Physical Properties

(1) Only for short time exposure(a few hours) in applications where no or only a very low load is applied to the material.

(2) Temperature resistance over a period of 5,000/20,000 hours. After these periods of time, there is a decrease in tensile strength of about 50% as compared with the original value. The temperature values given here are thus based on the thermal-oxidative degradation which takes place and causes a reduction in properties.

Note, however, that, as for all thermoplastics, the maximun allowable service temperature depends in many cases essentially on the duration and the magnitude of the mechanical stresses to which the material is subjected.

(3) Impact strength decreasing with decreasing temperature, the minimum allowable service temperature is practically mainly determined by the extent to which the material is subjected to impact. The values given here are based on unfavourable impact conditions and may consequently not be considered as being the absolute practical limits.

(4) These estimated ratings, derived from raw material supplier data, are not intended to reflect hazards presented by the materials under actual fire conditions. There are no UL-yellow cards available for these stock shapes.

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of product properties. However, they are not guaranteed and they should not be used to establish material specification limits nor used alone as the basis of design.

PSR Plastics
Components to Industry

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			Cast Nylon					POM-C	PET	PE	PC	
PROPERTIES	**Method ASTM**	**Unit**	**Blue**	**NAT/BLK**	**Moly**	**OIL**	**WAX**	**NAT/BLK**			**NAT/BLK**	**GF20**
Color	-	-	blue	ivory/black	gray-black	yellow	gray	white/black	white	white/black	clear translucent/black	black
Density	D792	lbs/in^3	0.042	0.042	0.042	0.040	0.040	0.051	0.051	0.034	0.043	0.043
Water absorption												
after 24/96h immersion in water of 73°F	D570	mg	49/93	44/83	52/98	-/-	-/-	20/37	-/-	-/-	-/-	-/-
	D570	%	0.72/1.37	0.65/1.22	0.76/1.43	0.5/-	0.5/-	0.24/0.45	-/-	0.01/-	0.15/-	0.16/-
at saturation in air of 73°F, 50%RH	D570	%	2.3	2.2	2.4	-	-	0.20	-	-	-	-
at saturation in water of 73°F	D570	%	6.6	6.5	6.7	6.3	6.3	0.85	-	0.01	-	0.29
Thermal Properties												
Melting Temperature	D2133	°F	430	430	430	430	430	330	490	-	-	-
Thermal conductivity at 73°F	C177	Btu·in/ft^2·h·°F	2.0	2.0	2.1	-	-	2.1	-	-	1.4	8.1
Coefficient of linear thermal expansion												
average value btw 73~140°F	D696	n/in/°F	44•10^{-6}	44•10^{-6}	44•10^{-6}	-	-	61•10^{-6}	-	-	-	-
average value btw 73~212°F	D696	n/in/°F	50•10^{-6}	50•10^{-6}	50•10^{-6}	50•10^{-6}	50•10^{-6}	69•10^{-6}	33•10^{-6}	-	31•10^{-6}	15•10^{-6}
Temperature of deflection under load												
method A : 264psi	D648	°F	355	355	355	240	240	220	155	120	275	295
Max. allowable service temp. in air :												
for short periods(1)	-	°F	340	340	340	-	-	285	320	-	-	-
continously : 5,000/20,000h(2)	-	°F	220/195	220/195	220/195	-/-	-/-	240/210	-/-	-/-	-/-	-/-
Min. service temperature(3)	-	°F	-20	-30	-30	-	-	-50	-	-	-	-
Flammability(4)												
UL94 (0.12/0.24in thickness)	-	-	HB/HB	HB/HB	HB/HB	HB/HB	HB/HB	HB/HB	HB/HB	HB/HB	V2/V2	V-0/V-0
Mechanical Properties at 73°F												
Tension test												
tensile stress	D638	psi	11,750	12,300	11,300	9,850	9,550	9,450	11,600	3,350	10,450	16,000
tensile strain at break	D638	%	25	25	25	14	19	30	20	>600	20/5	5
tensile modulus of elasticity	D638	psi	464,000	508,000	479,000	435,000	435,000	450,000	464,000	145,000	-	-
Compression test												
compressive stress at 10% nominal strain	D695	psi	15,000	15,000	14,000	13,500	14,000	15,000	-	3,500	-	-
Izod impact strength-Notched	D256	ft-lbs/in	0.6	0.6	0.6	0.7	0.7	0.7	-	no break	1.7	2.0
Rockwell hardness	D785	-	R118	R118	R118	R110	R110	R115	R120	R60	R120	R121
Electrical Properties at 73°F												
Electric strength	D149	V/mil	635	635	610	-	-	510	-	-	-	490
Volume resistivity	D257	Ω·cm	>10^{14}	>10^{14}	>10^{14}	>10^{14}	>10^{14}	>10^{14}	-	>10^{14}	>10^{16}	>10^{17}
Surface resistivity	D257	Ω·cm	>10^{13}	>10^{13}	>10^{13}	>10^{13}	>10^{13}	>10^{13}	-	>10^{13}	>10^{15}	-