



POLYCHEM INTERNATIONAL

B28, Shalimar Industrial Estate, Next to Tata Power, Matunga Labour Camp, Mumbai 400 019.
 Contact : 9820136463 / 9820190352 • E-mail : polychemintl2010@gmail.com

TECHNICAL DATA SHEET OF GLASS EPOXY LAMINATES

GRADE : NEMA G-10
 SPECIFICATION : NEMA LI-1-2001
 SHEET SIZE : 2440 mm x 1220mm / 1220mm x 1220mm
 THICKNESS RANGE : 0.25MM - 50MM
 DESCRIPTION : This Grade G10 exhibits extremely high mechanical strengths (flexural, impact and bonding) at room temperature. Good Dielectric loss and electric strength properties under both dry and humid conditions. FR4 Epoxy resins system is Flame retardant & complies to VO.

S. No	PROPERTIES	ASTM TEST METHOD	UNITS	CONDI TION	SPECIFI- CATION	AVERAGE TEST RESULTS
<u>PHYSICAL PROPERTIES</u>						
1.	Specific Gravity	---	--	A	1.8+/-0.1	1.90
2.	Water Absorption (max)	D229	%	D-24/23	0.8 mm - 0.5% 1.2 mm - 0.4% 1.6 mm - 0.25% 2.4 mm - 0.2% 3.0-5.0mm – 0.15%	0.8 mm - 0.1% 1.2 mm - 0.08% 1.6 mm - 0.05% 2.4 mm - 0.04% 3.0-5.0mm - 0.035%
3.	Rockwell Hardness	D229	M-Scale	A	111	112
<u>MECHANICAL PROPERTIES.</u>						
1.	Impact Strength A. Izod L.W. (3.2 - 25mm thick) C.W.	D229	ft-lb/inch (Notch)	A	7.00 5.50	10 8
2.	Flexural Strength L.W. (0.8 – 2.4mm thick) C.W	D229	PSI	A	55,000 45,000	68,000 55,000
3.	Bonding Strength (12mm thick & above)	D229	Lbs	A D/48/50	2,000 1,600	2,700 2,300
4.	Compressive strength (5 – 12mm) Flat Wise Edge Wise	D229	PSI	A	68000 35000	>68000 >35000
5.	Shear strength	D229	PSI	A	--	20,000
6.	Tensile strength L.W. C.W	D229	PSI	A	40,000 35,000	42,000 36,000
7.	Modulus in Flexure of Elasticity L.W. C.W.	D229	PSI	A	----	2700 2200



POLYCHEM INTERNATIONAL

B28, Shalimar Industrial Estate, Next to Tata Power, Matunga Labour Camp, Mumbai 400 019.
Contact : 9820136463 / 9820190352 • E-mail : polychemintl2010@gmail.com

Contd.. 2

::: 2 :::

S. No	PROPERTIES	ASTM TEST METHOD	UNITS	CONDITION	SPECIFICATION	AVERAGE TEST RESULTS
<u>ELECTRICAL PROPERTIES</u>						
1.	Minimum Breakdown Voltage Edge Wise (0.8 – 25mm)	D229	kV	A D-48/50	45 40	>60 >50
2.	Electric Strength (perpendicular to lamination) – (1.5mm thick)	D229	kV/mm	In oil at 90°C	15	20
3.	Insulation Resistance after (Immersion in water for 24 hours)	D229	MΩ	C-96/35/90	200,000	400,000
4.	Maximum Permittivity/at 1 MHz (1.5mm thick)	D229	---	A D24/23	5.20 5.40	4.8 5.0
5.	Maximum Dissipation Factor / at 1Mhz(1.5mm thick)	D229	---	A D-24/23	0.025 0.035	0.02 0.03
6.	Comparative tracking index	D 3638	---	A	200	250
7.	Arc Resistance	D 495	Seconds	A	---	190
<u>THERMAL PROPERTIES</u>						
1.	Temperature Index	VDE 0304/2	°C	--	130°C	130°C/140°C
2.	Insulating class	IEC Publ.85	--	--	B	B
3.	Flammability	UL94	Class	A	HB	HB
4.	Martens heat distortion temperature	---	Deg/C	A	160	160
5.	Thermal Conductivity	---	Calories/second/ Cm ² /°C/cm)	A	---	7 x 10 ⁻⁴
6.	Coefficient of Thermal expansion	---	Cm/cm/°C	A	---	9 x 10 ⁻⁶

Ref. Std. NEMA – LI-1-2001(G10)

Equivalent Std. IEC-60893-3-2-2004 (EPGC-201)/ IS-10192-1982(EP1)