

# GLASS EPOXY FR-4

## Flame-Retardant Glass-Reinforced Epoxy Laminate (NEMA FR-4)

Flame-retardant glass-epoxy with the strength to back it up.

Flame-retardant glass-fiber reinforced epoxy laminate built on a woven E-glass cloth and an FR-modified epoxy binder. It delivers the same high mechanical and dielectric strength as standard glass-epoxy laminate while meeting UL 94V-0 flammability requirements, making it the default substrate for safety-critical electrical and electronic hardware.

- NEMA LI 1 – FR-4 / FR-5
- MIL-I-24768/27 (FR-4)
- UL 94V-0
- ROHS / REACH

### APPLICATIONS

- Printed circuit boards
- Insulators
- Jigs and other fixtures
- Medical diagnosis equipment
- Test boards
- Arc shields

### STANDARD COLORS

Natural / Black Opaque

GENERAL	
Specific gravity	<b>1.85</b>
Flammability rating	<b>94V-0</b>
Water absorption 24 hours	<b>0.10</b>

MECHANICAL	
Tensile strength	<b>65,000 psi</b> 445 MPa
Compressive strength	<b>38,000 psi</b> 260 MPa
Flexural strength LW -A 0.125"	<b>60,000 psi</b> 410 MPa
Bond strength	<b>2,300 psi</b> 15 MPa
Shear strength	<b>21,500 psi</b> 145 MPa
Hardness M scale	<b>115</b>
Izod impact strength at 49°C LW	<b>14.00</b>

OPERATING ENVIRONMENT	
Maximum temperature	<b>140 °C</b> 280 °F