

# Specification

NEMA: G-11

U.L. LISTED: Y <sup>2</sup>

DESCRIPTION: G-11 consists of a woven glass fabric combined with high temperature epoxy resin system. It has excellent mechanical strength and electrical properties from cryogenic to elevated temperatures. Continuous operating temperature is 175°C. This material meets NEMA G-11 and MIL-I-24768/3, Type GEB.

## TYPICAL PROPERTIES

		UNITS	VALUE		
			Thickness Tested		
			0.0625"	0.125"	0.500"
<b>PHYSICAL PROPERTIES</b>					
<b>Specific Gravity</b> <i>(ASTM D792)</i>		-			1.80
<b>Rockwell Hardness</b> <i>(ASTM D785)</i>	0.250" Build-up	M Scale	112		
<b>Moisture Absorption</b> <i>(ASTM D570)</i>	Condition A	%	0.20		
<b>Flexural Strength</b> <i>(ASTM D790)</i>	Condition A	psi	68,100 / 61,300		
	LW / CW	(Mpa)	(469.5) / (422.6)		
	Condition E-1/150: T-150	psi	40,000 /		
	LW / CW	(Mpa)	(275.8) /		
<b>Flexural Modulus</b> <i>(ASTM D790)</i>	Condition A	kpsi	3,000 / 2,700		
	LW / CW	(Gpa)	(20.7) / (18.6)		
<b>Tensile Strength</b> <i>(ASTM D638)</i>	Condition A	psi		43,000 / 37,000	
	LW / CW	(Mpa)		(296.5) / (255.1)	
<b>Izod Impact Strength</b> <i>(ASTM D256)</i>	Condition A	ft-lb/in			
	LW / CW	(J/cm)			
	Condition E-48/50	ft-lb/in			12.00 / 9.00
	LW / CW	(J/cm)			(6.41) / (4.80)
	<b>Compressive Strength</b> <i>(ASTM D695)</i>	Condition A	psi		72,500
	Flatwise	(Mpa)		(499.9)	
<b>Bonding Strength</b> <i>(ASTM D229)</i>	Condition A	lb			1,900
		(kg)		(861.8)	
<b>Shear Strength</b> <i>(ASTM D732)</i>	Condition A	psi	22,000		
	Perpendicular	(Mpa)	(151.7)		

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## TYPICAL PROPERTIES (continued)

	UNITS	VALUE		
		Thickness Tested		
		0.0625"	0.125"	0.500"
<b>THERMAL PROPERTIES</b>				
<b>Temperature Index</b> <sup>1</sup> <i>(UL Bulletin 746b)</i>	Electrical / Mechanical	°C	170 / 180	
<b>Coefficient of Thermal Expansion</b> <i>(IPC-TM 650-2.4.24)</i>	X-axis / Y-axis	" / °C x10 <sup>-6</sup>	13.0 / 15.0	
<b>Tg by DMA</b>		°C	180	
<b>Flammability Rating</b> <i>(UL Bulletin 94)</i>	Condition A	Class	HB	
<b>ELECTRICAL PROPERTIES</b>				
<b>Dissipation Factor</b> <b>@ 1 MHz</b> <i>(ASTM D150)</i>	Condition A	-		
	Condition D-24/23	-	0.020	
<b>Relative Permittivity</b> <b>@ 1 MHz</b> <i>(ASTM D150)</i>	Condition A	-		
	Condition D-24/23	-	4.80	
<b>Breakdown Voltage</b> <i>(ASTM D149)</i>	Condition A	kVolts	60	
	Condition D-48/50	kVolts	55	
<b>Electric Strength</b> <i>(ASTM D149)</i>	Condition A	Volts/mil (kV/cm)	700 (275.6)	
	Condition D-48/50	Volts/mil (kV/cm)	720 (283.5)	
<b>Arc Resistance</b> <i>(ASTM D495)</i>	Condition A	sec	120	
<b>Comparative Tracking Index</b> <i>(ASTM D3638)</i>		Volts	150	

<sup>1</sup> 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.

<sup>2</sup> Only applies to thicknesses greater than 0.024".

The data within this document is for reference only. Values above are typical for this grade of material.

It is the responsibility of the end user of this information to validate the data in this document. K&E Plastics, Inc. assumes no liability for the use of this data.

Users are urged to contact K&E Plastics, Inc. to determine if the Specification has been revised.