



# THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

## OIL & GAS MATERIAL COMPARATIVE DATA SHEET

		Low Pressure Rigid Laminates			High Pressure Rigid Laminates					Molded Materials		Filament Wound Tubes				Thin Walled Tube Applications < 0.25"	
Product Grades		TGC	N155	N180	N220	G-5	G-9	G-10	G-11	FR4	G160 BMC	G160 SMC	G2018	G2019	G2039	G1050 (ER1050)	G2040
		NEMA	GPO-1	GPO-1	GPO-1	G-5	G-9	G-10	G-11	FR4							
		IEC	UPGM 201	UPGM 201	UPGM 201	SIGC 201	MFGC 201	EPGC 201	EPGC 203	EPGC 202	--	--	--	--	--	--	--
Construction			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	High-Temp Glass Molding	High-Temp Glass Molding	High-Temp Epoxy Glass Tubing	High-Temp Epoxy Glass Tubing	High-Temp Epoxy Glass Tubing	High-Temp Epoxy Glass Tubing	High-Temp Epoxy Glass Tubing
Standard Thickness Available		in.	0.031"-2.000", 0.118"-1.500"	0.031"-2.000", 0.118"-1.500"	0.031"-2.000", 0.118"-1.500"	0.031"-4.00"	0.008"-6.00"	0.006"-6.00"	0.010"-6.00"	0.010"-6.00"	--	--	0.062"-2.00"	0.062"-2.00"	0.062"-2.00"	--	0.062"-2.00"
		cm.	0.079 cm-5.080 cm, 0.300 cm-3.810 cm	0.079 cm-5.080 cm, 0.300 cm-3.810 cm	0.079 cm-5.080 cm, 0.300 cm-3.810 cm	0.07874 - 10.16	0.02032 - 15.24	0.01524 - 15.24	0.0254 - 15.24	0.0254 - 15.24	--	--	0.157 cm - 5.08 cm	0.157 cm - 5.08 cm	0.157 cm - 5.08 cm	--	0.157 cm - 5.08 cm
Mechanical Properties		Units															
Rockwell Hardness		M Scale	--	--	--	115	115	98	115	98	--	--	--	--	--	--	--
Tensile Strength, Lengthwise and Crosswise	LW	ksi	12.0	16.0	11.0	--	44	43	34	40	8.0	27.0	30.0	20.0	20.0	28.3	30.0
	CW	ksi	--	--	--	--	34	39	--	32	--	--	--	--	--	--	--
Compressive Strength		ksi	40.0	46.0	32.0	65	70	44	50	66	25.0	20.0	30.0	30.0	30.0	22.0	30.0
Flexural Strength, Lengthwise and Crosswise	LW	ksi	26.0	29.0	32.0	50	61	80	71	65	28.0	40.0	--	--	--	50.0	--
	CW	ksi	22.0	32.0	--	--	51	70	61	52	--	--	--	--	--	--	--
Shear Strength		ksi	--	18.0	12.0	--	18	19	21	21.5	12.0	18.0	4.3	2.8	2.8	--	4.0
IZOD Impact Strength, LW		ft-lbs./in. <sup>2</sup>	9.5	12	11	10.0	12.5	15	18	7.9	10.0	14.0					
Bonding Strength		lbs.	--	1080	1080	--	1.9	2.3	2.2	2.3			--	--	--	--	--
Electrical Properties		Units															
Arc Resistance		Seconds	150	180	180	180	185	130	185	130	--	--	--	--	--	--	--
Dielectric Strength		V/mil	450	500	550	300	540	485	610	800	--	--	--	--	--	--	--
Breakdown Voltage		kV	30	45	50	--	65	50	65	66	--	--	--	--	--	--	--
Surface Resistivity		Ohms/Sq.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Physical Properties		Units															
Water Absorption		%	0.25	0.25	0.25	0.4	0.6	0.02	0.1	0.1	0.25	0.25	< 0.2 %	< 0.2 %	< 0.2 %	--	< 0.2 %
Specific Gravity		g/cc	0.66	0.690	0.61	1.85	1.77	1.91	1.8	1.39	1.83	1.83	2.0 - 2.2	2.0 - 2.2	2.0 - 2.2	--	1.8 - 2.0
Thermal Properties		Units															
Relative Temperature Index		°C	155	180	210	50	130	170	130	95	--	--	--	--	--	--	--
Flame Resistance		Class	UL 94 V-0	UL 94 HB	E23105	UL94 V-0	UL94 V-0	UL 94 HB	UL 94 HB	UL94 V-0	--	--	UL 94 HB	UL 94 HB	UL 94 HB	--	UL 94 HB
Thermal Class		Class	F	H	--	F	B	B	F	B	--	--	--	--	--	--	--

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