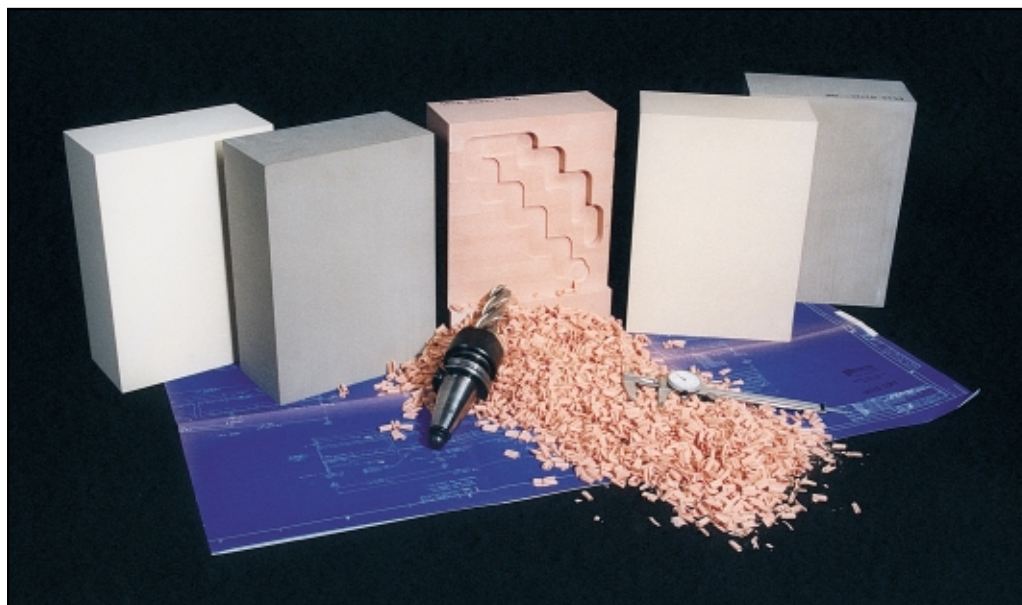


# FR-4500® Series

GENERAL PLASTICS MANUFACTURING COMPANY



## TOOLING BOARD SPECIFICATIONS



## FR-4500 PRODUCT SELECTION GUIDE

If you are making:	Use this FR-4500 Product:				
	FR-4515	FR-4520	FR-4530	FR-4540	FR-4550
Design Prototypes	●	●	●		
Appearance or "Sight" Models	●	●	●		
Styling Models	●	●	●		
Architectural Models	●	●			
Master Models			●	●	●
Temporary Models	●	●	●		
Trim Jigs and Fixtures			●	●	
Thermoforming Tools			●	●	●
Prototype Foundry Patterns			●	●	
Foundry Patterns				●	●
Mold Patterns	●	●	●		
Topographical Maps	●				
Dimensional check-fixtures				●	●
Molds for low-temperature casting (<200°F) -seal surfaces before use			●	●	●
Prototype/Low-Volume Vacuum-forming tools				●	●
CAD model proofs/NC program proofs	●	●	●		
Tooling aids			●	●	●
Molds for low-temperature curing pre-pregs (<200°F) -seal surfaces before use			●	●	●

## PHYSICAL PROPERTY DATA

	FR-4515	FR-4520	FR-4530	FR-4540	FR-4550	Test Method
<b>Standard Sheet Size</b> (thickness variable at customer request)	48"x 96"	48" x 80"	30" x 80"	24" x 80"	20" x 80"	
<b>Color</b>	Natural	Tan	Terracotta	Taupe	Gray- Green	Visual
<b>Density, lbs./cu. Ft.</b> (kg/cu. meter)	15 (240)	20 (320)	30 (481)	40 (640)	50 (801)	ASTM D-1623
<b>Hardness, Shore D</b> (cut board surface)						ASTM D-2240
<b>75 degrees F</b>	23	31	47	63	79	
<b>150 degrees F</b>	19	27	43	60	76	
<b>Glass Transition Temperature (Tg), degrees F</b>	225 (est.)	225 (est.)	225 (est.)	225 (est.)	225 (est.)	per TMA, ASTM D-4065 (wip)
<b>Coefficient of Thermal Expansion (CTE), in/in/deg.</b>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	From -30 to +200 degrees F
<b>Flexural Strength, psi</b>	657	1,132	2,436	4,196	6,398	ASTM D-790
<b>Flexural Modulus, psi</b>	18,416	33,069	75,462	135,504	213,376	ASTM D-790
<b>Compressive Strength, psi</b>	617	1,052	2,227	3,793	5,732	ASTM D-1621
<b>Compressive Modulus, psi</b>	26,584	40,951	75,290	115,980	162,156	ASTM D-1621
<b>Tensile Strength, psi</b>	521	854	1,715	2,813	4,129	ASTM D-1623 Type A Specimens
<b>Tensile Modulus, psi</b>	40,352	70,016	152,285	264,295	405,328	ASTM D-1623 Type A Specimens
<b>Shear Strength, psi</b>	409	625	1,139	1,744	2,426	ASTM C-273
<b>Shear Modulus, psi</b>	4,698	10,200	30,415	66,031	120,471	ASTM C-273
<b>Tumbling Friability</b> (% weight loss)	0.381	0.153	0.043	0.017	0.008	ASTM C-421 (20 min. @ 60 rpm)
<b>Fire Safety</b>	pass	pass	pass	pass	pass	FAR 25.853, 12 sec. and 60 sec. vertical

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