MANUFACTURERS OF
ELECTRICAL INSULATION MATERIALS

INSULATING COMPONENTS FOR POWER SYSTEMS EQUIPMENT

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MATERIAL DATA SHEET

Item: NEMA Grade XX Paper Phenolic Laminate

Description: NEMA Grade XX Paper Phenolic Laminate provides good electrical properties such as high dielectric strength and arc resistance. Grade XX laminate and tubing are used in switchgear and transformers as switchboards, panel boards, and insulating washers and bushings.

Standards:

NEMA LI-1	Grade XX
IEC 60893	PF CP 203
MIL-I-24768	/ 11 - PBG

Availability:

		English Units	SI Units
Laminate Sheets:	Thickness:	.008" to 4.0"	0.2 mm to 101.6 mm
	Sheet Sizes:	36" x 48", 39" x 48"	91.4 cm x 122 cm, 99 cm x 122 cm
		36" x 72", 48" x 48"	91.4 cm x 182.2 cm, 122 cm x 122 cm
		48" x 96"	122 cm x 243.8 cm

Convolute Tubing: Available in an infinite number of inner diameter/outer diameter combinations as per customer requirements.

Fabricated Parts: The Gund Company custom fabricates insulation materials to the exact specifications and drawings of our customers

Key Characteristics	Test Method	Units - English (SI)	Typical Values
Standard Color	--	--	Natural/Black
Moisture Absorption (.062")	ASTM D-570	%	2.0
Rockwell Hardness (.062")	--	M Scale	95
Tensile Strength (.125") LW CW	ASTM D-638	psi (MPa)	13,500 (93) 11,500 (79.2)
Compressive Strength, Flatwise (.50")	ASTM D-695	psi (MPa)	25,000 (172.3)
Flexural Strength (.062") LW CW	ASTM D-790	psi (MPa)	22,000 (151.6) 17,000 (117.13)
Shear Strength, Perpendicular (.062")	ASTM D-732	psi (MPa)	11,500 (79.23)
IZOD Impact Strength LW CW	ASTM D-256	ft.-lbs./in. Notched	0.50 0.40
Dielectric Strength	ASTM D-149	V/mil (kV/mm)	500 (20.0)
Breakdown Voltage (.062") Condition A D-48/50	ASTM D-149	kV	40.0 5.0
Permittivity (.062") Condition D-24/23	--	--	6.2
Bond Strength (.50")	ASTM D-229	lb. (kg)	900 (409)
Maximum Operating Temperature	Multiple ASTM	°C	130
Flammability Rating	UL 94	--	HB
Dissipation Factor (.062")	--	--	0.052

All of the information, suggestions, and recommendations pertaining to the properties and uses of the products herein are based upon tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the use contemplated, 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 warranty of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.