NORPLEX MICARTA
Global Thermoset Composite Solutions

NP660

TECHNICAL DATA BULLETIN

GRADE: NP660 **U.L. LISTED: N**

DESCRIPTION: Lower cost paper phenolic NEMA Grade XP. NP660 uses natural kraft paper without pigmented cover sheet. It is a warm to hot punching material. It is available in natural and black only, without a pigmented cover, only.

TYPICAL PROPERTIES

		UNITS	VALUE		
			Thickness Tested		
			0.0625″	0.125″	0.500″
PHYSICAL PROPERTIES					
Specific Gravity *(ASTM D792)*		-			1.35
Rockwell Hardness *(ASTM D785)*	0.250″ Build-up	M Scale	100		
Moisture Absorption *(ASTM D570)*	Condition A	%			
	Condition D_1-24/23	%	3.50		
Flexural Strength *(ASTM D790)*	Condition A LW / CW	psi (Mpa)	33,000 / 30,000 (227.5) / (206.8)		
Flexural Modulus *(ASTM D790)*	Condition A LW / CW	kpsi (Gpa)	1,900 / 1,400 (13.1) / (9.7)		
Tensile Strength *(ASTM D638)*	Condition A LW / CW	psi (Mpa)		20,000 / 16,000 (137.9) / (110.3)	
Izod Impact Strength *(ASTM D256)*	Condition A LW / CW	ft-lb/in (J/cm)			0.75 / 0.70 (0.40) / (0.37)
Compressive Strength *(ASTM D695)*	Condition A Flatwise	psi (Mpa)			49,000 (337.8)
Bonding Strength *(ASTM D229)*	Condition A	lb (kg)			1,100 (499.0)
Shear Strength *(ASTM D732)*	Condition A Perpendicular	psi (Mpa)	14,000 (96.5)		

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TYPICAL PROPERTIES (continued)

		UNITS	VALUE		
			Thickness Tested		
			0.0625″	0.125″	0.500″
THERMAL PROPERTIES					
Maximum Operating Temperature [1]		°C			130
Coefficient of Thermal Expansion *(IPC-TM 650-2.4.24)*	X-axis / Y-axis	"/"/°C x10^{-6}		13.0 / 17.0	
Flammability Rating *(UL Bulletin 94)*	Condition A	Class	HB		
ELECTRICAL PROPERTIES					
Dissipation Factor @ 1 MHz *(ASTM D150)*	Condition A	-			
	Condition D-24/23	-	0.045		
Relative Permittivity @ 1 MHz *(ASTM D150)*	Condition A	-			
	Condition D-24/23	-	5.45		
Breakdown Voltage *(ASTM D149)*	Condition A	kVolts	47		
Electric Strength *(ASTM D149)*	Condition A	Volts/mil (kV/cm)	500 (196.9)		
	Condition D-48/50	Volts/mil (kV/cm)	300 (118.1)		
Arc Resistance *(ASTM D495)*	Condition A	sec		60	
Comparative Tracking Index *(ASTM D3638)*		Volts		150	

[1] This temperature is a recommendation only, and based upon experience in various applications. The maximum operating temperature is dependent upon the application and should be investigated prior to use.

This data, while believed to be accurate and based on reliable analytical methods, is for informational purposes only. The terms and conditions of the agreement under which it is sold will govern any sales of this product. Data supplied above are "typical values"; not to be considered "specification values".

It is the responsibility of the users of this information to make sure that they have the latest version of this TDB, and are urged to check with Customer Service or, preferably our web site, www.norplex-micarta.com, to determine if the information is the most current available.

Specification writers: Contact Norplex-Micarta for specification values before submission.