



# STABLCOR®

**ST325-EP450-0.008****TYPICAL ENGINEERING VALUES**

| Property / Condition                                 | Sample Thickness      | Value (U.S. Units)      | Value (Metric Units)          | Test Method                          |
|--|-----------------------|-------------------------|-------------------------------|--------------------------------------|
| <b>Mechanical</b>                                    |                       |                         |                               |                                      |
| <b>Peel Strength - Standard profile 1 oz. copper</b> |                       |                         |                               |                                      |
| a. After Thermal Stress (Solder Float)               | .20 mm<br>(0.008 in)  | 4.0 lb/inch minimum     | 0.72N/mm minimum              | IPC-TM-650.2.4.8                     |
| b. At 170C (338F) temp.                              |                       | 4.0 lb/inch minimum     | 0.72N/mm minimum              | IPC-TM-650.2.4.8 / 2.4.8.2 / 2.4.8.3 |
| b. At 125C (257F) temp.                              |                       | 4.0 lb/inch minimum     | 0.72N/mm minimum              | IPC-TM-650.2.4.8 / 2.4.8.2 / 2.4.8.3 |
| c. After process solutions                           |                       | 4.0 lb/inch minimum     | 0.72N/mm minimum              | IPC-TM-650.2.4.8                     |
| X - CTE  | 0.61 mm               | 0 - 3 ppm/C             |                               | Surface Strain Gauge                 |
| Y - CTE  | (0.024 in)            | 0 - 3 ppm/C             |                               | Surface Strain Gauge                 |
| <b>Z - CTE</b>                                       |                       |                         |                               |                                      |
| Below Glass Transition                               | 0.61 mm               | 25-40ppm/C              |                               | IPC-TM-650.2.4.24                    |
| Above Glass Transition                               | (0.024 in)            | 195ppm/C                |                               | IPC-TM-650.2.4.24                    |
| <b>Flexural Strength</b>                             |                       |                         |                               |                                      |
| a. Lengthwise Direction                              | 0.56 mm               | 75kpsi minimum          | 500 N/mm <sup>2</sup> minimum | IPC-TM-650-2.4.4                     |
| b. Crosswise Direction                               | (0.022 in)            | 75kpsi minimum          | 500 N/mm <sup>2</sup> minimum | IPC-TM-650-2.4.4                     |
| <b>Thermal</b>                                       |                       |                         |                               |                                      |
| <b>Glass Transition Temperature</b>                  |                       |                         |                               |                                      |
| by DSC   | 0.61 mm<br>(0.024 in) | Not Detectable          |                               | IPC-TM-650.2.4.25c                   |
| by TMA   | 0.61 mm<br>(0.024 in) | 225°C                   |                               | IPC-TM-650.2.4.25c                   |
| Decomposition Temperature (Td) at 5% Wt. loss        | 0.61 mm<br>(0.024 in) | 310°C                   |                               | ASTM D3850                           |
| Pressure Vessel                                      | .61 mm<br>(0.024 in)  | Level 4                 |                               | IPC-TM-650.2.6.16                    |
| <b>Chemical / Physical</b>                           |                       |                         |                               |                                      |
| Moisture Absorption                                  | .56 mm<br>(0.022 in)  | 0.74%                   |                               | IPC-TM-650.2.6.2.1                   |
| Chemical Resistance                                  | .20 mm<br>(0.008 in)  | 0.27%                   |                               | IPC-TM-650.2.3.4.3                   |
| Density (g/cc)                                       | .20 mm<br>(0.008 in)  | 1.59                    |                               | TBD                                  |
| Flammability   | .20 mm<br>(0.008 in)  | 94V-0                   |                               | UL94                                 |
| Outgassing (CVCm<0.1% and TML<=1.0%)                 | .61 mm                | CVCm=0.019%, TML=0.392% |                               | ASTM E-595-93                        |
| Water Vapor Regain (%WVR)                            | (0.024 in)            | 0.29%                   |                               | ASTM E-595-93                        |
| <b>Electrical</b>                                    |                       |                         |                               |                                      |
| <b>Volume Resistivity (UnClad Samples)</b>           |                       |                         |                               |                                      |
| After 48hrs Laboratory Conditions (23C/50%RH)        | .20 mm                | 1.25E+09 MegOhms-cm     |                               | IPC-TM-650.2.5.17.1                  |
| After Temperature/Humidity (35C/90%RH)               | (0.008 in)            | 9.15E+08 MegOhms-cm     |                               | IPC-TM-650.2.5.17.1                  |
| <b>Surface Resistivity (UnClad Samples)</b>          |                       |                         |                               |                                      |
| After 48hrs Laboratory Conditions (23C/50%RH)        | .20 mm                | 2.07E+07 MegOhms        |                               | IPC-TM-650.2.5.17.1                  |
| After Temperature/Humidity (35C/90%RH)               | (0.008 in)            | 1.94E+07 MegOhms        |                               | IPC-TM-650.2.5.17.1                  |
| Electric Strength                                    | 0.61 mm               | n/a                     |                               | IPC-TM-650.2.5.6.2; ASTM-D-149       |
| Dielectric Breakdown                                 | (0.024 in)            | n/a                     |                               | ASTM-D-299                           |
| Permittivity at 1Mhz, maximum                        |                       | n/a                     |                               | IPC-TM-650.2.5.5.2                   |
| <b>Thermal Stress, 10 seconds at 288°C</b>           |                       |                         |                               |                                      |
| A. Unetched  | 0.61 mm               | PASS                    |                               | IPC-TM-650.2.4.13.1                  |
| B. Etched  | (0.024 in)            | PASS                    |                               | IPC-TM-650.2.4.13.1                  |

| STANDARD Core THICKNESS                 | STANDARD PANEL SIZE      | STANDARD COPPER CLADDING   |
|---|--------------------------|--|
| <b>ST325-EP450:</b><br>0.008" (0.229mm) | 18" X 24" (457 X 610 mm) | 1/2 OZ. (17uM) Electrodeposited Copper Foil<br>1.0 OZ. (35uM) Electrodeposited Copper Foil |

The Information provided in this data sheet represents general typical values obtained under certain test conditions and is not a specific representations of values for any specific or intended application. The value provided does not constitute a warranty or guarantee of performance of Stablcor® in a particular application or that the results shown on this data sheet will be achieved by a user for a particular purpose. The user should determine the suitability of STABLCOR material for each application. Carbon Core Laminates reserves the right to amend and change the general typical values provided based on different testing conditions and /or techniques. Carbon Core Laminates can be contacted at **Ph: (800) 520-2830**. To obtain detailed validation results, please send inquires to Engineering@stablcor.com