


TECHNICAL CHARACTERISTICS:			Paper phenol plates	Paper phenol plates	Cotton phenol plates	Glass epoxy plates	Glass epoxy plates	Glass epoxy plates	Paper phenol tubes	Cotton phenol tubes	Glass epoxy tubes	Glass epoxy tubes	
 Composites & engineering plastics Mosa Pijade bb, Prilep, Macedonia Phone/fax: ++ 389 48 424 494; ++ 389 48 401 150 e-mail: laminati@laminati.com.mk <a href="http://www.laminati.com.mk">www.laminati.com.mk</a>	DIN 7735		Hp 2061	Hp 2061.6	Hgw 2082	Hgw 2372	Hgw 2372.4	Hgw 2372.1	Hp 2065	Hgw 2085	Hgw 2375	Hgw 2375.4	
	NEMA LI 1		X,XP	XX	C	G10	G 11	FR 4	XX	C	G10	G11	
	IEC 60893		PF CP 201	PF CP 203	PF CC 201	EP GC 201	EP GC 203	EP GC 202					
	IEC 61212									PF CP 21	PF CC 22	EP GC 21	EP GC 22
Type of resin			Phenol	Phenol	Phenol	Epoxy	Epoxy	Epoxy	Phenol	Phenol	Epoxy	Epoxy	
			Paper	Paper	Cotton fabric	Glass fabric	Glass fabric	Glass fabric	Paper	Cotton fabric	Glass fabric	Glass fabric	

PROPERTIES	METOD	UNIT	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE
------------	-------	------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

#### ELECTRICAL PROPERTIES

Insulating resistance	DIN 53482	Ω	min		5*10 <sup>7</sup>		5*10 <sup>10</sup>	5*10 <sup>10</sup>	5*10 <sup>10</sup>			1*10 <sup>10</sup>	1*10 <sup>10</sup>
Electrical strenght paralel to layers	DIN 53481	kV	min	15	25	8	40	40	40	25	10	40	40
Electrical strenght normal to layers	DIN 53481	kV	min	15	30	5	40	40	40	25	5	30	30
Dielectric constant ε <sub>r</sub>	DIN 53483		max	5	5	5	5	5	5				
Tracking index		CTI		KC 100	KC 100	KC 100	KC 200	KC 180	KC 200	KC 100	KC 100	KC 180	KC 180

#### MECHANICAL PROPERTIES

Flexural strenght σ <sub>dB</sub> on 23 °C	DIN 53452	N/mm <sup>2</sup>	min	150	130	130	350	350	350	100	80	300	300
Flexible modul	DIN 53457	N/mm <sup>2</sup>	min	7*10 <sup>3</sup>	7*10 <sup>3</sup>	7*10 <sup>3</sup>	18*10 <sup>3</sup>	18*10 <sup>3</sup>	18*10 <sup>3</sup>	0,6*10 <sup>4</sup>	0,6*10 <sup>4</sup>	1,8*10 <sup>4</sup>	1,8*10 <sup>4</sup>
Charpy impact strenght a <sub>n10</sub> , a <sub>n15</sub>	DIN 53453	kJ/m <sup>2</sup>	min	20	15	30	100	100	100				
Charpy impact strenght notched a <sub>k10</sub>	DIN 53453	kJ/m <sup>2</sup>	min	5	4	10	50	50	50				
Charpy impact strenght notched a <sub>k15</sub>	DIN 53453	kJ/m <sup>2</sup>	min	15	10	15							
Split force	DIN 53463	N	min	2000	2000	2500	3000	3000	3000				
Tensile strenght	DIN 53455	N/mm <sup>2</sup>	min	120	100	80	220	220	220	50	50	200	200
Compressive strenght	DIN 53454	N/mm <sup>2</sup>	min	150	100	170	200	150	200	40	40	150	150

#### THERMAL AND OTHER PROPERTIES

Density	DIN 53459	gr/cm <sup>3</sup>	kgr/dm <sup>3</sup>	1,3 ÷ 1,4	1,3 ÷ 1,4	1,3 ÷ 1,4	1,7 - 1,9	1,7 ÷ 1,9	1,7 ÷ 1,9	1,0 ÷ 1,1	1.15-1.4	1,7-1,9	1,7-1,9
Water apsorption for thickness 4 mm	DIN 53495	mg	max	555	190	105	25	25	25				
Limited temperature		°C		120	120	110	130	155	120	120	120	130	155
Stability of limited temperature on base of flexural strenght σ <sub>dB</sub>	DIN 53452	N/mm <sup>2</sup>	min	75	65	65	175	175	175				
Flambility	UL 94								Vo				
Linear extension	VDE 304-2	10 <sup>-6</sup> /°K		20 ÷ 40	20 ÷ 40	20 ÷ 40	10 - 20	10 ÷ 20	10 ÷ 20				
Thermal conductivity	DIN 52612			0,2	0,2	0,2	0,3	0,3	0,3				
Thermal classification		class		E	E	E	B	F	B				

Plates dimension:	Thickness (mm)	Format (mm)
	0,5-40	1200x2160
	0,5-40	1200x1080
	40-150	920x970

Tubes dimension:	Outside diameter (mm)	Length (mm)
	Φ6-Φ12	500
	Φ12-Φ600	1000
	Φ600-Φ1500	600