



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

SWITCHGEAR MATERIAL COMPARATIVE DATA SHEET

Product Grades	TGC	Angles & Channels GPO-3	Low Pressure Rigid Laminates					High Pressure Rigid Laminates								Thermoplastics					Papers				
			GPO-3	APO-3	N155	N180	N220	G-5	G-9	G-10	G-11	FR4	Arboron	XX	CE	Mica M	Polycarbonate GP	Polycarbonate V-0	PolyPro FR	PET Electrical Grade	Vulcanized Fiber (Fish Paper)	G-Flex™ YT510	Nomex®		
			NEMA	--	GPO-3	GPO-3	GPO-1	GPO-1	GPO-1	G-5	G-9	G-10	G-11	FR4	--	XX	CE	--	--	--	--	--	--	--	
IEC	--	UPGM 203	UPGM 203	UPGM 201	UPGM 201	UPGM 201	SIGC 201	MFGC 201	EPGC 201	EPGC 203	EPGC 202	--	PFCP 203	PFCP 202	--	--	--	--	--	--	--				
Materials of Construction		Glass Polyester	Glass Polyester	Glass Polyester	High-Temp Glass Polyester	High-Temp Glass Polyester	High-Temp Glass Polyester	Glass Melamine	Glass Melamine	Glass Epoxy	High-Temp Glass Epoxy	Flame Retardant Glass Epoxy	Paper Phenolic with Melamine Face	Paper Phenolic	Canvas Phenolic	Silicone Bonded Mica Paper	Thermo-plastic	Flame Retardant Thermo-plastic	Flame Retardant Thermo-plastic	Polyester Film	Laminated Cellulose	High-Temp Aramid Paper	High-Temp Aramid 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 72" 48" x 96"	36" x 72" 48" x 96"	36" x 72" 48" x 96"	36 x 48" 36 x 72" 48 x 48" 48 x 96" 48 x 108"	36" x 48" 48" x 96" 48" x 110"	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 96" 60" x 120" 60" x 144"	36" x 48" 48" x 96"	36" x 72" 48" x 96"	41" x 98"	36" x 72" 48" x 96"	48" x 96" 76" x 96"	24" wide rolls 48" x 96"	Rolls slit to width	24" x 24" 48" x 96"	39" wide rolls	36" wide rolls		
	cm.	305 Long	91 x 183, 122 x 244	91 x 183, 122 x 244	91 x 183, 122 x 244	91 x 183, 122 x 244	91 x 183, 122 x 244	91 x 122 91 x 183 122 x 122 122 x 244 122 x 274	91 x 122, 122 x 244 122 x 279	91 x 122, 122 x 244 122 x 305	91 x 122, 122 x 244 122 x 305	91 x 122, 122 x 244 122 x 305	122 x 244, 152 x 305 152 x 366	91 x 122, 122 x 244	91 x 183, 122 x 244	104 x 249	91 x 183, 122 x 244	122 x 244, 193 x 244	61 wide rolls 122 x 243	Rolls slit to width	0 x 61, 122 x 244	0 wide rolls	0 wide rolls		
Standard Thickness Range	in.	0.125" - 0.375"	0.094" - 2.00"	0.031" - 0.094"	0.031" - 2.00"	0.031" - 2.00"	0.031" - 2.00"	0.031" - 4.00"	0.008" - 6.00"	0.006" - 6.00"	0.010" - 6.00"	0.010" - 6.00"	0.125" - 1.00"	0.008" - 4.00"	0.008" - 4.00"	0.004" - 3.00"	0.031" - 0.50"	0.031" - 0.50"	0.010" - 0.125"	0.005" - 0.014"	0.008" - 0.125"	0.002" - 0.030"	0.002" - 0.030"		
	cm.	0.3175 - 0.9525	0.23876 - 5.08	0.07874 - 0.23876	0.07874 - 5.08	0.07874 - 5.08	0.07874 - 5.08	0.07874 - 10.16	0.02032 - 15.24	0.01524 - 15.24	0.0254 - 15.24	0.0254 - 15.24	0.3175 - 2.54	0.02032 - 10.16	0.02032 - 10.16	0.01016 - 7.62	0.07874 - 1.27	0.07874 - 1.27	0.0254 - 0.3175	0.0127 - 0.03556	0.02032 - 0.3175	0.00508 - 0.0762	0.00508 - 0.0762		
Mechanical Properties		Test Method	Units																						
Rockwell Hardness		ASTM D-785	M scale	100	100	--	100	--	100	115	115	98	115	98	113	95	100	--	100	70	--	--	--	--	
Tensile Strength	LW	ASTM D-638	ksi	12.5	9	9	12	16	11	--	44	43	34	40	22	13.5	11	22	9.5	9.5	4.4	2	18	12 ¹	0.3
	CW	ASTM D-638	ksi	--	--	--	--	--	--	--	34	39	--	32	14	11.5	9	--	9.5	9.5	4.4	2	10	--	0.3
Compressive Strength		ASTM D-695	ksi	29.5	33	33	40	46	32	65	70	44	50	66	45	25	34	58	12.5	12.5	--	--	35	--	--
Flexural Strength	LW	ASTM D-790	ksi	25	23	22	26	29	21	50	61	80	71	65	30	22	17.5	24	13.5	13.5	5.9	--	15	--	--
	CW	ASTM D-790	ksi	--	20	--	22	32	--	--	51	70	61	52	24	17	15	--	13.5	13.5	5.9	--	13	--	--
Shear Strength		ASTM D-732	ksi	--	14	13	15	18	12	--	18	19	21	21.5	13	11.5	14	--	10	10	--	--	--	--	--
Izod Impact Strength LW		ASTM D-256	ft-lb/in	9.6	9	9	9.5	12	11	10.0	12.5	15	18	7.9	0.5	0.5	1.95	--	15	2.4	1.2	--	2.5	--	--
Bonding Strength		ASTM D-229	ksi	--	1.4	--	1.2	--	1.2	--	1.9	2.3	2.2	2.3	0.66	1	1.7	--	--	--	--	--	0.9	--	--
Electrical Properties		Test Method	Units																						
Arc Resistance		ASTM D-495	Sec	>180	190	192	150	180	180	180	185	130	185	130	88	--	15	420	--	--	--	--	125	--	--
Dielectric Strength		ASTM D-149	VPM	225	450	540	450	500	550	300	540	485	610	800	129	500	550	625	400	400	2200	--	200	406	1000
Breakdown Voltage		ASTM D-149	kV	45	45	50	30	45	50	--	65	50	65	66	60	40	40	--	--	--	22	7.5	--	13.5 ²	--
Comparative Tracking Index		UL-746	V	>600	>600	--	>600	--	>600	--	>400	>200	>200	>230	>600	--	--	500	--	>175	>600	2	--	--	--
Physical Properties		Test Method	Units																						
Water Absorption		ASTM D-570	%	0.25	0.25	0.55	0.25	0.25	0.25	0.4	0.6	0.02	0.1	0.1	0.9	2	2	1	0.15	0.15	0.01	0.6	63	--	10
Specific Gravity		ASTM D-792	g/cc	1.8	1.8	1.8	1.83	1.7	19.93	1.85	1.77	1.91	1.8	1.39	--	1.37	1.2	1.2	1.035	1.91	1.2	0.028	1	1.4	2.1
Thermal Properties		Test Method	Units																						
Relative Temp. Index	Electric	UL-746B	°C	130	130	--	155	220	--	50	130	170	130	95	130	125	125	125	110	--	115	210	220	140	500
	Mechanical	UL-746B	°C	130	130	--	155	210	154	140	140	180	140	95	130	125	125	125	110	--	110	--	220	120	500
Flame Resistance		UL94	--	V-0	V-0	V-0	HB	HB	HB	V-0	V-0	HB	HB	V-0	V-0	HB	HB	V-0	V-2	V-0	V-0	VTM-2	HB	VTM-0	V-0
Thermal Class		NEMA	--	B	B	B	F	H-180°C	R	F	B	B	F	B	--	B	A	R	A	A	A	A	A	--	R

¹ : Material Property at 2 mil Thickness
² : Material Property at 30 mil Thickness

Data supplied above are typical values and are not to be considered specification values. All of the information, suggestions and recommendations pertaining to the properties and uses of the products herein are based upon tests and data believed to be accurate; however, the final determination regarding suitability of any material described herein for the contemplated application, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty, expressed or implied, including, without limitation warranty of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.