

## NEMA FR4 - Industrial Laminate

**Composition:**

An electrical/mechanical grade of glass cloth laminate impregnated and cured with epoxy resin.

**Sheet Sizes:**

Sheet sizes of 36"x48", 48"x48", 48"x96" and 48"x108" in thicknesses: .031" to 5". Cut and fabricated to shape.

**Color:**

Natural or Black

**Advantages:**

NEMA FR4 has high flexural, impact and bond strength at room temperatures. It retains good electrical properties under dry and humid conditions. It is used in the electrical industry and anywhere a high strength electrical insulator in humid or dry conditions is needed. NEMA FR4 is UL listed.

**Specifications:**

Density	119 lbs/ft <sup>3</sup> – 0.69 lbs/in <sup>3</sup>
Maximum operating temperature	
electrical	266°F (130°C)
mechanical	284°F (140°C)
Water absorption	0.05%
Hardness (Rockwell M)	109
Compression strength	60,000 psi
Tensile strength	50,000 psi
Flexural strength	65,000 psi
Impact strength – Izod edgewise with grain	12.0 ft-lb/in
Dielectric strength	550 volts/mil
Dielectric constant (@10 <sup>6</sup> cycles per second)	5.0
Volume resistivity	6 x 10 <sup>6</sup> megohm-cm
Arc resistance	100 sec
Surface resistivity	1 x 10 <sup>6</sup> megohms
Parallel dielectric	60kv