

G-11 Glass/Epoxy Phenolic

G-11 is a woven glass fabric with high temperature epoxy resin. It has excellent mechanical strength and electrical properties at elevated temperatures. It has a continuous operating temperature of 329°F. G-11 material meets or exceeds NEMA G-11 standard and has been produced using the same materials as listed in the NIST G11CR specification for materials used in cryogenic applications, but not to the exact same quantities of ingredients as specified in the process specification. It is designated by MIL-I-24768/3 Type GEB and the NEMA grade is G-11.

Property	Units	G-11 Glass/Epoxy Phenolic
Physical		
Specific Gravity	-	1.80
Moisture Absorption (.062")	%	.20
Mechanical		
Rockwell Hardness (.062")	M Scale	112
Flexural Strength (.062") LW	psi	80,000
CW	psi	70,000
Flexural Modulus (.062") LW	psi	3,000,000
CW	psi	2,700,000
Tensile Strength (.125") LW	psi	43,000
CW	psi	37,000
Izod Impact Strength E-48/50 (.500") LW	ft-lb/in	12.0
CW	ft-lb/in	9.0
Compressive Strength flatwise (.500")	psi	63,000
Bond Strength (.500")	lbs	2,200
Shear Strength (perpendicular) (.062")	psi	22,000
Thermal		
Maximum Operating Temperature	°F	374
Coefficient of Thermal Expansion (.062") X-axis	in/in/°F	7.2×10^{-6}
Y-axis	in/in/°F	8.3×10^{-6}
Flammability Rating - U. L. 94		HB
Electrical		
Permittivity (.062") Condition D-24/23	-	4.8
Dissipation Factor (.062") Condition D-24/23	-	.020
Breakdown Voltage Condition - A (.062") D-48/50	V	60,000 55,000
Electric Strength Condition - A (.062") D-48/50	V/mil	900 800
Arc Resistance (.125") D-495	sec	120
Comparative Tracking Index (.125") D3638	-	150
Tg	°F	365

LW – Length Wise of the sheet, direction of manufacturing
 CW – Cross Wise, perpendicular to Length Wise

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets. All values at 73°F (23°C) unless otherwise noted.