MANUFACTURERS OF
ELECTRICAL INSULATION MATERIALS

INSULATING COMPONENTS FOR POWER SYSTEMS EQUIPMENT

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MATERIAL DATA SHEET

Item: NEMA Grade CE, Canvas Based Phenolic Laminate

Description: NEMA Grade CE is a canvas based phenolic laminate, available in sheet and tube form. Canvas with phenolic grades provide more mechanical strength than paper grades and have a finer surface with better machinability. Used for gears, pinions, bearings, and many structural insulating applications.

Standards:

NEMA LI-1	Grade CE
IEC 60893	PFCC 203
MIL-I-24768	14 - FBG

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”, 48” x 108”	122 cm x 243.8 cm, 122 cm x 274.3 cm
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
Specific Gravity	--	--	1.37
Moisture Absorption (.062”)	ASTM D-570	%	2.0
Tensile Strength (.125”) LW CW	ASTM D-638	psi (MPa)	11,000 (75) 9,000 (62)
Compressive Strength, Flatwise (.50”)	ASTM D-695	psi (MPa)	34,000 (234)
Flexural Strength LW CW	ASTM D-790	psi (MPa)	17,500 (121) 15,000 (103)
Shear Strength	ASTM D-732	psi (MPa)	14,000 (96)
Bond Strength (.50”) LW	ASTM D-229	lb. (kg)	1,700 (634)
IZOD Impact Strength (.50”) LW CW	ASTM E-48/50	ft.-lb./in.	1.95 1.75
Arc Resistance	ASTM D-495	Seconds	15
Maximum Operating Temperature	--	°C	125
Breakdown Voltage (.125”)	Condition A Condition D-48/50	kV	40 3
Rockwell Hardness (.062”)	--	M Scale	100
Coefficient of Thermal Expansion, X-axis Y-axis	--	“/”/°C x 10^6	20.0 22.0
Flammability Rating	UL 94	Class	HB
Dielectric Strength (.062”)	Condition A Condition D-48/50	V/mil	550 300

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