



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

SWITCHGEAR MATERIAL COMPARATIVE DATA SHEET

						Low Pressure Rigid Laminates						High Pressure Rigid Laminates								Thermoplastics				Papers		
Product Grades			TGC		Angles & Channels GPO-3	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®
						GPO-3	GPO-3	GPO-1	GPO-1	GPO-1	G-5	G-9	G-10	G-11	FR4	--	XX	CE	--	--	--	--	--	--	--	--
			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 Retardent Glass Epoxy	Paper Phenolic with Melamine Face	Paper Phenolic	Canvas Phenolic	Silicone Bonded Mica Paper	Thermo-plastic	Flame Retardent Thermo-plastic	Flame Retardent 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	30 x 48 60 x 48 48 x 120	48 x 96 48 x 110 48 x 125	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 48x 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	76 x 122 122 x 152 122 x 305	122 x 244 122 x 280 122 x 317	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 - 5	0.010 - 5	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	0.07874 - 10.16	0.02032 - 15.24	0.015 - 12.70	0.025 - 12.70	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 D785		M scale	100	100	--	100	--	100	115	115	98	115	98	113	95	100	--	100	70	--	--	--	--	--
Tensile Strength	LW	ASTM D638		ksi	12.5	9	9	12	16	11	--	44	43	41	40	22	13.5	11	22	9.5	9.5	4.4	2	18	12 ¹	0.3
	CW	ASTM D638		ksi	--	--	--	--	--	--	--	34	39	--	32	14	11.5	9	--	9.5	9.5	4.4	2	10	--	0.3
Compressive Strength		ASTM D695		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 D790		ksi	25	23	22	26	29	21	50	61	63	80	65	30	22	17.5	24	13.5	13.5	5.9	--	15	--	--
	CW	ASTM D790		ksi	--	20	--	22	32	--	--	51	54	70	52	24	17	15	--	13.5	13.5	5.9	--	13	--	--
Shear Strength		ASTM D732		ksi	--	14	13	15	18	12	--	18	19	21	21.5	13	11.5	14	--	10	10	--	--	--	--	--
Izod Impact Strength LW		ASTM D256		ft-lb/in	9.6	9	9	9.5	12	11	10.0	12.5	8.4 ³	18	7.9	0.5	0.5	1.95	--	15	2.4	1.2	--	2.5	--	--
Bonding Strength		ASTM D229		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 D495		Sec	>180	190	192	150	180	180	185	130	185	130	88	--	15	420	--	--	--	--	125	--	--	
Dielectric Strength		ASTM D149		VPM	225	450	540	450	500	550	300	540	485	485	800	129	500	550	625	400	400	2200	--	200	406	1000
Breakdown Voltage		ASTM D149		kV	45	45	50	30	45	50	--	65	47 ⁴	>50	66	60	40	40	--	--	--	22	7.5	--	13.5 ²	--
Comparative Tracking Index		UL-746		V	>600	>600	--	>600	--	>600	--	>400	>200	>180	>230	>600	--	--	500	--	>175	>600	2	--	--	--
Physical Properties		Test Method		Units																						
Water Absorption		ASTM D570		%	0.25	0.25	0.55	0.25	0.25	0.25	0.4	0.6	0.13	0.01	0.1	0.9	2	2	1	0.15	0.15	0.01	0.6	63	--	10
Specific Gravity		ASTM D792		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 ³ : Material Property Cond. D-48/50 at 3mm Notched

² : Material Property at 30 mil Thickness ⁴ : Material Property Cond. A at 3mm

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