



ACRYLONITRILE BUTADIENE STYRENE (ABS)

1. Common trade names: Cyclocac, Lustran, Magnum, Polyloc			
	UNITS		
2. Density	g/cm ³	1.04	Mass per unit volume
3. Mold Shrinkage	in./in.	0.005	Size of part versus mold cavity
4. Continuous Service Temp	°F	160	Highest temp material can perform reliably for the long term
5. Melting Point	°F	221-475	Temperature material begins to melt
6. Processing Temp	°F	400-525	Recommended temperature for molding
7. Tensile Strength	$\frac{lb}{in.^2}$	6000	Maximum stress without yielding to a stretching mold
8. Izod Impact Strength	$\frac{ft-lb}{in.}$	6.5	Energy required to break at a v-notch
9. Compressive Strength	$\frac{10^3 lb.}{in.^2}$	8-12	Resist a crushing force
10. Flexural Strength, yeild	$\frac{10^3 lb.}{in.^2}$	10-12	Resistance to fracture during bending
11. Elongation, tensile break	%	5	Stretching ability before breaking
12. Dielectric Strength	$\frac{V}{10^{-3} in.}$	635	Voltage material can withstand before dielectric breakdown * = aluminum oxide
13. Water Absorption, 24 hours	%	0.3	% Water absorbed when immersed in water for 24 hours
14. Coefficient of Lin. Thermal Expansion	$10^{-5} \frac{in.}{in. \text{ } ^\circ F}$	5.3	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	TL	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	HB / 5V	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		Fair	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	Qualitative Scale: Excellent, Good, Fair, Poor	Excellent	Does the material weld via ultrasonics?
23. Low Friction		Fair	Surface lubricity
24. Abrasion Resistance		Good*	How well does the material withstand wear? * = with additive or co-polymer
25. Solvent Resistance		Good	How well does the material withstand chemicals?
26. UV Resistance		Poor	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		1948	
31. Cost: year 2006	$\frac{\$}{lb.}$ @ 5,000 lbs.	\$1.46	Natural/Black Year 2006

32. Applications: Automotive, Hardware, Appliances, Office Equipment, Refrigerator Doors, Consoles, Wheel Covers