Visions In Plastics

Domes and Mirrors

TABLE 1: Typical Physical Properties of TUFFAK A Polycarbonate Sheet[1]

Property	ASTM method	Units	All grades
Specific Gravity	D-792	-	1.2
Optical			
Refractive Index	D-542	-	1.586
Light Transmittance	D-1003	%	85-91
Haze	D-1003	%	0.5-2.0
Mechanical			
Tensile Strength	D-638	-	-
Ultimate	D-638	psi	9,500
Yield	D-638	psi	8,400
Elongation	D-638	%	100
Tensile Modulus	D-638	psi	340,000
Flexural Strength	D-790	psi	13,500
Flexural Modulus	D-790	psi	340,000
Compressive Strength (0.05"/minute)	D-695	psi	12,500
Impact Strength			
Izod (1/8", notched)	D-256	ft-lbs/ inch of notch	16
Charpy Impact	D-256	ft-lbs/1/2" x 1" section	NB
Rockwell Hardness	D-785	-	R118 M70-78
Shear Strength	D-732	psi	5,800
Thermal			
Heat Deflection Temperature			
Under Load, 264 psi	D-648	°F	275
66 psi	D-648	°F	285
Coefficient of Thermal Expansion	D-696	in/in/°F	3.8×10^{-5}
Coefficient of Thermal Conductivity	C-177	BTU/hr/sq ft/ °F/in	1.35
Specific Heat		BTU/lb/°F	0.30
Water Absorption (24 hrs at 73°F)*	D-570	%	0.15
Equilibrium at 73°F (Long term)			0.35
Equilibrium at 212°F (Long term)			0.58
Electrical			
Dielectric Constant	D-149	volts/mil	380 @ 25°C
Test at .125" thick			450 @ 100°C
Dielectric Constant	D-150		
60 Hz			2.9
1,000,000 Hz			2.9
Volume Resistivity at 23°C	D-257	ohm/cm	10^{16}
Miscellaneous			
Flammability	D-635	cm/min	Average Time of Burning: 32 sec Average Extent of Burning: 0.7"
Flammability Classification @ 0.054" minimum[2]	UL94		94 HB[3]

*Test performed on .125"-thick specimens; all other test specimens were .250" thick.

NOTE: NB = No break.

(1) Values reported are averages and should not be used for specification purposes.
(2) TUFFAK S qualifies @ 0.058" minimum.
(3) For grades XL and CM-2, see applicable bulletins for their classification.