



Nema GPO-3 Glass Polyester Laminate

Thermoset Polyester

Description and Overview

GPO-3 is a thermoset composite similar to phenolic grades, but is formed from fiberglass and a polyester resin instead of a phenolic resin. It combines good mechanical strength with track resistance, low conductivity, low smoke generation, and low flame spread, making it a good material for electrical applications as well as transit applications. It is UL94 V-0 fire rated and will self-extinguish.

GPO-3 is easily machined using standard metalworking equipment.

Applications and Uses

GPO-3 is resistant to chemicals as well as impacts and abrasion. Combined with its high arc resistance, heat resistance, track resistance, and low smoke generation, it is the preferred material for switchgear panels and transit applications.

- Power distribution
- Switchgear barriers
- Switchgear mounting panels
- High voltage appliance insulators
- Transit applications



Full sheet: 48" x 96" (0.060" through 1" thick)

Properties and Specifications

Mechanical Properties	Test Method	Units	Guideline Value
Tensile Strength	ASTM D638	Psi	8,000
Tensile Modulus	ASTM D638	Psi X 10 ⁵	1.7
Flexural Strength	ASTM D790	Psi	22,100
Flexural Strength - 130°C	ASTM D790	Psi	13,100
Compressive Strength	ASTM D695	Psi	33,100
Shear Strength	ASTM D732	Psi	11,600

Continued - See Table Below

Properties are typical.
Chem is an abbreviation for chemically affixed with glues, chemicals, or adhesive.
Mech is an abbreviation for mechanically affixed bonding.
Field testing is recommended for any application.





Typical Properties

Property	Test Method	Units	Values
MECHANICAL			
Izod Impact Strength (notched)	ASTM D256	ft. lb./in.	8.9
Water Absorption	ASTM D570	% by wt.	0.4
Specific Gravity	ASTM D792	-	1.81
ELECTRICAL			
Electrical Strength - Perpendicular S/T in air	ASTM D149	Vpm	450
Electrical Strength - Perpendicular S/T in oil	ASTM D149	Vpm	584
Electrical Strength - Parallel S/S in oil	ASTM D149	kV	47
Arc Resistance	ASTM D495	Sec.	180
Inclined Plane Track Resistance-1/4" thick @2.5 kV	ASTM D2303	-	1,000
IEC Track Resistance (CTI) @ 3 mm thickness	UL746A	V.	>600
UL High Voltage Track Rate	UL746A	In./Min	0
Permittivity, 60 Hz	ASTM D150	-	4.1
Dissipation Factor, 60 Hz	ASTM D150	-	0.013
Permittivity, MHz	ASTM D150	-	4.1
Dissipation Factor, MHZ	ASTM D150	-	0.010
Insulation Resistance	ASTM D257	Ohm x 10 ¹²	3.1

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