

Arlon DiClad 870 PTFE/Woven Fiberglass Laminate

Category : Polymer , Thermoplastic , Fluoropolymer , PTFE

Material Notes:

Extremely Low Loss TangentExcellent Dimensional StabilityProduct Performance UniformityBenefits:Electrical Properties are highly uniform across frequencyConsistent Mechanical PerformanceExcellent Chemical ResistanceTypical Applications:Military Radar Feed NetworksCommercial Phased Array NetworksLow Loss Base Station AntennasMissile Guidance SystemsDigital Radio AntennasFilters, Couplers, LNAsInformation provided by Arlon Materials for Electronics (MED).

Order this product through the following link:

http://www.lookpolymers.com/polymer_Arlon-DiClad-870-PTFEWoven-Fiberglass-Laminate.php

Physical Properties	Metric	English	Comments
Density	2.26 g/cc	0.0816 lb/in ³	ASTM D792 Method A
Water Absorption	0.020 %	0.020 %	IPC TM-650 2.6.2.2
Outgassing - Total Mass Loss	0.00 %	0.00 %	Collected Volatiles; NASA SP-R-0022A
	@Pressure <= 1.33e-10 MPa, Temperature 125 °C	@Pressure <= 1.93e-8 psi, Temperature 257 °F	
	0.010 %	0.010 %	
	@Pressure <= 1.33e-10 MPa, Temperature 125 °C	@Pressure <= 1.93e-8 psi, Temperature 257 °F	Water Vapor Recovered; NASA SP-R-0022A
	0.020 %	0.020 %	
	@Pressure <= 1.33e-10 MPa, Temperature 125 °C	@Pressure <= 1.93e-8 psi, Temperature 257 °F	

Mechanical Properties	Metric	English	Comments
Tensile Strength	77.2 MPa	11200 psi	Cross; ASTM D882
	103 MPa	14900 psi	Machine; ASTM D882
Modulus of Elasticity	2.39 GPa	346 ksi	Cross; ASTM D638
	3.34 GPa	485 ksi	Machine; ASTM D638
Flexural Modulus	>= 3.01 GPa	>= 437 ksi	ASTM D790
Compressive Modulus	2.25 GPa	327 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	17.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	9.44 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	x direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 $^\circ\text{C}$	@Temperature 32.0 - 212 $^\circ\text{F}$	
	29.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	16.1 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	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	217 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	121 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	z direction; IPC TM-650 2.4.24
	@Temperature 0.000 - 100 $^\circ\text{C}$	@Temperature 32.0 - 212 $^\circ\text{F}$	
Thermal Conductivity	0.257 W/m-K	1.78 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	1.50e+15 ohm-cm	1.50e+15 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
Surface Resistance	3.40e+13 ohm	3.40e+13 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	2.33	2.33	C23/50; IPC TM-650 2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	2.33	2.33	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	0.00090	0.00090	C23/50; IPC TM-650 2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.0013	0.0013	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/ $^\circ\text{C}$)	-161	IPC TM-650 2.5.5.5 (-10 - 140 $^\circ\text{C}$)

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