



## POLYARYLATE (PAR)

1. Common trade names: RTP			
	<b>UNITS</b>		
2. Density	g/cm <sup>3</sup>	1.21	Mass per unit volume
3. Mold Shrinkage	in./in.	0.006	Size of part versus mold cavity
4. Continuous Service Temp	°F	300	Highest temp material can perform reliably for the long term
5. Melting Point	°F	590	Temperature material begins to melt
6. Processing Temp	°F	620	Recommended temperature for molding
7. Tensile Strength	$\frac{lb}{in.^2}$	10000	Maximum stress without yielding to a stretching mold
8. Izod Impact Strength	$\frac{ft-lb}{in.}$	5.5	Energy required to break at a v-notch
9. Compressive Strength	$\frac{10^3 lb.}{in.^2}$	12	Resist a crushing force
10. Flexural Strength, yeild	$\frac{10^3 lb.}{in.^2}$	14	Resistance to fracture during bending
11. Elongation, tensile break	%	50	Stretching ability before breaking
12. Dielectric Strength	$\frac{V}{10^{-3} in.}$	650	Voltage material can withstand before dielectric breakdown * = aluminum oxide
13. Water Absorption, 24 hours	%	0.26	% Water absorbed when immersed in water for 24 hours
14. Coefficient of Lin. Thermal Expansion	$10^{-5} \frac{in.}{in. \text{ } ^\circ F}$	3.5	Change in length per change in temperature
15. Crystalline or Amorphous	C = Crystalline A = Amorphous	A	Crystalline: arranged polymer, sharp melting point Amorphous: random polymer, broad melt )
16. Clarity	O = Opaque TP = Transparent TL = Translucent	TP	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		Yes	Does the material hot stamp?
20. Machining Qualities	<b>Qualitative Scale: Excellent, Good, Fair, Poor</b>	Excellent	How does the material machine?
21. Creep Resistance		Good	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		Poor	How well does the material withstand wear? * = with additive or co-polymer
25. Solvent Resistance		Fair	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		Yes	Are there FDA grades available?
29. Living Hinge		No	Can this material be used in a living hinge application?
30. Year Developed		1985	
31. Cost: year 2006	$\frac{\$}{lb.}$ @ 5,000 lbs.	\$2.86	Natural/Black Year 2006

32. Applications:

Light applications, Headlamps, Electrical connectors, Lenses, cookware, UV Applications