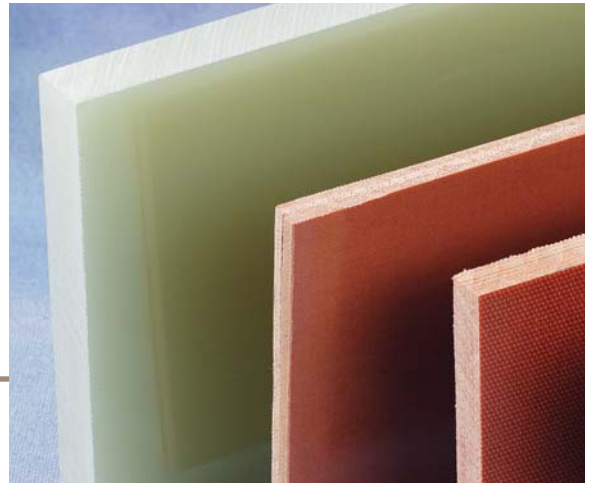


# THERMOSET COMPOSITES



Thermoset composite materials have the advantage of having extremely high strength and stiffness at relatively low cost when compared with thermoplastics. Each thermoset composite consists of a reinforcement material such as glass fiber or woven cotton that has been impregnated with a plastic resin such as phenolic or epoxy. The resulting composite has unique properties depending on the resin-reinforcement combination selected.

Commercially available grades include:

- Paper Phenolic: grades X, XX, and XXX, and punchable grades
- Canvas Phenolic: grades C and CE
- Linen Phenolic: grades L and LE
- Glass Epoxy: grades FR-4, G-10, and G-11
- Glass Melamine: grades G-5 and G-9
- Glass Silicone: grade G-7
- Glass Polyester: grades GPO-1 and GPO-3

## KEY CHARACTERISTICS:

- Strong and stiff
- Outstanding electrical properties (electrical grades)
- Excellent bearing and wear properties (bearing grade phenolic)
- Good creep resistance
- Dimensionally stable
- High temperature resistant grades available

## APPLICATIONS:

- Electrical insulators (electrical grades)
- Countertops and other work surfaces
- Bearings, bushings, and gears (bearing grade phenolic)
- Wear pads (bearing grade phenolic)

## THERMOSET COMPOSITES TYPICAL PROPERTIES:

	UNITS	ASTM TEST	XX (Paper Phenolic)	CE (Canvas Phenolic)	LE (Linen Phenolic)	FR-4 (Glass Epoxy)	G7 (Glass Silicone)
Specific gravity		D-792	1.35	1.37	1.34	1.80	1.88
Tensile strength (CW)	psi	D-638	11,500	9,000	9,000	38,000	-
Flexural strength (CW)	psi	D-790	17,000	15,000	16,000	60,000	15,400
Flexural modulus	psi	D-790	-	1,500,000	1,200,000	2,400,000	-
Compressive strength	psi	D-695	25,000	34,000	36,000	55,000	-
Hardness	Rockwell (scale as noted)	D-785	M95	M100	M100	M110	M100
Izod impact (notched, CW)	ft-lbs/in of notch	D-256	0.4	1.5	1.1	12.0	8.5
Maximum continuous service temperature in air	°F		266	257	257	266	338
Water absorption (immersion 24 hours)	%	D-229	2.00	2.00	1.90	0.10	0.19

**Standard Sizes: SHEET: 36"x48" (0.03"-10.0" thick), 48"x96" (0.03"-4.0" thick)**

Length, width, thickness, and diameter tolerances vary by size and by manufacturer • Custom sizes and colors available upon request • Many of our materials are available as films with thicknesses of 0.029" or less. Values may vary according to brand name. Please ask your Curbell Plastics representative for more specific information about an individual brand.

**Curbell Plastics has been supplying plastic sheet, rod, tube, films, adhesives, sealants, and prototyping materials for over 65 years**



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