

## Arlon AD1000 PTFE/Woven Fiberglass/Ceramic Filled Laminate for Microwave Printed Circuit Boards

Category : Polymer , Thermoplastic , Fluoropolymer , PTFE

### Material Notes:

Only Woven Glass Reinforced PTFE/Ceramic with Dk of 10.2 or greater  
 High Copper Peel Strength allows for thinner etched line widths  
 Lowest insertion loss available  
 Larger Panel sizes available  
 Low moisture absorption  
 Excellent CTE values lead to high reliability ceramic component attachment and PTH reliability  
**Benefits:**  
 Mechanically strong  
 Greater dimensional stability than other 10 Dk products  
 Circuit miniaturizations leads to weight savings  
 Heat Dissipation and Management  
 Greater signal integrity  
 Cost-effective board layout and board processing  
 Low loss in humid environments  
**Typical Applications:**  
 Ideal for X-band and below  
 Radar modules and manifolds  
 Aircraft Collision Avoidance Systems (TCAS)  
 Ground Based Radar Surveillance Systems  
 Miniaturized Circuitry & Patch Antennas  
 Power Amplifiers (PAs)  
 Low Noise Amplifiers (LNAs)  
 This data represents typical values for the production material and should not be used as material specifications.  
 Information provided by ARLON Silicone Technologies Division.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Arlon-AD1000-PTFEWoven-FiberglassCeramic-Filled-Laminate-for-Microwave-Printed-Circuit-Boards.php](http://www.lookpolymers.com/polymer_Arlon-AD1000-PTFEWoven-FiberglassCeramic-Filled-Laminate-for-Microwave-Printed-Circuit-Boards.php)

Physical Properties	Metric	English	Comments
Density	3.20 g/cc	0.116 lb/in <sup>3</sup>	ASTM D792 Method A
Water Absorption	0.030 %	0.030 %	IPC TM-650 2.6.2.1
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
	0.00 % @Pressure <=1.33e-10 MPa, Temperature 125 °C	0.00 % @Pressure <=1.93e-8 psi, Temperature 257 °F	Water Vapor Recovered; NASA SP-R-0022A
	0.010 % @Pressure <=1.33e-10 MPa, Temperature 125 °C	0.010 % @Pressure <=1.93e-8 psi, Temperature 257 °F	NASA SP-R-0022A

Mechanical Properties	Metric	English	Comments
Tensile Strength	29.6 MPa	4300 psi	Cross; IPC TM-650 2.4.18.3
	35.2 MPa	5100 psi	Machine; IPC TM-650 2.4.18.3
Modulus of Elasticity	1.38 GPa	200 ksi	IPC TM-650 2.4.18.3
Flexural Strength	51.7 MPa	7500 psi	Cross; IPC TM-650 2.4.4

Mechanical Properties	68.3 MPa Metric	9900 psi English	Machine: IPC TM-650 2.4.4 Comments
Compressive Modulus	>= 2.93 GPa	>= 425 ksi	ASTM D3410
Poissons Ratio	0.16	0.16	ASTM D3039
Peel Strength	>= 2.10 kN/m	>= 12.0 pli	To Copper (1 oz./35 micron); After Thermal Stress; IPC TM-650 2.4.8
	2.38 kN/m	13.6 pli	To Copper (1 oz./35 micron); At Elevated Temperatures; IPC TM-650 2.4.8.2

Thermal Properties	Metric	English	Comments
CTE, linear	8.00 - 10.0 $\mu\text{m}/\text{m}\cdot\text{C}^\circ$	4.44 - 5.56 $\mu\text{in}/\text{in}\cdot\text{F}^\circ$	IPC TM-650 2.4.41
	@Temperature 50.0 - 150 $^\circ\text{C}$	@Temperature 122 - 302 $^\circ\text{F}$	
CTE, linear, Transverse to Flow	20.0 $\mu\text{m}/\text{m}\cdot\text{C}^\circ$	11.1 $\mu\text{in}/\text{in}\cdot\text{F}^\circ$	z direction; IPC TM-650 2.4.24
	@Temperature 50.0 - 150 $^\circ\text{C}$	@Temperature 122 - 302 $^\circ\text{F}$	
Thermal Conductivity	0.810 W/m-K	5.62 BTU-in/hr-ft <sup>2</sup> - $^\circ\text{F}$	ASTM E1461
Decomposition Temperature	>= 500 $^\circ\text{C}$	>= 932 $^\circ\text{F}$	5 percent; IPC TM-650 2.4.24.6
	>= 500 $^\circ\text{C}$	>= 932 $^\circ\text{F}$	Onset; IPC TM-650 2.4.24.6
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	5.36e+13 ohm-cm	5.36e+13 ohm-cm	E24/125; IPC TM-650 2.5.17.1
	1.40e+15 ohm-cm	1.40e+15 ohm-cm	C96/35/90; IPC TM-650 2.5.17.1
Surface Resistance	3.16e+14 ohm	3.16e+14 ohm	E24/125; IPC TM-650 2.5.17.1
	1.80e+15 ohm	1.80e+15 ohm	C96/35/90; IPC TM-650 2.5.17.1
Dielectric Constant	10.2	10.2	may vary by thickness; IPC TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Dielectric Strength	24.5 kV/mm	622 kV/in	IPC TM-650 2.5.6.2
Dielectric Breakdown	>= 45000 V	>= 45000 V	IPC TM-650 2.5.6
Dissipation Factor	0.0023	0.0023	may vary by thickness; IPC TM-650 2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	

Arc Resistance Electrical Properties	$\geq 180$ sec Metric	$\geq 180$ sec English	IPC TM-650 2.5.1 Comments
Descriptive Properties			
IPC Delamination - T260 (minutes)	> 60		IPC TM-650 2.4.24.1
IPC Delamination - T288 (minutes)	> 60		IPC TM-650 2.4.24.1
IPC Delamination - T300 (minutes)	> 60		IPC TM-650 2.4.24.1
Temperature Coefficient of Dielectric (ppm/°C)	-380		IPC TM-650 2.5.5.5; at 10 GHz (-40 - 150°C)

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China