 0.05                                 | %  |
| @ 250°C:                                | < 0.05                                 | %  |
| @ 300°C:                                | 0.15                                   | %  |
| Suggested Operating Temperature:        | < 325                                  | °C (Intermittent)  |
| Storage Modulus:                        | 268,482                                | psi  |
| Ion Content:                            | Cl <sup>-</sup> : 100 ppm              | Na <sup>+</sup> : 14 ppm   |
|   | NH <sub>4</sub> <sup>+</sup> : 274 ppm | K <sup>+</sup> : 6 ppm   |
| * Particle Size:                        | N/A                                    |  |

### ELECTRICAL AND THERMAL PROPERTIES:

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

### OPTICAL PROPERTIES @ 23°C:

|                             |                  |    |
|-----------------------------|------------------|----|
| Spectral Transmission:      | > 97% @ 600-2100 | nm |
| Refractive Index (uncured): | 1.5746 @ 589     | nm |

**This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.**

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