



**Steinwall Inc.**

Re-Defining the Supply Chain®  
Working in Harmony with Our Customers

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INJECTION MOLDING    ENGINEERING    MOLD MAKING    ASSEMBLY    DECORATING    DISTRIBUTION

## LIQUID CRYSTAL POLYMER (LCP)

1. Common trade names: Vectra, Zenite

	UNITS			
2. Density	g/cm <sup>3</sup>	1.57	Mass per unit volume	
3. Mold Shrinkage	in./in.	0.001	Size of part versus mold cavity	
4. Continuous Service Temp	°F	365-480	Highest temp material can perform reliably for the long term	
5. Melting Point	°F	540	Temperature material begins to melt	
6. Processing Temp	°F	600	Recommended temperature for molding	
7. Tensile Strength	$\frac{lb}{in.^2}$	24000	Maximum stress without yielding to a stretching mold	
8. Izod Impact Strength	$\frac{ft-lb}{in.}$	2.2	Energy required to break at a v-notch	
9. Compressive Strength	$\frac{10^3 lb.}{in.^2}$	18	Resist a crushing force	
10. Flexural Strength, yeild	$\frac{10^3 lb.}{in.^2}$	22	Resistance to fracture during bending	
11. Elongation, tensile break	%	2.8	Stretching ability before breaking	
12. Dielectric Strength	$\frac{V}{10^{-3} in.}$	490-1100	Voltage material can withstand before dielectric breakdown * = aluminum oxide	
13. Water Absorption, 24 hours	%	0.01	% Water absorbed when immersed in water for 24 hours	
14. Coefficient of Lin. Thermal Expansion	$10^{-5} \frac{in.}{in. \text{ } ^\circ F}$	5.5	Change in length per change in temperature	
15. Crystalline or Amorphous	C = Crystalline A = Amorphous	C	Crystalline: arranged polymer, sharp melting point Amorphous: random polymer, broad melt )	
16. Clarity	O = Opaque TP = Transparent TL = Translucent	O	Opaque = no light passes through it Transparent = some light passes through it Translucent = light passes directly through it	
17. Flammability	Flame Resistance High ← Low 5VA 5VB V-0 V-1 V-2 HB	V-0	Reference standard UL 94	
18. Process: Drying Required		Yes	Is it recommended to dry the material prior to molding?	
19. Hot Stamp		No	Does the material hot stamp?	
20. Machining Qualities	<b>Qualitative Scale: Excellent, Good, Fair, Poor</b>	Good	How does the material machine?	
21. Creep Resistance		Excellent	Can this material keep it's shape under load? * = with additive or co-polymer	
22. Ultrasonic Welding		Good	Does the material weld via ultrasonics?	
23. Low Friction		Excellent	Surface lubricity	
24. Abrasion Resistance		Good	How well does the material withstand wear? * = with additive or co-polymer	
25. Solvent Resistance		Excellent	How well does the material withstand chemicals?	
26. UV Resistance		Excellent	How well does the material withstand UV rays? * = with UV additive	
27. Environmental Stress Crack Resistance		Poor	Can this material resist environmental stress cracking? * = with additive or co-polymer	
28. FDA				Are there FDA grades available?
29. Living Hinge			No	Can this material be used in a living hinge application?
30. Year Developed		Mid 1980's		
31. Cost: year 2006	\$/lb. @ 5,000 lbs.	\$6.92	Natural/Black Year 2006	

32. Applications:

Electronic Connectors, Bobbins, Thin Walls, Chip Carriers,  
Automotive (under the hood), Chemical, Processing, Lamp Sockets