

Iten Industries

Politen® ESP220 Performance Values

| <u>Properties</u> | <u>Test Condition</u> | <u>ASTM</u> | <u>Values</u> | <u>Values</u> | <u>Values</u> | <u>Values</u> | <u>Values</u> |
|----------------------------------|------------------------|-------------|---------------------------------|-----------------|-----------------|-----------------|-----------------|
| Thickness | | | .031 inches | .062 inches | .125 inches | .187 inches | .500 inches |
| Tensile Strength: | Lengthwise | D638 | 10,900 psi | 16,300 psi | 16,400 psi | 16,500 psi | |
| | Crosswise | | 8,300 psi | 10,600 psi | 14,400 psi | 13,500 psi | |
| Flexural Strength: | Condition A Lengthwise | D790 | 36,600 psi | 38,600 psi | 32,200 psi | 27,700 psi | 30,100 psi |
| | Condition A Crosswise | | 22,400 psi | 30,400 psi | 30,500 psi | 26,800 psi | 25,800 psi |
| | D48/50 Lengthwise | | 27,600 psi | 30,400 psi | 29,400 psi | 27,100 psi | 26,400 psi |
| | D48/50 Crosswise | | 19,900 psi | 24,600 psi | 27,400 psi | 26,500 psi | 24,100 psi |
| Compressive Strength: | Lengthwise | D695 | n.a. | 11,800 psi | 26,500 psi | 22,400 psi | 30,100 psi |
| | Crosswise | | n.a. | 10,500psi | 22,000 psi | 21,600 psi | 25,800 psi |
| | Flatwise | | n.a. | n.a. | 45,000+ psi | 45,000+ psi | 32,500 psi |
| Izod Impact (notched): | Condition A Lengthwise | D256 | n.a. | 20.2 ft.lb./in. | 18.6 ft.lb./in. | 21.0 ft.lb./in. | 22.1 ft.lb./in. |
| | Condition A Crosswise | | n.a. | 14.9 ft.lb./in. | 16.5 ft.lb./in. | 17.6 ft.lb./in. | 20.4 ft.lb./in. |
| | D48/50 Lengthwise | | n.a. | 18.2 ft.lb./in. | 16.8 ft.lb./in. | 18.8 ft.lb./in. | 20.7 ft.lb./in. |
| | D48/50 Crosswise | | n.a. | 14.3 ft.lb./in. | 15.4 ft.lb./in. | 16.7 ft.lb./in. | 19.5 ft.lb./in. |
| | E48/50 Lengthwise | | n.a. | 22.3 ft.lb./in. | 19.1 ft.lb./in. | 22.1 ft.lb./in. | 22.5 ft.lb./in. |
| | E48/50 Crosswise | | n.a. | 14.2 ft.lb./in. | 18.2 ft.lb./in. | 20.9 ft.lb./in. | 19.9 ft.lb./in. |
| Shear Strength: | Condition A E24/250 | D739 | 11,100 psi | 14,200 psi | 14,900 psi | 15,300 psi | 14,200 psi |
| Water Absorption | | D570 | .54% of weight | .37% of weight | .27% of weight | .21% of weight | .11% of weight |
| Specific Gravity | | D792 | 1.74 | 1.81 | 1.71 | 1.71 | 1.73 |
| U.L. Subject 94 | | UL94 | 94HB | 94HB | 94HB | 94HB | 94HB |
| Dielectric Strength | In Air | D149 | 592 Vpm | | | | |
| | In Oil | | | 564 Vpm | 440 Vpm | 307 Vpm | |
| Dielectric Breakdown: | Condition A | D149 | 52 kV | 57 kV | 63 kV | 62 kV | 44 kV |
| | D48/50 | | 12 kV | 14 kV | 13 kV | 17 kV | 33 kV |
| Arc Resistance: | Condition A | D495 | 127 seconds | 136 seconds | 136 seconds | 144 seconds | 146 seconds |
| | D48/50 | | 131 seconds | 131 seconds | 132 seconds | 132 seconds | 136 seconds |
| Permittivity, 1MHz: | Condition A | D150 | 3.31 | 4.08 | 4.02 | 4.19 | |
| | D24/23 | | 5.01 | 5.04 | 4.40 | 4.54 | |
| Dissipation Factor, 1MHz: | Condition A | D150 | .025 | .031 | .020 | .024 | |
| | D24/23 | | .088 | .070 | .048 | .048 | |
| Permittivity, 1KHz: | Condition A | D150 | 3.90 | 4.95 | 4.70 | 4.97 | |
| | D24/23 | | 7.44 | 7.10 | 6.00 | 6.59 | |
| Dissipation Factor, 1KHz: | Condition A | D150 | .046 | .053 | .049 | .059 | |
| | D24/23 | | .134 | .125 | .154 | .232 | |
| Permittivity, 60 Hz: | Condition A | D257 | 4.27 | 5.47 | 5.18 | 5.47 | |
| | D24/23 | | 11.1 | 9.34 | 8.33 | 12.36 | |
| Dissipation Factor, 60 Hz: | Condition A | D257 | .055 | .059 | .053 | .050 | |
| | D24/23 | | .268 | .303 | .376 | .530 | |
| U.L. Temperature Index: | Electrical | | 210° C | 210° C | 210° C | 210° C | 210° C |
| | Mechanical | | 210° C | 210° C | 210° C | 210° C | 210° C |
| Thermal Conductivity | | | 2.0 Btu-in/hour- square foot-°F | | | | |
| Coefficient of Thermal Expansion | | | .7 in/in/°C-10 ⁻⁵ . | | | | |
| Halogen Content | | | 0% | 0% | 0% | 0% | 0% |

ESP220 was formerly know as ESP

Dimensional changes of .187" thick material after 24 hours in an oven at 250° C are as follows:

Weight 2.07% Thickness .54% Length .09% Width .08%

Standard Sheet sizes are 36" x 72", 48" x 72", & 49" x 97"

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All values are average test results from typical production material. No warranty is implied or guaranteed and testing is recommended for each application.

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