



MANUFACTURERS OF  
ELECTRICAL INSULATION MATERIALS

INSULATING COMPONENTS FOR  
POWER SYSTEMS EQUIPMENT

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## EAF COMPARATIVE MATERIAL DATA SHEET

Product Grades	TGC	Arboron	XX	XXX	LE	CE	G-7	G-9	G-10/FR4	G-11	APO-1	APO-3	GPO-3	SG-200	N220	HST-II	Mica M	Mica P	Transite HT	Transite 1000	NAD-11	CS-85	SG-70	
	NEMA	--	XX	XXX	LE	CE	G-7	G-5 / G-9	FR4	G-11	GPO-1	GPO-3	GPO-3	--	GPO-1	--	--	--	--	--	--	--	--	--
	IEC	--	PFCP 203	PFCP 201	PFCC 305	PFCC 203	SIGC 201	MFGC 201	EPGC 202	EPGC 203	UPGM 201	UPGM 203	UPGM 203	--	UPGM 201	--	--	--	--	--	--	--	--	--
Construction		Paper Phenolic	Paper Phenolic	Paper Phenolic	Linen Phenolic	Canvas Phenolic	Glass Silicone	Glass Melamine	Glass Epoxy	Glass Epoxy	Glass Polyester	Glass Polyester	Glass Polyester	High-Temp Glass Polyester	High-Temp Glass Polyester	High-Temp Glass Polyester	Silicone Bonded Mica	Silicone Bonded Mica	High-Temp Cement	High-Temp Cement	High-Temp Cement	Calcium Silicate	Ceramic Fiber	
Sheet Sizes		48" x 96" 60" x 120" 60" x 144"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96" 48" x 108"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96" 48" x 108"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96" 48" x 108" 48" x 120"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96" 48" x 108"	36" x 48" 39" x 48" 48" x 48" 36" x 72" 48" x 96" 48" x 108" 48" x 120"	48" x 96" 48" x 118"	36" x 72" 48" x 96"	36" x 72"	36" x 72" 48" x 96"	36" x 72" 48" x 96"	36" x 72" 48" x 96"	36" x 72" 48" x 96"	48" x 120"	48" x 120"	48" x 96"	48" x 96"	36" x 48"	48" x 96"	48" x 48"	
Maximum/Minimum Thicknesses		.125" to 1.250"	.008" to 4.000"	.008" to 4.000"	.008" to 4.000"	.008" to 4.000"	.008" to 4.000"	.008" to 4.000"	.006" to 5.000"	.010" to 6.000"	.031" to 2.000"	.031" to .094"	.118" to 2.000"	.032" to 2.000"	.031" to 2.000"	.032" to 2.000"	.004" to 3.000"	.004" to 3.000"	.250" to 3.000"	.500" to 3.000"	.250" to 4.000"	.250" to 3.000"	.125" to 1.000"	
Relative Cost <sup>2,3</sup>		\$	\$	\$\$	\$\$	\$\$	\$\$\$\$	\$\$\$	\$\$\$	\$\$\$	\$	\$	\$	\$	\$	\$	\$\$\$\$	\$\$\$\$	\$	\$\$	\$\$	\$\$	\$\$\$	\$\$\$\$
<b>Mechanical Properties</b>	<b>Units</b>																							
Rockwell Hardness	M Scale	--	95	101	100	100	100	115	98	110	100	100	--	--	--	--	--	--	--	--	--	--	--	--
Tensile Strength, LW CW	psi	22,000 --	13,500 11,500	14,000 12,000	13,000 9,000	11,000 9,000	37,000 30,000	44,000 34,000	40,000 32,000	41,000 --	9,500 --	9,000 --	9,000 --	12,500 --	12,000 --	13,000 --	21,755 --	15,955 --	-- --	-- --	-- --	-- --	-- --	-- --
Compressive Strength	psi	22,700	25,000	30,000	36,000	34,000	45,000	70,000	66,000	50,000	35,000	37,000	37,000	36,000	37,000	33,000	58,015	47,862	10,400	13,350	17,110	10,300	13,050	
Flexural Strength, LW CW	psi	23,000 --	22,000 17,000	20,000 15,000	22,000 16,000	17,500 15,000	18,000 15,000	61,600 51,100	65,000 52,000	57,000 --	19,000 20,000	20,000 22,000	20,000 22,000	29,000 --	24,000 26,000	25,000 --	24,100 --	-- --	-- --	-- --	4,640 --	-- --	-- --	8,400 --
Shear Strength	psi	--	11,500	12,800	13,500	14,000	--	--	21,500	21,000	16,000	12,500	13,000	11,100	13,000	14,000	--	--	--	--	--	--	--	--
IZOD Impact Strength, LW	ft.-lbs./in.	0.6	0.5	0.55	1.35	1.95	17.0	12.5	7.9	10.0	8.5	9.0	9.0	12.0	11.0	12.0	--	--	--	--	--	--	--	--
Bonding Strength	lbs.	659	900	1,000	1,900	1,700	1,570	--	2,300	2,200	1,200	1,080	1,080	--	1,080	1,400	--	--	--	--	--	--	--	--
<b>Electrical Properties</b>	<b>Units</b>																							
Arc Resistance	Seconds	135	--	110	15	15	200	185	130	185	130	192	192	180	180	180	≥ 420	≥ 420	260	272	370	304	--	
Dielectric Strength	V/mil	250	500	700	625	550	350	450	800	550	450	540	550	625	550	475	625	625	35	56	69	61	91	
Breakdown Voltage	kV	66	40	40	50	40	55	65	66	65	> 40	50	50	50	50	62	--	--	--	--	--	--	--	
Comparative Tracking Index	Minutes	600	--	--	--	--	--	600+	300	--	--	> 400	1,000	--	--	--	500	525	--	--	--	--	--	
<b>Physical Properties</b>	<b>Units</b>																							
Water Absorption	%	0.9	2.0	1.30	1.90	2.0	0.19	0.60	0.10	0.085	0.25	0.55	0.25	0.30	0.25	0.30	< 1.0	< 1.0	21.0	21.0	15.0	1.0	--	
Specific Gravity	lb./in. <sup>3</sup>	0.050	0.048	0.048	0.050	0.050	0.066	0.072	0.067	0.069	0.066	0.065	0.065	0.061	0.061	0.058	0.077	0.077	0.058	0.057	0.063	0.049	0.075	
<b>Thermal Properties</b>	<b>Units</b>																							
Relative Temperature Index (Electrical/Mechanical) <sup>1</sup>	°C	95	130	130	125	125	170/220	130	130/140	170/180	130	130	130	220/210	220/210	210/210	500	750	232	538	500	982	1,370	
Flame Resistance, UL 94	Class	--	HB	HB	HB	HB	V-0	V-0	V-0	HB	HB	V-0	V-0	HB	HB	HB	V-0	V-0	--	--	--	--	--	
Thermal Class	Class	--	B	B	A	A	C	B	B	F	B	B	B	--	R	R	C	C	--	--	--	--	--	

<sup>1</sup> Relative Temperature Index (RTI) pertains to Electrical and Mechanical, respectively. If one value is shown, then RTI is the same for both Electrical and Mechanical.

<sup>2</sup> Relative Cost based on materials .500"

<sup>3</sup> \$ = \$10-\$15/sq. ft., \$\$ = \$15-\$25/sq. ft., \$\$\$ = \$25-\$40/sq. ft., \$\$\$\$ = \$50-\$115/sq. ft.

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 the suitability of any material described herein for the use contemplated, 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.