

Typical Properties of Laminates

| | Paper Phenolic XX | Paper Phenolic XXX | Canvas Phenolic C | Canvas Phenolic CE | Linen Phenolic L | Linen Phenolic LE | Glass Epoxy FR4 | Glass Epoxy G10 |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------------------|---------------------------|
| Military/Fed Spec | Mil-I-24768/11 Type PBG | Mil-I-24768/10 Type PBE | Mil-I-24768/16 Type FBM | Mil-I-24768/14 Type FBG | Mil-I-24768/15 Type FBI | Mil-I-24768/13 Type FBE | Mil-I-24768/27 Type GEE-F | Mil-I-24768/2 Type GEE |
| Specific Gravity | 1.35 | 1.38 | 1.35 | 1.37 | 1.34 | 1.34 | 1.85 | 1.8 |
| Tensile Strength | 17,000 psi | 13,000 psi | 11,200 psi | 10,000 psi | 14,000 psi | 13,000 psi | 38,000 psi | 40,000 psi |
| Compressive Strength | 35,000 psi | 35,000 psi | 37,000 psi | 36,000 psi | 35,000 psi | 36,000 psi | 63,000 psi | 65,000 psi |
| Flexural Strength | 34,000 psi | 22,000 psi | 22,000 psi | 17,000 psi | 23,000 psi | 18,000 psi | 70,000 psi | 75,000 psi |
| Hardness, M Scale | 120 | 101 | 103 | 100 | 105 | 100 | 115 | 110 |
| Bond Strength | 1,500 psi | 1,200 psi | 2,000 psi | 1,900 psi | 1,700 psi | 1,900 psi | 2,300 psi | 2,200 psi |
| Shear Strength | 11,500 psi | 12,800 psi | 14,000 psi | 14,000 psi | 13,500 psi | 13,500 psi | 21,500 psi | 19,000 psi |
| Dissipation Factor 10 ⁶ cycles, Cond A | 0.040 | 0.035 | - | 0.048 | - | 0.065 | 0.032 | 0.020 |
| Dielectric Constant 10 ⁶ cycles, Cond A | 5.30 | 5.10 | - | 5.50 | - | 5.70 | 4.80 | 5.00 |
| Electri Strength V/Mil Cond A | 750 | 700 | - | 550 | - | 625 | 800 | 800 |
| Flammability Rating | 94HB | 94HB | 94HB | 94HB | 94HB | 94HB | 94V-O | 94HB |
| Max Operating Temp. °C | 140 | 140 | 125 | 125 | 125 | 125 | 140 | 140 |
| Coefficient Thermal Exp. in/in/°C x 10 ⁻⁵ | 1.20 | 1.50 | 1.10 | 2.00 | 1.04 | 1.80 | 1.00 | 1.00 |
| Water Absorption % - 24 hrs | 2.00 | 0.57 | 1.60 | 2.00 | 1.40 | 1.90 | 0.10 | 0.11 |
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