



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

N180FR

High-Temperature, Transit Grade Glass Laminate

N180FR is a high temperature, low-smoke and toxicity glass mat laminate designed to meet the stringent demands of traction transformer and other transit applications. It meets the HL3 performance requirements for interior (R22) and exterior (R23). N180FR also meets the European standard for fire safety on railway vehicles (EN 45545).

STANDARD: EN 45545

The Gund Company custom fabricates insulation materials to the exact specifications and drawings specified by our customers. We offer our customers the proper product for their specific application. A variety of dimensions and diameter sizes are available. Product colors vary according to material type.

		ASTM / EN			
PROPERTIES		Test Method	Units	R22 / HL3 Requirements	N180FR
PHYSICAL	Oxygen Index	EN45545	%	32% min.	55.30
	Smoke Optimal Density	EN45545	Ds Max dimensionless	150 max.	117.20
	Toxicity	EN45545A	ClTnlp dimensionless	0.75 min.	0.04

NFPA 130, Table 8.4.1 requirement

THERMAL	Surface Flammability: Flaming mode	ASTM E162		Is ≤ 35	10.10
	Surface Flammability: non-Flaming mode	ASTM E662		Ds1.5 < 100	0
	Surface Flammability: non-Flaming mode	ASTM E662		Ds4.0 < 200	0
	Surface Flammability: Flaming mode	ASTM E622		Ds1.5 < 100	0.10
	Surface Flammability: Flaming mode	ASTM E662		Ds4.0 < 200	2.40

ASTM / IEC				
PROPERTIES	Test Method	Units (SI)	Typical Values	
PHYSICAL	Standard Color		Black	
	Density		lbs/in ³ (g/cc)	0.069 (1.91)
	Water Absorption (0.125")	ASTM D570	%	0.25

THERMAL	Thermal Class		Class H / 180°C	

MECHANICAL	Tensile Strength	ASTM D638	PSI (MPa)	16,000 (110)	
	Compressive Strength: Flatwise	ASTM D695	PSI (MPa)	46,000 (317)	
	Flexural Strength: Lengthwise	ASTM D790	PSI (MPa)	29,000 (200)	
	Flexural Strength: Crosswise	ASTM D790	PSI (MPa)	32,000 (221)	
	Shear Strength	ASTM D732	PSI (MPa)	18,000 (124)	
	IZOD Impact Strength: Edgewise	ASTM D256	ft-lbs/in	12	

ELECTRICAL	Arc Resistance	ASTM D495	Seconds	180	
	Dielectric Strength: Perpendicular in Oil (0.0625")	ASTM D149	V/mil (kV/mm)	500 (19.7)	
	Breakdown Voltage: Parallel in Oil	ASTM D149	kV	45	
	Comparative Tracking Index (CTI)	IEC 60112	V	600	

LAMINATE SHEET AVAILABILITY

THICKNESS

- 0.031" - 2.000"
- 0.118" - 1.500"

SHEET SIZE

- 36" x 72"
- 48" x 96"

LAMINATE SHEET AVAILABILITY (SI)

THICKNESS

- 0.78 mm - 50.80 mm
- 3.00 mm - 38.10 mm

SHEET SIZE

- 91.4 cm x 182.8 cm
- 121.9 cm x 243.8 cm

The data supplied are typical values. They are not to be considered specification values. All of the information, suggestions, and recommendations about these properties and uses of the products herein are based on tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the contemplated application, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty - expressed or implied - including, without limitation, warranties of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.



THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

MARKETS



Switchgear



Electronics



Power Generators



Motor Applications



Transformers



Metals Processing



Electric Vehicles



Military/Aerospace



Oil & Gas



Medical



Space

OUR EXPERTISE IS YOUR COMPETITIVE ADVANTAGE

The Gund Company provides a wide range of material solutions from rigid, glass epoxy composites to high-temperature, silicone sponges.

We take a consultative approach to understanding your application by working with your engineers and buyers to find materials that fit the application. By understanding the most important material properties, we often find cost-reduction opportunities. Our Application Engineering Teams have decades of material experience and look forward to working with you on your upcoming project.

Material Families:

- Thermoset Rigid Laminates and Composites
- Flexible Laminates, Papers, Films, and Felts
- Thermoplastic Materials
- Elastomeric Materials

Our Manufacturing Capabilities Include:

- Compression Molding
- Pultrusion
- Filament & Convoluted Wound Tube
- Infusion & B-Stage Composites Lay-up and Molding
- Injection Molding
- Extrusion of Thermoplastics

Our Engineering Capabilities Include:

- Custom Material Development
- Resin Formulation
- Laboratory Testing
- Comparative Materials Evaluation



THE GUND COMPANY GLOBAL FOOTPRINT – LOCAL SERVICE

