

Applications

- Terminal boards
- Bearings, gears
- Gaskets, washers, spacers
- Wear strips

Advantages

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

Grades

- Paper
- Canvas
- Glass
- Linen
- Nylon

NOTE: Several grades of this material are available. For additional information regarding this plastic, contact your Emco Industrial Plastics representative or call (800) 292-9906.

MILSpecs

NEMA C per MIL-I-24768/16 TYPE FBM; NEMA CE per MIL-I-24768/14 TYPE FBG

Phenolic

[Phenolics, Cotton Canvas Reinforced](#) [Phenolics, Cotton Canvas Reinforced]

Phenolics are the result of polymerization between layers of paper, canvas, linen, or glass cloth impregnated with synthetic thermosetting resins. These industrial laminates are a popular alternative to acrylic, because of its high resistance to flexing.

The base material (paper, linen cotton, cotton canvas, or glass cloth) and resin combination used is dependent upon the intended application of the finished product. Physical strength, resiliency, ease and versatility of fabrication, and excellent electrical properties make phenolics useful as support components in a wide range of mechanical and electrical applications.

C/CE Cotton Canvas Base Phenolic: Medium weave cotton canvas, C/CE phenolic is known primarily for its mechanical properties. The "CE" grade has better electrical properties than the "C" grade. This grade is not recommended for primary insulation. Canvas-based phenolics are available in a variety of sheet, rod, and tube sizes.

Certifies to NEMA C per MIL-I-24768/16 TYPE FBM; NEMA CE per MIL-I-24768/14 TYPE FBG.

Brand Names

Norplex-Micarta, Garolite

Emco Industrial Plastics doesn't claim to represent all of the manufacturers or trade name products listed. This list is intended as a guide of typical materials available for purchase from Emco Industrial Plastics, Inc. For additional information, contact an Emco Industrial Plastics representative at (800) 292-9906.

Availability

TYPE	SIZE	LENGTH	COLOR
Sheet	0.03" - 10" TH	Up to 48" x 96"; CTS	Natural, Black
Rod	1/16" - 6" DIA	Std. foot lengths; CTS	Natural, Black
Tube	Available		

Give us your cut-to-size dimensions. We will precision-cut these plastics to your exact size. Additional sizes and colors available upon request.

Properties

PHYSICAL PROPERTIES	UNITS	ASTM	RESULTS
Density	lb/in ³	D792	0.05
Water Absorption, 24 hrs	%	D570	2.5
MECHANICAL PROPERTIES	UNITS	ASTM	RESULTS
Tensile Strength - Lengthwise	psi	D638	11000
Tensile Strength - Crosswise	psi	D638	9000
Flexural Strength - Lengthwise	psi	D790	17500
Flexural Strength - Crosswise	psi	D790	15000
Flexural Modulus - Lengthwise	psi	D790	1600000
Flexural Modulus - Crosswise	psi	D790	1500000
Compressive Strength	psi	D695	37000
Hardness, Rockwell R		D785	M100
IZOD Impact Strength Notched - Lengthwise	ft-lb/in	D256	1.7
IZOD Impact Strength Notched - Crosswise	ft-lb/in	D256	1.5
THERMAL PROPERTIES	UNITS	ASTM	RESULTS
Coefficient of Linear Thermal Expansion - Lengthwise	(x 10 ⁻⁵ in./in./°F)	D696	1.1
Coefficient of Linear Thermal Expansion - Crosswise	(x 10 ⁻⁵ in./in./°F)	D696	1.22
Max Operating Temp	°F		257
Thermal Conductivity	BTU-in/ft ² -hr-°F	C177	2.03
Flammability Rating		UL94	H - B
ELECTRICAL PROPERTIES	UNITS	ASTM	RESULTS
Dielectric Strength, 1/8" th.	V/mil	D149	550 (CE)
Dielectric Constant @ 1 MHz		D150	5
Arc Resistance	sec	D493	15

NOTE: The property values presented above are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets. All values at 73°F (23°C) unless otherwise noted.