THE GUND COMPANY

MANUFACTURERS & FABRICATORS OF ENGINEERED MATERIAL SOLUTIONS

N220

Class R - NEMA Grade GPO-1 Glass Polyester Laminate

N220 is a specialty-grade random glass mat, polyester resin, insulating material for high-temperature NEMA GPO-1 applications. This sheet has a relative temperature index of 220°C (electrical) and 210°C (mechanical). It retains excellent physical and electrical properties at elevated temperatures.

UL File # E323105

STANDARDS: NEMA IM 6000: GPO-1 • IEC 60893: UP GM 201

The Gund Company 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		TYPICAL VALUES
PROPERTIES		**Test Method**	**Units**	**N220**
PHYSICAL	Color			Natural Beige
	Density		lbs/in	0.061
	Density		g/cc	1.70
	Water Absorption (0.125")	ASTM D570	%	0.20
MECHANICAL	Tensile Strength	ASTM D638	PSI	11,000
	Tensile Strength	ASTM D638	MPa	76
	Compressive Strength: Flatwise	ASTM D695	PSI	32,000
	Compressive Strength: Flatwise	ASTM D695	MPa	220
	Flexural Strength: Lengthwise	ASTM D790	PSI	21,000
	Flexural Strength: Lengthwise	ASTM D790	MPa	145
	Bond Strength (0.50")	ASTM D229	lbs	1,080
	Bond Strength (0.50")	ASTM D229	kg	490
	Shear Strength	ASTM D732	PSI	12,000
	Shear Strength	ASTM D732	MPa	83
	IZOD Impact Strength: Edgewise	ASTM D256	ft·lbs/in	11
THERMAL	Relative Temperature Index	UL746B	°C	220
ELECTRICAL	Arc Resistance	ASTM D495	Seconds	180
	Dielectric Strength: Perp. in Oil (0.0625")	ASTM D149	V/mil	550
	Dielectric Strength: Perp. in Oil (0.0625")	ASTM D149	kV/mm	21.70
	Breakdown Voltage: Parallel in Oil	ASTM D149 (Cond. A)	kV	70
	Dissipation Factor: 1 MHz	ASTM D150		0.015
	Permittivity (Dielectric Constant): 1 MHz	ASTM D150		3.37

LAMINATE SHEET AVAILABILITY
(Sheet Size / Thicknesses)

- 36" x 72" / 0.031" - 2.000"
- 48" x 96" / 0.118" - 1.500"

LAMINATE SHEET AVAILABILITY (SI)
(Sheet Size / Thicknesses)

- 914 cm x 1,828 cm / 0.78 mm - 50.80 mm
- 1,219 cm x 2,438 cm / 3.00 mm - 38.10 mm

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.

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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

We manufacture and fabricate a complete line of components for market-specific applications (left column). As TGC better understands these markets – we can expand into other applications for our products.

As an employer, we are one family, acting in accordance with our Core Values: respect, trust, growth, passion, connection, teamwork, integrity, and performance. Collectively, we recognize and serve others so that lives are transformed!

Material Families:

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

Engineering Capabilities:

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

Manufacturing Capabilities:

- Compression Molding
- Autoclave & Light RTM Molding
- Pultrusion / Extrusion of Rods & Shapes
- Filament, Convolute & Wet Winding Tubes
- Additive & Injection Molding
- Infusion & B-Stage Composites Lay-Up
- Hand Lay-Up & Spray-Up Molding

Conversion Capabilities:

- Die, Laser & Knife Cutting
- Waterjet Cutting
- Rotary Die Cutting
- Slitting
- Thermoforming

Fabrication Capabilities:

- 5-Axis Machining
- CNC Milling
- Routing
- Turning & Lathe Cutting
- Punching
- Bending

THE GUND COMPANY GLOBAL FOOTPRINT