

Arlon DiClad 522/527 PTFE/Woven Fiberglass Laminates

Category : Polymer , Thermoplastic , Fluoropolymer , PTFE

Material Notes:

DiClad 522 and DiClad 527 use a higher fiberglass/PTFE ratio to provide mechanical properties approaching conventional substrates. Extremely Low Loss Tangent Excellent Dimensional Stability Product Performance Uniformity Benefits: Electrical Properties are highly uniform across frequency Consistent Mechanical Performance Excellent Chemical Resistance Typical Applications: Military Radar Feed Networks Commercial Phased Array Networks Low Loss Base Station Antennas Missile Guidance Systems Digital Radio Antennas Filters, Couplers, LNAs Information provided by Arlon Materials for Electronics (MED).

Order this product through the following link:

http://www.lookpolymers.com/polymer_Arlon-DiClad-522527-PTFEWoven-Fiberglass-Laminates.php

Physical Properties	Metric	English	Comments
Density	2.31 g/cc	0.0835 lb/in ³	ASTM D792 Method A
Water Absorption	0.030 %	0.030 %	IPC TM-650 2.6.2.2
Outgassing - Total Mass Loss	0.00 % @Pressure <= 1.33e-10 MPa, Temperature 125 °C	0.00 % @Pressure <= 1.93e-8 psi, Temperature 257 °F	Collected Volatiles; NASA SP-R-0022A
	0.010 % @Pressure <= 1.33e-10 MPa, Temperature 125 °C	0.010 % @Pressure <= 1.93e-8 psi, Temperature 257 °F	Water Vapor Recovered; NASA SP-R-0022A
	0.020 % @Pressure <= 1.33e-10 MPa, Temperature 125 °C	0.020 % @Pressure <= 1.93e-8 psi, Temperature 257 °F	NASA SP-R-0022A

Mechanical Properties	Metric	English	Comments
Tensile Strength	103 MPa	15000 psi	Cross; ASTM D882
	131 MPa	19000 psi	Machine; ASTM D882
Modulus of Elasticity	3.56 GPa	517 ksi	Cross; ASTM D638
	4.87 GPa	706 ksi	Machine; ASTM D638
Flexural Modulus	>= 3.70 GPa	>= 537 ksi	ASTM D790
Compressive Modulus	2.48 GPa	359 ksi	ASTM D695
Peel Strength	2.45 kN/m	14.0 pli	After Thermal Stress; IPC TM-650 2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	14.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	7.78 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	x direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
	21.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	11.7 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	y direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
CTE, linear, Transverse to Flow	173 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	96.1 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	z direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 $^{\circ}\text{C}$	@Temperature 32.0 - 212 $^{\circ}\text{F}$	
Thermal Conductivity	0.254 W/m-K	1.76 BTU-in/hr-ft ² - $^{\circ}\text{F}$	ASTM E1225
	@Temperature 100 $^{\circ}\text{C}$	@Temperature 212 $^{\circ}\text{F}$	
Flammability, UL94	V-0	V-0	Vertical Burn

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.20e+15 ohm-cm	1.20e+15 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
Surface Resistance	4.50e+13 ohm	4.50e+13 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	2.4 - 2.65	2.4 - 2.65	C23/50; IPC TM-650 2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	2.4 - 2.65	2.4 - 2.65	C23/50; IPC TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Dielectric Breakdown	≥ 45000 V	≥ 45000 V	D48/50; ASTM D149
Dissipation Factor	0.0010	0.0010	C23/50; IPC TM-650 2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.0018	0.0018	C23/50; IPC TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Arc Resistance	≥ 180 sec	≥ 180 sec	D48/50; ASTM D495

Descriptive Properties	Value	Comments
Temperature Coefficient of Dielectric (ppm/ $^{\circ}\text{C}$)	-153	IPC TM-650 2.5.5.5 (-10 - 140 $^{\circ}\text{C}$)

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