

# TECHNICAL DATA SHEET

## G-7 (Glass Cloth / Silicone Resin)

This glass-silicone laminate has good electrical properties under humid conditions, excellent heat and arc resistance, and is self-extinguishing. G-7 is used for electrical grade insulation, and for heating & appliance insulation. The mechanical properties are slightly lower than the G10 and G11 grades

### GENERAL DESCRIPTION

Phenolic Laminates are produced by applying heat and pressure to layers of paper, canvas, linen or glass cloth impregnated with synthetic thermosetting resins. When heat and pressure are applied to the layers, a chemical reaction (polymerization) transforms the separate layers into a single laminated material with a "set" shape that cannot be softened again -- therefore, these materials are called "Thermosets". A variety of resin types and cloth materials can be used to manufacture thermoset laminates with a range of mechanical, thermal, and electrical properties.

ASTM or UL test	Property	G-3	G-5/G-9	G-7	G-10	G-11
<b>PHYSICAL</b>						
D792	Density (lb/in <sup>3</sup> ) (g/cm <sup>3</sup> )	0.065 1.80	0.067 1.85	0.065 1.80	0.065 1.80	0.065 1.80
D570	Water Absorption, 24 hrs (%)	2.65	0.60	0.10	0.10	0.20
<b>MECHANICAL</b>						
D638	Tensile Strength (psi) -lengthwise -crosswise	42,000 34,000	61,600 51,100	20,000 -	45,000 38,000	43,000 37,000
D790	Flexural Strength (psi) -lengthwise -crosswise	40,500 34,000	61,600 51,100	30,000 -	75,000 65,000	80,000 70,000
D790	Flexural Modulus (Kpsi) -lengthwise -crosswise	1,800 1,400	2,000 1,700	1,600 -	2,700 2,400	3,000 2,700
D256	IZOD Notched Impact (ft-lb/in) -lengthwise -crosswise	12.0 11.0	12.5 8.5	13.0 -	14.0 12.0	12.0 9.0
D695	Compressive Strength (psi)	55,000	65,000	50,000	65,000	63,000
D785	Hardness, Rockwell M	M110	M115	M105	M110	M112
<b>THERMAL</b>						
D696	Coefficient of Linear Thermal Expansion (x 10 <sup>-5</sup> in./in./°F) -lengthwise -crosswise	0.83 1.00	0.83 1.00	0.72 0.90	0.55 0.66	0.72 0.83
-	Max Operating Temp (°F / °C)	340 / 170	285 / 140	430 / 220	284 / 140	329 / 165
C177	Thermal Conductivity (BTU-in/ft <sup>2</sup> -hr-°F) (x 10 <sup>-4</sup> cal/cm-sec-°C)	2.0 7.0	2.0 7.0	2.0 7.0	2.0 7.0	2.0 7.0
UL94	Flammability Rating	H-B	V-0	H-B	H-B	H-B
<b>ELECTRICAL</b>						
D149	Dielectric Strength (V/mil) short time, 1/8" thick	460	300	350	800	900
D150	Dielectric Constant at 1 MHz	7.3	6.3	4.5	5.0	4.5
D150	Dissipation Factor at 1 MHz	0.023	0.019	0.018	0.019	0.020
D495	Arc Resistance (sec)	180	180	240	100	120

### Benefits

Good electrical properties under humid conditions  
Excellent heat and arc resistance  
Self-extinguishing

### Applications

Arc barrier  
Insulator  
Heating  
Appliance

### SHAPES AVAILABLE



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.