



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

ELECTRONICS MATERIAL COMPARATIVE DATA SHEET

Product Grades			TGC	Angles & Channels GPO-3	GPO-3	N220	G-10	G-11	FR4	G-15	Arboron	CE	Poly-carbonate GP	Poly-carbonate 0	V-	Propellis	PolyPro FR	PolyPro EV	Nomex®	G-Flex YT510	PET Electrical Grade	Mica M		
			NEMA	--	GPO-3	GPO-1	G-10	G-11	FR4	--	--	CE	--	--	--	--	--	--	--	--	--	--	--	--
			IEC	--	UPGM 203	UPGM 201	EPGC 201	EPGC 203	EPGC 202	--	--	PFCP 202	--	--	--	--	--	--	--	--	--	--	--	--
Materials of Construction			Glass Polyester	Glass Polyester	High-Temp Glass Polyester	Glass Epoxy	High-Temp Glass Epoxy	Flame Retardant Glass Epoxy	Glass Polyimide	Paper Phenolic with Melamine Face	Canvas Phenolic	Thermoplastic	Flame Retardant Thermoplastic	Woven glass fabric with high temperature epoxy	Flame Retardant Thermoplastic	Polypropylene based insulating film	High-Temp Aramid Paper	Meta-Aramid Paper	Polyester Film	Silicone Bonded Mica Paper				
Standard Sizes - other sizes available at request			in.	120" Long	36" x 72" 48" x 96"	36" x 72" 48" x 96"	36" x 48" 48" x 96" 48" x 120"	36" x 48" 48" x 96" 48" x 120"	36" x 48" 48" x 96" 48" x 120"	48" x 48" 48" x 96"	48" x 96" 60" x 120" 60" x 144"	36" x 72" 48" x 96"	36" x 72" 48" x 96"	48" x 96" 76" x 96"	36" - 50" rolls	24" wide rolls 48" x 96"	48" rolls	36" wide rolls	--	Rolls slit to width	41" x 98"			
			cm.	305 cm Long	91 x 182, 121 x 243	91 x 182, 121 x 243	91 x 182, 121 x 243, 121 x 304	91 x 182, 121 x 243, 121 x 304	91 x 182, 121 x 243, 121 x 304	122 x 122 122 x 244	121 x 243, 152 x 304, 152 x 365	91 x 182, 121 x 243	91 x 182, 121 x 243	121 x 243, 193 x 243	91 - 127 cm rolls	61 cm wide rolls 122 x 244	122 cm rolls	91 cm wide rolls	--	Rolls slit to width	104 x 248			
Standard Thickness Range			in.	0.125" - 0.375"	0.094" - 2.00"	0.031" - 2.00"	0.006" - 6.00"	0.010" - 6.00"	0.010" - 6.00"	0.016" - 3.50"	0.125" - 1.00"	0.008" - 4.00"	0.031" - 0.50"	0.031" - 0.50"	0.005" - 0.013"	0.010" - 0.125"	0.005" - 0.030"	0.002" - 0.030"	0.002" - 0.03"	0.005" - 0.014"	0.004" - 3.00"			
			cm.	0.318 cm - 0.953 cm	0.239 cm - 5.080 cm	0.079 cm - 5.080 cm	0.015 cm - 15.240 cm	0.025 cm - 15.240 cm	0.025 cm - 15.240 cm	0.41 cm - 88.9 cm	0.318 cm - 2.540 cm	0.020 cm - 10.160 cm	0.079 cm - 1.270 cm	0.079 cm - 1.270 cm	0.013 cm - 0.033 cm	0.025 cm - 0.318 cm	0.013 cm - 0.076 cm	0.005 cm - 0.076 cm	0.005 cm - 0.076 cm	0.013 cm - 0.036 cm	0.010 cm - 7.620 cm			
Mechanical Properties			Test Method	Units																				
Rockwell Hardness			ASTM D-785	M scale	100	100	100	98	115	98	117	113	100	100	70	--	--	92	--	--	--	--		
Tensile Strength	LW	ASTM D-638	ksi	12.5	9	11	43	34	40	--	22	11	9.5	9.5	21	4.4	5.2	0.3	0.06	2	22			
	CW	ASTM D-638	ksi	--	--	--	39	--	32	--	14	9	9.5	9.5	15	4.4	--	0.3	0.02	2	--			
Compressive Strength			ASTM D-695	ksi	29.5	33	32	44	50	66	> 60	45	34	12.5	12.5	15	--	6	--	--	--	58		
Flexural Strength	LW	ASTM D-790	ksi	25	23	21	80	71	65	> 60	30	17.5	13.5	13.5	--	5.9	7	--	--	--	24			
	CW	ASTM D-790	ksi	--	20	--	70	61	52	> 60	24	15	13.5	13.5	--	5.9	--	--	--	--	--			
Shear Strength			ASTM D-732	ksi	--	14	12	19	21	21.5	--	13	14	10	10	--	--	--	--	--	--	--		
Izod Impact Strength LW			ASTM D-256	ft-lb/in	9.6	9	11	15	18	7.9	> 17	0.5	1.95	15	2.4	--	1.2	1.9	--	--	--	--		
Bonding Strength			ASTM D-229	ksi	--	1.4	1.2	2.3	2.2	2.3	--	0.66	1.7	--	--	--	--	--	--	--	--	--		
Electrical Properties			Test Method	Units																				
Arc Resistance			ASTM D-495	Sec	>180	190	180	130	185	130	> 180	88	15	--	--	--	--	160	--	--	--	420		
Dielectric Strength			ASTM D-149	VPM	225	450	550	485	610	800	> 450	129	550	400	400	1000	2200	2000	1000	406	--	625		
Breakdown Voltage			ASTM D-149	kV	45	45	50	50	65	66	65	60	40	--	--	7.1	22	20	--	0.81	7.5	--		
Comparative Tracking Index			UL-746	V	>600	>600	>600	>200	>200	>230	--	>600	--	--	>175	--	>600	--	--	--	2	500		
Physical Properties			Test Method	Units																				
Water Absorption			ASTM D-570	%	0.25	0.25	0.25	0.02	0.1	0.1	< 0.6	0.9	2	0.15	0.15	--	0.01	0.01	10	--	0.6	1		
Specific Gravity			ASTM D-792	lbs/in ³	0.7	0.7	0.6	0.6	0.7	0.7	1.81	0.5	0.5	0.4	0.4	1.36	0.4	0.91	0.4	0.028	0.5	0.8		
Thermal Properties			Test Method	Units																				
Relative Temp. Index	Electric	UL-746B	°C	130	130	220	130	170	130	--	95	125	125	125	155	110	110	220	210	140	500			
	Mechanical	UL-746B	°C	130	130	210	140	180	140	--	95	125	125	125	155	110	110	220	--	120	500			
Flame Resistance			UL94	--	V-0	V-0	HB	HB	HB	V-0	HB	V-0	HB	V-2	V-0	HB	V-0	HB	V-0	VTM-0	VTM-2	V-0		
Thermal Class			NEMA	--	B	B	R	B	F	B	--	--	A	A	A	--	A	--	R	--	A	R		

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