



MANUFACTURERS OF  
**ELECTRICAL INSULATION MATERIALS**  
 INSULATING COMPONENTS FOR  
 POWER SYSTEMS EQUIPMENT

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## MATERIAL DATA SHEET

**Item:** Low Power Factor Paper Phenolic Laminate, Grade NP613

**Description:** Low Power Factor Paper Phenolic Laminate Grade NP613 is constructed from electrical grade kraft paper and a specially modified epoxy resin system. It is designed to be used in oil filled transformer tap changers, coil support plates, and terminal panels.

**Standards:** NEMA LI-1 NA  
 IEC 60893 NA  
 MIL-I-24768 NA

<b>Availability:</b>	Laminate Sheets:	Thickness:	English Units	SI Units
			.062" to 2.0"	1.5 mm – 50 mm
		Sheet Sizes:	36" x 48", 39" x 48" 36" x 72", 48" x 48" 48" x 96"	91.4cm x 122cm, 99cm x 122cm 91.4cm x 182.8, 122cm x 122cm 122cm x 243.8cm

**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			Brown
Rockwell Hardness (.062")		M Scale	90
Moisture Absorption (.500")	ASTM D570	%	.59
Compressive Strength, Flatwise (.500")	ASTM D695	psi (MPa)	40,000 (275)
Flexural Strength (.250") - Lengthwise - Crosswise	ASTM D790	psi (MPa)	27,000 (185) 22,000 (151)
Impact Strength IZOD LW CW	ASTM D256	ft-lbs/in notched	1.25 1.00
Permittivity (.062") Condition – D- 24/23			6.2
Bond Strength (.500")	ASTM D229	Lb (kg)	1,000 (453)
Maximum Operating Temperature	Multiple ASTM	°C	140
Flammability Rating –U.L.94		Class	HB
Breakdown Voltage Condition A (.062") D-48/50	ASTM D149	kV	40.0 6.0
Dissipation Factor / Power Factor (.062")	@ 1MHz		.040

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.